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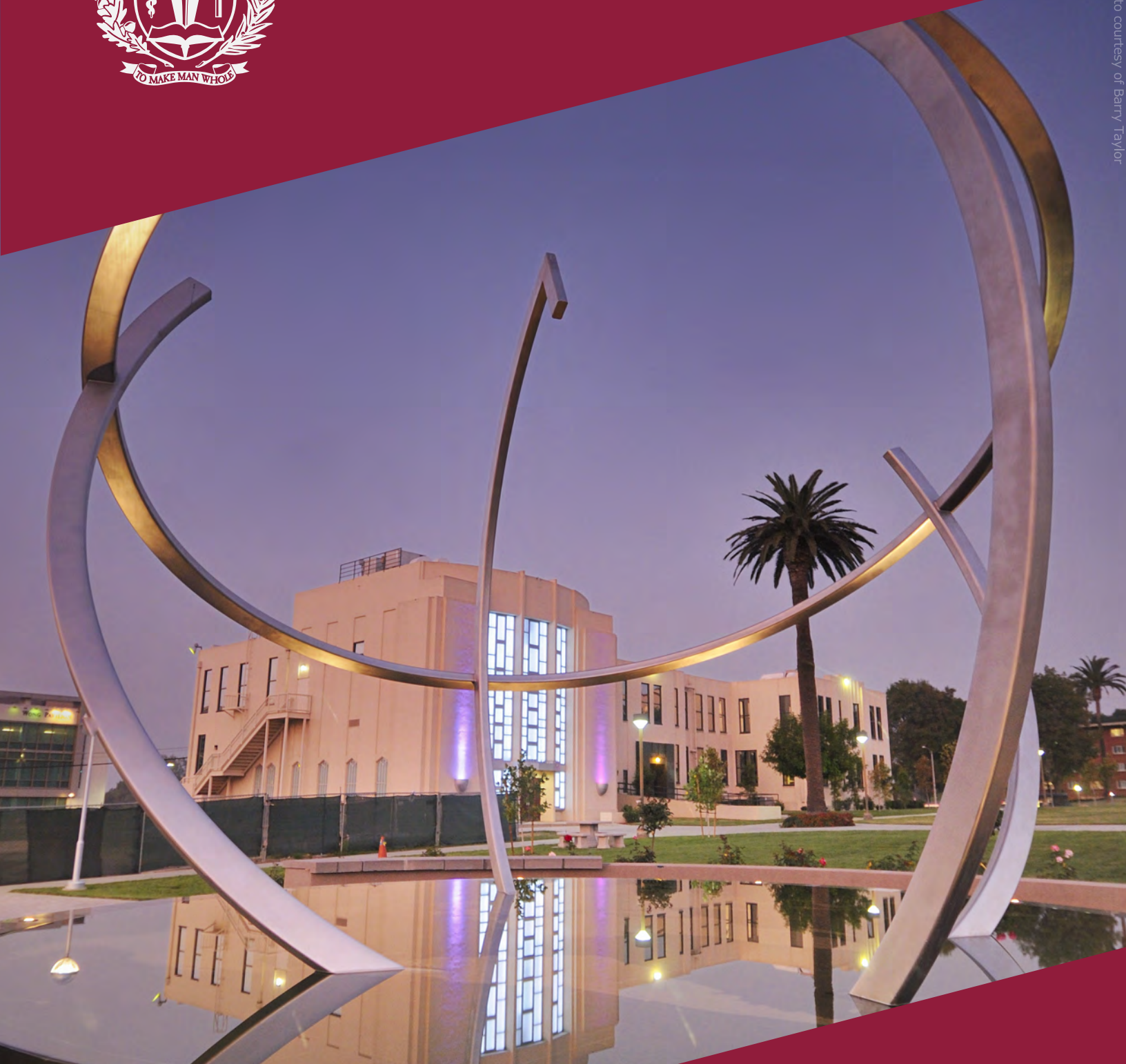
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LOMA LINDA UNIVERSITY

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Catalog

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Loma Linda University  
Loma Linda, California  
1947  
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Loma Linda, California  
1947

# LOMA LINDA UNIVERSITY

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## Catalog of Loma Linda University

2016-2017

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This Catalog contains the operating policy statements for Loma Linda University's educational programs. Any deviation from these policies must be approved by University administration.

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# INTRODUCTION

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Loma Linda University (LLU) (<http://www.llu.edu>) is a Seventh-day Adventist educational health sciences institution located in Southern California. With more than 4,500 students, its eight schools comprise the University organization. More than 105 academic degree programs are offered by the Schools of Allied Health Professions (<http://www.llu.edu/allied-health>), Behavioral Health, (<http://www.llu.edu/behavioral-health>) Dentistry (<http://www.llu.edu/dentistry>), Medicine (<http://www.llu.edu/medicine>), Nursing (<http://www.llu.edu/nursing>), Pharmacy (<http://www.llu.edu/pharmacy>), Public Health (<http://www.llu.edu/public-health>), and Religion (<http://www.llu.edu/religion>) . Curricula offered range from certificates of completion and Associate in Science degrees to Doctor of Philosophy and professional doctoral degrees. Students from more than 80 countries around the world and virtually every state in the nation are represented in Loma Linda University's student body. The University also offers distance education. For a list of programs, see [www.llu.edu/central/academics/distance.page](http://www.llu.edu/central/academics/distance.page).

## President's Welcome



interchanges across campus, I invite you to join me in getting to know Him better. Place your future in His hands. Have confidence in His leading. Seek out opportunities to fellowship and grow in His love.

Thank you for joining our campus family. I hope it will become as special to you as it has for so many of our 45,000 alumni.

Cordially yours,

Richard H. Hart, M.D., Dr.P.H.  
President  
Loma Linda University

It is a privilege to welcome you to Loma Linda University. This is a very unique place—one that balances on the twin foundations of Faith and Science. Being a student here will expose you to a group of faculty and staff who have chosen to be part of this experience we call Loma Linda. They have chosen to work here because they share in the belief that this is a special place.

We emphasize what we call mission-focused learning. This means that what we offer centers on more than producing knowledgeable professionals because we believe that *who* you are is even more important than *what* you know. To assist in this lifelong process, we are encouraging the enculturation of our seven core values, known by the acronym JCHIEFS. These values are Justice, Compassion, Humility, Integrity, Excellence, Freedom, and Self-Control/Purity. I encourage each of you to search your own heart and find ways to strengthen these virtues in everything you do.

You also will find an incredible mixture of cultural diversity on our campus. Revel in our similarities and differences, and use each interaction to help you understand the issues that separate us. With understanding comes acceptance. And with acceptance come peace and fellowship. Use your time at Loma Linda to seek out those from other countries and cultures from whom you can learn and gain greater understanding. We will all be better as we tear down those barriers that often separate us.

All this uniqueness is centered on the profound belief that God is here, active in the lives and experiences of each of us. Through our weekly University at Worship, the prayers of faculty in class, and the daily

## Programs, Degrees, and Certificates

The degree and certificate curricula at Loma Linda University are under continuous review and are, therefore, subject to change and improvement without prior notice, as the need occurs. The University also offers nondegree and short courses throughout the United States and globally to meet the continuing education and extension program needs of alumni, health professionals, and lay persons in the church and in the community. Most degree courses are approved for continuing education credit.

School-specific certificates are awarded upon completion of organized programs of study at the postsecondary level. Students register for courses through the Office of University Records; but the certificate is issued by the school, which maintains records of the certificate and its awarding. Financial aid is not available to students registered in school-specific programs. See school programs in each school for a listing of school-specific certificates available.

The Faculty of Graduate Studies oversees Ph.D. and research master's degrees, as well as combined degrees programs.

### KEY TO CODES

AH	School of Allied Health Professions
BH	School of Behavioral Health
PH	School of Public Health
SD	School of Dentistry
SM	School of Medicine
SN	School of Nursing
SP	School of Pharmacy
SR	School of Religion
FGS	Faculty of Graduate Studies
IS	Interdisciplinary Studies (LLU diploma, across schools/faculties)
UG	Undergraduate
PB	Postbaccalaureate
PD	Post-D.D.S. or Post-D.M.D.
PM	Post-master's
PMD	Post-M.D.
PP	Postprofessional

Program	School	Degrees/Certificates Offered
Anatomy	SM	M.S., Ph.D.
Biochemistry	SM	M.S., Ph.D.
Biology	SM	M.S., Ph.D.
Bioethics	SR	M.A., PB certificate
Biomedical Sciences	SD	PB certificate
Biomedical Sciences	SM	M.M.S.
Biostatistics	PH	M.P.H., M.S.
Cardiac Electrophysiology Technology	AH	A.S. (on campus), Certificate (online)
Chaplaincy	SR	M.S.Chap.
Child Life Specialist	BH	M.S.
Clinical Mediation	BH	PB certificate
Clinical Ministry	SR	M.A., PB certificate

Clinical Laboratory Science	AH	B.S. (formerly: Medical Technology)
Coding Specialist	AH	Certificate
Communication Sciences and Disorders	AH	B.S., M.S., Transitional M.S.
Counseling	BH	M.S.
Counseling, School	BH	PM certificate (See: School Counseling)
Criminal Justice	BH	M.S.
Cytotechnology	AH	B.S.
Denominational Studies for Chaplains	SR	Certificate
Dental Anesthesiology, Advanced	SD	M.S.D., PD certificate
Dental Hygiene	SD	A.S., B.S. (B.S. completion program online)
Dentistry, General	SD	D.D.S.
Dentist Program, International	SD	D.D.S.
Diagnostic Cardiac Sonography	AH	Certificate
Diagnostic Medical Sonography	AH	Certificate
Drug and Alcohol Counseling	BH	PB certificate
Earth Science	SM	Ph.D.
Emergency Medical Care	AH	B.S.
Emergency Preparedness and Response	PH	PB certificate
Endodontics, Advanced	SD	M.S., M.S.D., PD certificate
Environmental and Occupational Health	PH	M.P.H.
Environmental Sciences	SM	B.S.
Epidemiology	PH	M.P.H., Dr.P.H., Ph.D.
Family Life Education	BH	PB certificate
Geology	SM	B.S., M.S.
Gerontology	BH	M.S.
Global Health	PH	M.P.H.
Health Care Administration	AH	B.S. (online)
Health Care Administration	PH	M.B.A., Certificate
Health Education	PH	M.P.H., Dr.P.H. (on campus and online)
Health Geoinformatics	PH	PB certificate (online)
Health Informatics	AH	M.S. (on campus and online)
Health Information Administration	AH	B.S., PB certificate

Health Policy and Leadership	PH	M.P.H., Dr.P.H.	Physiology	SM	M.S., Ph.D.
Health Professions Education	AH	M.S., PB certificate (on campus and online)	Play Therapy	BH	PM certificate
Health Promotion and Education	PH	(See: Health Education)	Polysomnography	AH	Certificate
Imaging Informatics	AH	Certificate (online)	Population Medicine	PH	M.P.H. (on campus and online)
Implant Dentistry, Advanced	SD	M.S., M.S.D., PD certificate	Preventive Care	PH	Dr.P.H.
International Dentist Program	SD	(See: Dentist Program, International)	Prosthodontics, Advanced	SD	M.S., M.S.D., PD certificate
Lifestyle Intervention	PH	PB certificate (online)	Psychology, General	BH	M.A.
Lifestyle Management	PH	M.P.H. (online)	Psychology, Clinical	BH	Psy.D., Ph.D.
Marital and Family Therapy	BH	M.S., D.M.F.T.	Radiation Sciences	AH	B.S. (on campus and online), M.S.R.S. (online)
Maternal and Child Health	PH	PB certificate	Radiation Therapy Technology	AH	B.S.
Medical Dosimetry	AH	Certificate	Radiologist Assistant	AH	M.S.R.S. (online)
Medical Radiography	AH	A.S.	Rehabilitation Science	AH	Ph.D.
Medical Scientist	SM	M.D./Ph.D.	Religion and Health	SR	D.Sc.
Medicine	SM	M.D.	Religion and Society	SR	M.A.
Microbiology and Molecular Genetics	SM	M.S., Ph.D.	Respiratory Care	AH	B.S., M.S.R.C. (on campus and online)
Natural Sciences	SM	M.S.	Respiratory Care, Advanced Practitioner	AH	PP B.S. (on campus and online)
Nuclear Medicine Technology	AH	B.S.	School Counseling	BH	PM certificate, PPS credential
Nursing	SN	B.S., M.S. (on campus and off-campus Thailand), D.N.P., Ph.D.	Social Policy and Social Research	BH	Ph.D.
Nutrition	PH	M.P.H., M.S., Dr.P.H.	Social Work	BH	M.S.W. (on campus and off-campus Riverside County)
Nutrition and Dietetics	AH	B.S., M.S.	Special Imaging: CT	AH	Certificate (on campus and online)
Nutrition Care Management	AH	M.S. (online)	Special Imaging: CVI	AH	Certificate
Occupational Therapy	AH	M.O.T., O.T.D. (online)	Special Imaging: MRI	AH	Certificate
Oral and Maxillofacial Surgery, Advanced	SD	M.S., M.S.D., PD certificate	Speech-Language Pathology	AH	S.L.P.D. (online)
Orthodontics and Dentofacial Orthopedics	SD	M.S., PD certificate	Systems, Families and Couples	BH	Ph.D.
Orthotics and Prosthetics	AH	M.S.O.P.			
Pathologists' Assistant	SM	M.S.			
Pediatric Dentistry, Advanced	SD	M.S., M.S.D., PD certificate			
Periodontics, Advanced	SD	M.S., M.S.D., PD certificate			
Pharmacology	SM	M.S., Ph.D.			
Pharmacy	SP	Pharm.D.			
Physical Therapist Assistant	AH	A.S.			
Physical Therapy	AH	M.S.R., D.P.T., D.Sc., Ph.D.			
Physician Assistant	AH	M.P.A.			

## Accreditation Overview

The University is accredited as a degree-granting institution by the Western Association of Schools and Colleges (WASC) Senior College and University Commission (WSCUC). The programs of the schools are accredited by the appropriate accrediting agencies, and graduates are eligible to take the qualifying examinations of the respective state and national licensing or registration bodies and to join professional organizations. Details of accreditations are given in the individual programs and in Section VI of this CATALOG.

Founded as College of Evangelists in 1905-06, the University was chartered as College of Medical Evangelists by the state of California on December 13, 1909; and was accredited by Northwest Association of Secondary and Higher Schools on April 7, 1937. Accredited by WASC (prior to January 1962, Western College Association) on February 24, 1960, it became Loma Linda University July 1, 1961.

### Accrediting agencies

Loma Linda University is fully accredited by WSCUC, which may be contacted at:

WASC Senior College and University Commission (WSCUC)  
985 Atlantic Avenue, Suite 100  
Alameda, CA 94501  
Phone: 510/748-9001  
FAX: 510/748-9797  
Website: <<https://www.wascsenior.org>>  
E mail: <[wascsr@wascsenior.org](mailto:wascsr@wascsenior.org)>

WSCUC is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Commission on Recognition of Postsecondary Accreditation.

Loma Linda University is also accredited by the Adventist Accrediting Association (AAA) of the Seventh-day Adventist Church Department of Education.

In addition to WSCUC and AAA, the following organizations accredit specific University schools or programs:

- Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics
- Accreditation Council for Occupational Therapy Education (ACOTE)
- Accreditation Council for Pharmacy Education (ACPE)
- Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA)
- American Registry of Radiologic Technology (ARRT)
- Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM)
- Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE) of the American Association for Marriage and Family Therapy (AAMFT)
- Commission on Accreditation for Respiratory Care (CoARC)
- Commission on Accreditation of Allied Health Education Programs (CAAHEP)
- Commission on Accreditation in Physical Therapy Education (CAPTE)
- Commission on Accreditation (CoA) of the American Psychological Association (APA)

- Commission on Accreditation (COA) of the Council on Social Work Education (CSWE)
- Commission on Collegiate Nursing Education (CCNE) of the American Association of Colleges of Nursing (AACN)
- Commission on Dental Accreditation (CODA) of the American Dental Association (ADA)
- Committee composed of the American Society of Cytopathology (ASC), College of American Pathologists (CAP), American Society for Clinical Pathology (ASCP), and American Society of Cytotechnology (ASCT), in collaboration with the Commission on Accreditation of Allied Health Education Programs (CAAHEP)
- Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language-Hearing Association (ASHA)
- Council on Accreditation (COA) of Nurse Anesthesia Educational Programs
- Council on Education for Public Health (CEPH)
- Joint Review Committee on Education in Diagnostic Medical Sonography (JRC-DMS), in collaboration with the Commission on Accreditation of Allied Health Education Programs (CAAHEP)
- Joint Review Committee on Education in Radiologic Technology (JRCERT)
- Liaison Committee on Medical Education (LCME), sponsored by the Association of American Medical Colleges (AAMC) and the Council on Medical Education of the American Medical Association (AMA)
- National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)
- National Commission on Orthotic and Prosthetic Education (NCOPE), in collaboration with the Commission on Accreditation of Allied Health Education Programs (CAAHEP)

The following organizations approve specific University schools or programs:

- Approval Committee for Certificate Programs (ACCP), a joint committee established by the Association for Healthcare Documentation Integrity (AHDII) and the American Health Information Management Association (AHIMA)
- California Department of Public Health (CDPH) Laboratory Field Services (LFS)
- California Department of Public Health (CDPH) Radiologic Health Branch (RHB)
- California Board of Registered Nursing (BRN)
- Commission on Teacher Credentialing (CTC)

For a current list of accrediting agencies, please contact the Office of the Provost.

## Affirmative Action

The University routinely monitors its educational and employment practices regarding women, minorities, and the disabled to ensure compliance with the law and University policy. The University's affirmative action policy is to provide equal access to admissions, educational programs and activities, financial aid, student services, and employment.

In compliance with Title IX of the Educational Amendments of 1972 and Section 504 of the Rehabilitation Act of 1973, a grievance procedure has been established to process student complaints alleging violation

of these regulations or of the University's policy of nondiscrimination based on gender or disability. Inquiries concerning Title IX may be directed to the Title IX coordinator. Employment-related discrimination complaints, including those filed by student employees, are processed in conformity with the provisions outlined in existing staff personnel policies. Complaints related to discrimination in academic areas are reviewed in conformity with the procedures established by the academic administration.

## Accommodation for Disability

Loma Linda University is in compliance with the Americans with Disabilities Act, Sec. 504 of the Rehabilitation Act; as well as with local and state requirements. The University is committed to providing education—including support services and reasonable accommodations for disabilities—to qualified applicants for whom such accommodation does not fundamentally alter the chosen program or create an undue burden.

For information regarding accommodation for disability, the student should consult the Office of the Dean of the school to which application for admission is being made.

Following acceptance, the student may be asked if he or she has a disability requiring accommodation. A student who desires accommodation for a disability (e.g., physical, learning, or psychological) identified after acceptance should consult the Office of the Dean regarding a request for accommodation. The accommodation request must be submitted in writing on the designated form. The completed form and the required supporting documentation will be evaluated by appropriate University entities to determine whether or not the applicant can be expected to perform the essential functions of the program. All discussions will remain confidential.

## Nondiscrimination Policy

Loma Linda University was established by the Seventh-day Adventist Church as an integral part of its teaching ministry. The University affirms that Christian principles are incompatible with various forms of discrimination that have divided societies, and that all persons are of equal worth in the sight of God and should be so regarded by all His people. Therefore, the University is committed to equal education and employment opportunities for men and women of all races; and does not unlawfully discriminate on the basis of veteran status, handicap, gender identity, sexual orientation, race, color, or national origin in its educational or admissions policies, financial affairs, employment programs, student life and services, or any University-administered program.

To this end, the University is in compliance with Titles VI and VII of the Civil Rights Act of 1964 as amended; and is in substantial compliance with Title IX of the Education Amendments of 1972 (34 CFR 106 et seq.), Sections 503 and 504 of the Rehabilitation Discrimination in Employment Act of 1967, and Section 402 of the Vietnam Era Veterans Adjustment Act of 1974; and does not discriminate against any employees or applicants for employment on the basis of age or because they are disabled veterans or veterans of the Vietnam era. In addition, the University administers student programs without discrimination on the basis of age—except in those programs where age is a bona fide academic qualification for admission—in accordance with the provisions of the Age Discrimination Act of 1975.

The University reserves constitutional and statutory rights as a religious institution and employer to give preference to Seventh-day Adventists

in admissions and employment, including but not limited to 42 U.S.C. Secs. 2000e-1, 2000e-2; Sec. 6-15 of Federal Executive Orders 11246 and 13279; 41 CFR Sec. 60-1.5(5); 20 U.S.C. Sec. 1681 (a)(3); 34 CFR Secs. 106.12 (a)(b), 106.21, 106.31, 106.39, 106.40, 106.51, and 106.57; California Government Code Sec. 12926 (d)(1); Title II, Division 4, Chapter 2, Sec. 7286.5 of the California Code of Regulations; the First Amendment to the United States Constitution; and Article 1, Sec. 4, of the California Constitution. The University believes that Title IX regulations are subject to constitutional guarantees against unreasonable entanglement with or infringements on the religious teachings and practices of the Seventh-day Adventist Church.

# The Academic Calendar

Academic dates for Faculty of Graduate Studies (FGS) and the Schools of:

AH	Allied Health Professions
BH	Behavioral Health
SD	Dentistry
SM	Medicine
SN	Nursing
SP	Pharmacy
PH	Public Health
SR	Religion

## 2016

### January

1-3	U	Christmas recess
6-9	U	Alumni Postgraduate Convention
4	SD	Winter Quarter begins
4	U	Winter Quarter begins
5	U	First day of \$200 late registration fee (standard term programs)
6	U	Spring Quarter registration open (standard term programs)
10	SD	Clinic with a Heart
11	U	Last day to register with a late fee (standard term programs)
11-15	U	Week of Renewal
16	U	Winter Quarter final examinations
16-17	U	Spiritual Life and Wholeness Conference
18	U	Martin Luther King, Jr. Day
19	U	Last day to drop without a "W" (standard term courses)
20	U	Faculty advance seminar; Winter Quarter end date
20	U	Last day to drop without a "W" (standard term courses)
29	U	Grad list to be submitted to University Records (standard term programs)
3		

### February

12	SM	First Year family day and dedication service
15	U	President's Day holiday
22	U	Power of Inclusion 5k walk, run, roll
25-28	SD	56th Annual Alumni Student Convention
29	U	Last day to drop with a "W" (standard term courses); Spring registration opens (standard term)

### March

1	U	Last day for schools to submit Academic Variances to University Records for Autumn graduates
3	SN	CRNA Recognition Dinner
4-7	SM	Alumni Postgraduate Convention

8-9	U	Healthy People in Healthy Communities Conference 2016
9-11	U	Healthy People in Healthy Communities
14-17	SD	Winter Final examinations
16-18	U	Winter final examinations
16-20	SP	Final examinations
17	SD	Winter Quarter ends
18	SM	Senior Match Day; Winter Quarter End date
18	SD	Faculty Advance Seminar
19-28	U	Spring recess
21	U	Last day to register without a late registration fee (standard term programs)
21-22	SD	New IDP student orientation
22	U	First day of \$100 late registration fee (standard term programs); Winter grades due-4:00 p.m.
28	SD	SD Spring Quarter begins
28	U	Winter graduates list to be submitted to University Records (standard term programs)
29	U	First day of \$200 late registration fee (standard term programs); Power of Inclusion Conference
30	U	LLUSS Employee Forums

### April

1	U	Last day for students to submit petitions to schools for Autumn Quarter graduation
6-10	U	Week of Renewal
11	U	Last day to drop without a "W" (standard term courses)

### May

2	U	Last day for schools to submit graduation petitions to University Records for Autumn Quarter graduates; Loma Linda University Employee Benefits Fair
11	SM	Second-year academic ends
16	U	Diversity consecration service
18	SD	DDS Graduation banquet
21	SP	Senior banquet
26	SD	IDP graduation banquet
26	U	Last to drop with a "W" (standard term courses); Summer registration open (standard term programs)
27	SM	Consecration and Hooding ceremony
28	SM/SP/SD	Baccalaureate services
29	SM/SP/SD	Commencement services

### June

3	SD/SM/SP	Spring Quarter graduates' list to be submitted to University Records
6-9	SD	Spring final examinations
8	SD/SM/SP	Spring Graduates list to be submitted to University Records
9	SD	Spring Quarter end (DDS, DH, IDP)



9	SN	Graduate Recognition dinner
10	AH, BH, SN, PH	Focus on Graduates vespers service
10	SD	Faculty Advance Seminar
10	SM	First-year and MMS academic year ends
10	U	Spring Quarter ends
11	AH/PH/ BH/SN/ SR	Baccalaureate service
12	AH/PH/ BH and SR/SN	Conferring of degrees
14-17	SM	Class of 2018 third-year orientation
15	U	Standard term grades due at 4:00 p.m.
20	SM	Class of 2017 Fourth-year orientation; Class of 2018 Third-year academic year begins
20	SN	Spring Quarter graduates list to be submitted to University Records
20	U	Last day to register without late fee (standard term programs); AH/BH/SN Spring graduates list to be submitted to University Records
21	U	First day of \$200 late registration fee (standard term programs)
21	SM	Class of 2017 Fourth-year academic year begins
22	AH/BH/ SN	Spring Quarter graduates' list to be submitted to University Records
22	SM	Class of 2017 third-year academic year begins
23	U	First day of late registration fee (standard term programs)
27	U	Last day to register with a late fee (standard programs)

## July

1	U	Last day for schools to submit Academic Variances to University Records for Winter Quarter graduates
4	U	Independence Day holiday
5	SD	Summer Quarter begins (DDS, IDP, DH)
5	U	Last day to drop without a "W" (standard term courses)
10	SD	Minorities in Dentistry workshop
10-13	SD	Careers in Dentistry workshop
27	U	1st 5-week summer session ends
28	U	2nd 5-week summer session ends

## August

1	U	Last day for students to submit graduation petitions to schools for Winter Quarter graduates
4-5	SM	First-year and MMS orientation
8	SM	First-year and MMS academic year begins
15	U	Last day to drop with a "W" (standard term courses)
22	SM	Second-year orientation, academic year begins
25-27	SM	Pine Springs Ranch faculty/student retreat
29-30	SD	DDS orientation

## September

1	U	Last day for school to submit graduation petitions for Winter Quarter graduates to University
2	U	Summer Quarter end date
5	U	Labor Day holiday
6	U	Second 5-week summer session ends; Autumn registration opens (standard term programs)
8	U	Standard term grades due (4:00 p.m.)
11	SD	Predoctoral and Dental Hygiene Summer Quarter ends
12	U	Summer graduates list to be submitted to University Records (standard term programs)
12	SP	Fall Quarter begins (PY2-PY3)
12-15	SD	Summer final examinations
12-23	SP	Class of 2020 orientation
15	SD	Summer Quarter ends (DDS, DH, IDP)
15	SR	Orientation
16	SD	Faculty advance seminar
21	U	Last day to register without late fee (standard term programs)
21-22	SD	AH orientation
22	SD	First day of \$100 late registration fee (standard term programs)
22	U	Faculty colloquium
23-25	SM	Pine Springs Ranch faculty/student retreat
26	SP	Fall Quarter begins (PY1)
26	U	Fall Quarter begins; University-wide orientation and welcome-back bash
26	SD	Autumn Quarter begins (DDS, DH, IDP)
27	U	First day of \$200 late registration fee (standard term programs)
28	SP	Chapel
28	SR	First Chapel
30	SD	DH degree completion orientation

## October

3	U	Last day for schools to submit academic variances (Spring and Summer quarter graduates) to University Records
3	U	Last day to register with a late fee (standard term programs)
10	U	Last day to drop without a "W" (standard term courses)
10-14	U	Week of Renewal
28	SR	Fall Vespers

## November

1	U	Last day for students to submit graduation petitions to schools for Spring/Summer Quarter graduates
13	U	Annual ThanksSharing concert
14-18	SP	Examinations (PY2, PY3)
21	U	Last day to drop with a "W" (standard term courses); Winter Quarter registration begins

23-27 U Thanksgiving recess

## December

1	U	Last day for schools to submit graduation petitions to University Records for Spring/Summer graduates
2	PH	Deadline for submission of completed dissertation; Completion Form D signed off by committee
5	U	Winter registrations begins (standard term programs)
5-January 3	PH	Registration without late fee
12-15	SD	Autumn final examinations
15	SD	Autumn Quarter ends (DDS, IDP, DH)
16	U	Fall Quarter ends (standard term programs)
16	SD	Faculty advance seminar
17-January 2	U	Christmas recess
16	PH	Deadline for submission of completed dissertation-ready for printing
19-January 1	SM	First-, Second-year and MMS Christmas recess
21-January 3	SM	Third-, Fourth-year Christmas recess
21	U	Standard term grades due at 4:00 p.m.
27	U	Autumn Quarter graduation list to be submitted to University Records (standard term programs)

## 2017

### January

3	SP	Winter Quarter begins
3	SD	Winter Quarter begins (all programs)
3	U	Winter Quarter begin date: Last day to register without a late fee (standard term programs)
4	SD	Winter Quarter instruction begins (DDS, IDP, DH)
4	U	First day of \$200 late registration fee (standard term programs)
4-10	PH	Late registration begins (late fee of \$200 assessed)
5-January 3	PH	Registration without late fee
8	SD	Clinic with a Heart
9-13	U	Week of Renewal
16	U	Martin Luther King, Jr. holiday
17	U	Last day to drop without a "W" (standard term courses)
29	U	University-wide open house

### February

4	SN	Nursing Dedication Service
10	SR	Winter Vespers
17	SM	First-year family day and dedication service
20	U	President's Day holiday

28 U Last day to drop with a "W" (standard term courses)

## March

1	U	Last day for schools to submit Academic Variances to University Records for Autumn graduates
2-6	SD	University-wide Homecoming Convention
3-6	SM	Alumni Postgraduate Convention
3	PH	Deadline for submission of completed dissertation; Completion Form D signed off by committee
4	SR	Alumni Benefactors' banquet
6	U	Spring registration opens (standard term programs)
6-10	SP	Winter Quarter examinations
6-27	PH	Registration date without late fee
16	SD	Winter Quarter ends (DDS, IDP, DH)
17	SD	Faculty advance seminar
17	SM	Senior Match Day
17	U	Winter Quarter ends
17	PH	Deadline for completed dissertation-ready for printing
18-26	U	Spring Quarter recess
20-21	SD	IDP orientation
22	U	Standard term grades due (4:00 p.m.)
24	SP	Winter Quarter ends
27	U	Last day to register without late fee (standard term programs)
27	SD	Spring Quarter begins (all programs)
27	U	Spring Quarter begins; Winter Grad list to be submitted to University Records (standard term programs)
27-June 9	PH	Winter Term
28-April 3	PH	Late registration begins-last day to register (late fee of \$200 assessed)
28	U	First day of \$200 late registration fee (standard term programs)

## April

3	U	Last day for students to submit graduation petitions to schools for Autumn Quarter graduates
3	U	Last day to register with a late fee (standard term programs)
3	SP	Spring Quarter begins
3-7	U	Week of Renewal
10	U	Last day to drop without a "W" (standard term courses)
13	SP	Honors and awards ceremony
14	SR	Spring Vespers

## May

1	U	Last day for schools to submit graduation petitions to University Records for Autumn Quarter graduates
7	SR	Student socials

10	U	School Awards Chapel
12	SM	Second-year academic year ends
17	SD	DDS Graduation banquet
22	U	Last day to drop with a "W" (standard term courses); Summer registration begins
25	SD	IDP Graduation banquet
25	SP	Senior banquet
26	SM	Consecration and hooding ceremony
26	PH	Deadline for submission of completed dissertation and Completion Form D signed off by committee
26	SP	Hooding ceremony-Class 2017
27	SM/SP/ SD	Baccalaureate services
28	SM/SP/ SD	Commencement services
29	U	Memorial Day holiday
30	U	Summer registration opens (standard term programs)

## June

3	SR	Awards/Graduation banquet
5-8	SD	Spring Quarter final examinations
5-9	SP	Spring Quarter final examinations
7	SD/SM/ SP	Spring Quarter graduation list to be submitted to University Records
8	SD	Spring Quarter ends (DDS, IDP, DH)
9	AH/SN/ PH	Focus on graduates vesperds service
9	SD	Faculty advance seminar
9	SM	First-year and MMS academic year ends
9	U	Spring Quarter ends
9	PH	Deadline for completed dissertation (ready for printing)
10	AH/SN/ BH & SR/ PH	Baccalaureate service
11	AH/PH/ BH & SR/ SN	Commencement services
13-17	SM	Class 2019 third-year orientation
14	SD	Grades due
14	U	Standard term grades due
18	SM	Class 2019 fourth-year orientation
19	U	Summer Quarter begin date; Last date to register with out late fee (standard term programs)
19	AH/BH/ SN	Spring Quarter graduation list to be submitted to University Records
19	SM	Third-year academic year ends
19	SN	Spring Quarter graduates list to be submitted to University Records
19	SP	Spring Quarter graduates list to be submitted to University Records
20	U	First day of \$200 late registration fee (standard term programs)
23	SP	Spring Quarter ends

26	U	Last day to register with a late fee
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## July

3	SD	Summer Quarter begins (DDS, IDP, DH)
3	U	Last day for schools to submit Academic Variances to University Records for Winter Quarter graduates
3	U	Last day to drop without a "W" (standard term courses)
4	U	Fourth of July holiday
9	SD	Minorities in Dentistry workshop
9-12	SD	Careers in Dentistry workshop
27	U	All first 5-week Summer session ends
31	U	2nd 5-week Summer session begins

# ABOUT THE UNIVERSITY

## University foundation

### History

Loma Linda University is part of the Seventh-day Adventist system of higher education. In 1905, the University (formerly College of Medical Evangelists) was founded—through a series of divine providences—at Loma Linda, California, by the Seventh-day Adventist Church. The School of Nursing began in 1905. In 1909, the College of Medical Evangelists received its charter as a medical school with the express purpose of preparing physicians who could meet the needs of the whole person. Both schools emphasized the need for healthful living as a part of medical care—a revolutionary concept in 1905.

The University was designated by the Seventh-day Adventist Church as a center for educating health professionals. The original schools—Nursing and Medicine—have been joined by Allied Health Professions, Behavioral Health, Dentistry, Pharmacy, Public Health, and Religion; and the Faculty of Graduate Studies. The curricula of the University are approved by their respective professional organizations. From its small beginnings, the University has achieved widespread recognition, having sent more of its graduates into international service than has any other university. It remains committed to the vision of its founders and is sustained by its close association with the church.

From 1918 to 1962, the University operated within health facilities in two cities: Loma Linda and Los Angeles. In September 1962, all health professional education was consolidated at Loma Linda. In 1967, Loma Linda University Medical Center opened in its new three-tower facility—a landmark cloverleaf structure. The medical center continues on the cutting edge of health care, providing excellent service for patients and expanding educational opportunities for students.

In 1990, the Board of Trustees designated Loma Linda University a health sciences university—part of a complex that includes Loma Linda University Medical Center, faculty practice plans, and affiliated institutions. The University is a leader in the field of health sciences education, research, and service.

The most current campus census figures (Summer 2016) indicate that the core of the combined faculties consists of 1,795 full-time teachers. Part-time and voluntary teachers (1,330—largely clinicians in the professional curricula) bring the total to 3,135. As of Autumn Quarter 2015, 641 students from 85 countries outside the United States are represented in the enrollment of 4,512.

### A century of service

Today the original 1905 property is part of an expanding health sciences campus that includes:

- six medical facilities, licensed for approximately 1076 beds—
  - Loma Linda University Medical Center (LLUMC), 1966;
  - Loma Linda University Children’s Hospital (LLUCH), 1993;
  - Loma Linda University Medical Center East Campus Hospital (LLUECH), 2003; licensed under LLUMC as Loma Linda University Community Medical Center (LLUCMC), 1993—formerly known as Loma Linda Community Hospital;
  - Loma Linda University Heart and Surgical Hospital (LLUHSH), 2009;

- Loma Linda University Behavioral Medicine Center (LLUBMC)—an acute psychiatric care facility—1991;
- Loma Linda University Medical Center-Murrieta, 2011.
- ten Loma Linda University Health (LLUH) institutes, two LLUH-related research centers, and various school-related research centers (see Learning Resources); and
- Loma Linda University (on campus, distance education, and online degree programs through the Schools of Allied Health Professions, Behavioral Health, Dentistry, Medicine, Nursing, Pharmacy, Public Health, and Religion; and the Faculty of Graduate Studies.

1905	School of Nursing
1909	The institution was named College of Medical Evangelists (CME)
1922	Department of Dietetics*
1937	School of Medical Technology*
1941	School of Physical Therapy*
1945	Radiologic Technology Program*
1948	School of Tropical and Preventive Medicine (reorganized as School of Public Health, 1964)
1953	School of Dentistry
1954	Graduate School (restructured as Faculty of Graduate Studies, 2005)
1958	Dental Hygiene Program
1959	Occupational Therapy Program*
1963	Medical Records Administration Program*
1966	Schools/Programs (see * above) consolidated as the School of Allied Health Professions
1967	Loma Linda University campus merges with La Sierra College
1968	Loma Linda University Medical Center dedicated
1990	Loma Linda and La Sierra campuses become two separate universities
1991	Loma Linda University designated a health sciences university
1997	Loma Linda University and Medical Center (corporately linked together through Loma Linda University Adventist Health Sciences Center—LLUHSC)
2002	School of Pharmacy
2003	School of Science and Technology
2007	School of Religion
2012	School of Science and Technology closed
2012	School of Behavioral Health
2015	Corporation name changed from Loma Linda University Adventist Health Sciences Center (LLUHSC) to Loma Linda University Health (LLUH)

## Vision and Mission

### Vision

Transforming lives through education, health care, and research

## Mission

Loma Linda University—a Seventh-day Adventist Christian, health sciences institution—seeks to further the teaching and healing ministry of Jesus Christ “to make man whole” by:

**Educating** ethical and proficient Christian health professionals and scholars through instruction, example, and the pursuit of truth.

**Expanding** knowledge through research in the biological, behavioral, physical, and environmental sciences; and applying this knowledge to health and disease.

**Providing** comprehensive, competent, and compassionate health care for the whole person through faculty, students, and alumni.

*In harmony with our heritage and global mission:*

- We encourage personal and professional growth through integrated development of the intellectual, physical, social, and spiritual dimensions of each member of the University community and those we serve.
- We promote an environment that reflects and builds respect for the diversity of humanity as ordained by God.
- We seek to serve a worldwide community by promoting healthful living, caring for the sick, and sharing the good news of a loving God.

*To achieve our mission, we are committed to:*

### Our students

Our primary responsibility is the education of students who come from diverse ethnic and cultural backgrounds—enabling them to acquire the foundation of knowledge, skills, values, attitudes, and behaviors appropriate for their chosen academic or health-care ministry. We nurture their intellectual curiosity. We facilitate their development into active, independent learners. We provide continuing educational opportunities for our alumni and professional peers. We encourage a personal Christian faith that permeates the lives of those we educate.

### Our faculty, staff, and administration

We respect our faculty, staff, and administration—who through education, research, and service create a stimulating learning environment for our students. They contribute to the development of new understandings in their chosen fields. They demonstrate both Christian values and competence in their scholarship and professions.

### Our patients and others we serve

We provide humanitarian service through people, programs, and facilities. We promote healthful living and respond to the therapeutic and rehabilitative needs of people. We seek to enhance the quality of life for individuals in local, regional, national, and world communities.

### Our God and our Church

We believe all persons are called to friendship with a loving God both now and throughout eternity. We support the global mission of the Seventh-day Adventist Church by responding to the need for skilled Christian health professionals and scholars. We seek to honor God and to uphold the values of the Seventh-day Adventist Church and its commitment to awakening inquiry. We are drawn by love to share the good news of God expressed through the life and gospel of Jesus Christ and to hasten His return.

*A Seventh-day Adventist health sciences institution*

## University Philosophy

As implied by its motto, “To make man whole,” the University affirms these tenets as central to its view of education:

God is the Creator and Sustainer of the universe.

Mankind’s fullest development entails a growing understanding of the individual in relation to both God and society.

The quest for truth and professional expertise in an environment permeated by religious values benefits the individual and society and advances the ministry of the Seventh-day Adventist Church.

“Wholeness means the lifelong, harmonious development of the physical, intellectual, emotional, relational, cultural, and spiritual dimensions of a person’s life, unified through a loving relationship with God and expressed in generous service to others.”

Quoted in “The Grace of Wholeness” by Gerald R. Winslow, Ph.D., *SCOPE*, Spring 1999. Also quoted as the adopted definition of wholeness in the Loma Linda University Wholeness Inventory.

## Core Values of Loma Linda University

The University affirms these values as central to its view of education:

**COMPASSION**—The sympathetic willingness to be engaged with the needs and sufferings of others. Among the most memorable depictions of compassion in Scripture is the story of the Good Samaritan, which Loma Linda University has taken as a central symbol of its work.

**INTEGRITY**—The quality of living a unified life in which one’s convictions are well-considered and match one’s actions. Integrity encompasses honesty, authenticity, and trustworthiness.

**EXCELLENCE**—The commitment to exceed minimum standards and expectations.

**FREEDOM**—The competency and privilege to make informed and accountable choices and to respect the freedom of others. God has called us not to slavery but to freedom.

**JUSTICE**—The commitment to equality and to treat others fairly, renouncing all forms of unfair discrimination. The God of the Bible is One who calls people continually to justice. According to the prophets, religious faith could be genuine only when it led the believers to “seek justice, rescue the oppressed, defend the orphans, [and] plead for the widow.”

**PURITY/SELF-CONTROL**—The commitment to be morally upright and moderate in all things, with complete control over one’s emotions, desires, and actions.

**HUMILITY**—The willingness to serve others in a sacrificial manner, and the self-respect that renounces haughtiness or arrogance.

## Institutional Learning Outcomes

Loma Linda University’s institutional learning outcomes (ILOs) for students are assessed throughout the degree programs within the University appropriate for the discipline and degree. The Office of Educational Effectiveness works with these programs to guide their

assessment. For more in-depth information about LLU's ILO assessment, please see: <http://www.llu.edu/central/assessment>

- **Critical thinking:** Students demonstrate critical thinking through examination of ideas and evidence before formulating an opinion or conclusion.
- **Information literacy:** Students demonstrate the ability to identify, locate, evaluate, utilize, and share information.
- **Oral communication:** Students demonstrate effective oral communication skills in English.
- **Quantitative reasoning:** Students demonstrate the ability to reason and develop evidence-based decisions using numerical information.
- **Written communication:** Students demonstrate effective written communication skills in English.

### Mission-focused learning outcomes

Loma Linda University's three mission-focused learning outcomes (MFLOs) are firmly rooted in its mission, vision, and values (p. 19). Because mission-focused learning is LLU's culture, the University is developing specialized assessment processes to ensure integration of these outcomes over time.

- **Wholeness:** Students integrate wholeness in their personal and professional lives: Loved by God, growing in health, living with purpose in community.
- **Values:** Students integrate LLU's Christ-centered values in their personal and professional lives.

## University Mace, Coat of Arms, and Seal

Traditionally, the ceremonial mace represents the authority vested in the highest officer of a governing body. In an educational institution, the authority symbolized by the mace derives from respect for the authority of knowledge and for the rights and value of the individual. Thus the leader of an academic community assumes the obligation and challenge to ensure for its members a climate conducive to growth in knowledge and grace.

The construction of the ceremonial mace of Loma Linda University evokes further ideas. Its two metals, bronze and aluminum, suggest the value of lessons both ancient and contemporary. Rather than lying prone, an instrument to be wielded, this mace stands upright in celebration of the human spirit. Its open construction implies free exposure to questions, ideas, and conflict. The eight vertical supporting elements (at three points bound together as for strength and stability in unity) uphold a graceful oval that points outward to the universe, the province of inquiry.

Within the oval, the University seal appears to float unfettered. The basic design of the coat of arms and the seal of Loma Linda University—established in 1905 as the College of Medical Evangelists—is a contemporary modification of the shield, a heraldic device.

Within the seal, the Christian cross—a universal symbol—acknowledges the role of Jesus Christ as Savior and Redeemer.

The lighted torch—part of our logo since 1959—suggests the illuminating power of knowledge and the central role of the Holy Spirit in teaching and

healing. It also references the institution's call to serve as a light to the world.

The ancient staff of Aesculapius, long associated with medicine—and part of our logo since the 1920s—represents in the modern and broad sense the combined services of all the healing arts and sciences.

Across the base of the shield, the open book symbolizes the Word of God—the foundation of all truth, the source of the Christ-centered commission, the inspiration for all endeavor of humanity for humanity.

Framing the shield are, at the left, the branch of oak leaves and acorns, presented in ancient times to honor the civic contribution of one who had saved his brother-citizen's life; and, at the right, the laurel branch, presented to honor personal achievement. Shown together, the oak and laurel branches form a wreath—suggesting that the life-saving and life-enhancing work of the health sciences brings with it an obligation to act honorably, courageously, and selflessly.

The emblems of the seal imply that one who has the privilege of learning also has the obligation of valor and honor. On the scroll below the shield is the motto—adopted in 1955 on the occasion of the fiftieth anniversary of this institution—"To Make Man Whole."

## A Unique University

Loma Linda University has always combined a devotion to academic excellence with a concern for spiritual values and a high sense of mission. The motto of the University, "To make man whole," illustrates the sense of destiny felt in the University community to act its part in God's ongoing plan for healing and restoring human beings to live with Him in wholeness, both now and in eternity.

While Loma Linda University has changed in many ways since its beginning in 1905, the biblical principles that provide its foundation have remained unchanged.

## Seventh-day Adventist heritage

Loma Linda University is owned and operated by the Seventh-day Adventist Church and has deep commitment to respecting the rich diversity of its student body. Students come from many different faiths, and respect and sensitivity for all people—regardless of their culture or ethnicity—are viewed as a part of true Christianity. This University has a tradition of religious liberty, and it highly respects students' religious values that differ from those of this academic community. The various perspectives of spiritually committed students are considered to be enriching to this campus and its educational environment.

## Our unique features

Two distinctive features of the Seventh-day Adventist Church, which are a part of the Loma Linda experience, become evident to first-time students. The first is the concept of the Sabbath rest, which reminds us of God as Creator. Adventists realize this in part by celebrating Saturday as the Sabbath from sundown Friday to sundown Saturday. During these hours, University offices, laboratories, libraries, study halls, and recreation facilities are closed to give time for physical and spiritual renewal and worship.

A second distinctive feature worth noting is the emphasis on health and wellness. Students will be able to exercise in our recreation and wellness center, a health-and-fitness complex that received a national award for excellence in utility and design. The cafeterias on campus feature well-

prepared vegetarian meals. Note also that the University holds that a drug-, alcohol-, and tobacco-free lifestyle is essential for achieving the goal of "wholeness." This means that all students agree to refrain from the use of tobacco, alcohol, and other "recreational" drugs while enrolled at the University.

## Spiritual Life

Worship experiences represent a critical dimension of the educational experience at Loma Linda University and are available to the student many times throughout the week. In addition to regular Friday evening and Saturday services, many class, school, club, and University activities include a component of worship and praise to God.

## University at Worship services

In keeping with the commitment of our mission, Loma Linda University students have special requirements, such as University at Worship attendance each Wednesday morning in the University Church. These programs provide a variety of opportunities to integrate faith and learning. Undergraduates who live in the residence halls are also expected to attend worships in the residence halls each week.

## Religion classes

Classes in religion are part of the core curriculum in each of the University's schools and programs. These classes deal with the study of the Bible, ethics, clinical ministry (which concentrates on ways to understand and meet the spiritual needs of patients in a manner that is noninvasive and individually appropriate), and a variety of other issues related to the student's field of study and personal spiritual journey.

All students who choose Loma Linda as their university make a commitment to conduct their lives in a manner that reflects their sense of responsibility for the honor and integrity of the University and of themselves as members of its community.

## Learning Environment

Loma Linda University is dedicated to creating a learning environment that promotes the lifelong pursuit of knowledge, wisdom, and skills used for selfless service to mankind. Through intentional educational strategies, Loma Linda University interweaves its vision, mission, and core values with its student learning outcomes. The University's mission of wholeness gives focus to the learning environment that balances mind, body, and spirit (psycho-social-physical-spiritual) and gives meaning to the motto of mission-focused learning. In this health-care institution, critical and analytical thinking skills in the health, behavioral, and natural sciences are blended with a commitment to spiritual and moral development.

Loma Linda University pledges to students, staff, faculty, alumni, and the local and global communities its commitment to upholding integrity, valuing diversity, engaging with the community in service learning scholarship, and honoring the process of ongoing self-assessment for the purpose of continuous quality improvement. The University and each of its schools, programs, and classes provide clearly defined student learning outcomes and measurable performance indicators to create a learning atmosphere that is clear and focused.

The University is engaged in systematic academic program review. Curricular maps are maintained for each program to assure alignment between student learning outcomes and planned academic activities.

Program review follows carefully developed schedules as outlined in school-specific assessment matrices.

Loma Linda University is committed to using assessment data to guide academic and fiscal master planning for the University.

The total resources of the University offer a wealth of opportunity to the student with initiative and willingness to develop individual capacity to the fullest extent. The academic resources, affiliated clinical facilities, and community agencies constitute a rich educational environment both in classroom instruction and in guided experience. Major facilities utilized for clinical affiliations and internships include the University Medical Center; the Jerry L. Pettis Memorial Veterans Medical Center; and numerous other hospitals and agencies located in the Redlands, San Bernardino, Riverside, and Los Angeles areas; as well as throughout the United States and abroad. In addition, students find varied opportunities for service and learning in the immediate University community, in clinical and research electives, and in diverse volunteer programs.

## University student mission-focused learning opportunities

### SAC Health System (SACHS)

Social Action Community Health System (SACHS) is a Federally Qualified Health Center affiliated with Loma Linda University Health. It provides low-cost health services at several sites in the Inland Empire, including the new San Bernardino Campus and the established SAC Norton campus. These clinical facilities provide educational opportunities for students and residents from Loma Linda to become involved with patient care and community initiatives. Providing a wide spectrum of primary and specialty medical services, dental care, and mental health—this clinic network is an ideal site to work cross-culturally and develop an understanding of diverse populations. The San Manuel Gateway College is also part of the San Bernardino Campus and provides certificate-level programs to high school graduates entering the health-care work force. Loma Linda students interact and assist in these training programs.

### Community-Academic Partners in Service (CAPS)

Community-Academic Partners in Service (CAPS) is a Loma Linda University program directed by the Institute for Community Partnerships. The program serves as the on-campus hub for connecting students and staff with volunteer opportunities in the San Bernardino area that are mutually beneficial and sustainable, that meet needs expressed by the local community, and that develop in students a lifelong passion for service. The numerous short-term and long-term community engagement opportunities range from mentoring high school students, after-school tutoring, health education, college prep, adult job skills, children's ministry, and a family soccer league. In addition to directly coordinating several programs, CAPS also works closely with local organizations to provide volunteer support for programs and events, and also facilitates students' service learning and community service placement needs.

To serve, students create a volunteer interest profile and list interests and availability on the CAPS online volunteer system. They can sign up for upcoming service opportunities, or they will be notified when opportunities in line with their interests are available. More information on volunteer opportunities can be found by visiting the CAPS Web site: [caps.llu.edu](http://caps.llu.edu); by calling (909) 651-5011; or by visiting the CAPS office in the Councilors Student Pavilion, Room 1402.

## University libraries

### Major library resources

Specialized libraries are located in various medical and school departments and in other entities on campus. Additionally, the following major library resources on campus support the University's academic programs:

- the Del E. Webb Memorial Library
- the Veterans Administration Library Services.

### The central library

The historical roots of the Del E. Webb Memorial Library, the central library of Loma Linda University, go back to 1907 when a small library collection was started in a room of the old Loma Linda Sanitarium. In 1953, the growing collection was moved to its own building on the Loma Linda campus. In 1981, construction of a new library was funded by a Del E. Webb Foundation grant that increased the total floor space of the Library to 87,670 square feet. This structure currently houses the main library; while the old structure is now shared between the Department of Archives and Special Collections and the bound retrospective journals. As of June 2015, the Library had a total collection of 323,568 books and bound journals; 176,150 print and electronic books; and 8,945 currently received print and electronic journal titles.

For more detailed statistical information, consult the library's Web site at <llu.edu/library>.

### Library mission

The mission of the Del E. Webb Memorial Library is to stimulate and support the information needs of the University's instructional, research, and service programs. To this end, the library provides a full range of information support services—including, but not limited to, reference, circulation, reserve, and access to the Internet. The library also provides online databases, digital books, and journal collections; end-user training programs; interlibrary loans; photocopy services; a computer laboratory; class-integrated, library instruction programs; and services that support distance education and University outreach programs.

### Access to resources

The Del E. Webb Memorial Library's catalog (<http://catalog.llu.edu>) provides access to all campus library collections. In addition to the collections of the Del E. Webb Memorial Library, there are nursing skills laboratory, bioethics, nutrition, occupational therapy, and Geoscience Research Center collections. The catalog also provides access to the combined collections of some thirty-nine libraries through Link Plus (<http://csul.iii.com>), a book-request service and union catalog of more than 8 million records. The library's Web site, <llu.edu/library>, provides access to all electronic journals, books, and databases.

The library participates in national and regional networks—such as the National Network of the Libraries of Medicine, founded by the National Library of Medicine. This structure is divided into eight regional sections, one of which is the Pacific Southwest Region. The library belongs to this region and is the designated medical resource library for San Bernardino and Riverside counties. Local library cooperatives include the Inland Empire Academic Library Cooperative (IEALC); and San Bernardino, Inyo, Riverside Counties United Library Services (SIRCULS). Membership in these cooperatives gives Loma Linda University students, faculty, and staff access to the collections of these libraries, archives, and special collections.

## Archives and special collections

The Department of Archives and Special Collections is the central repository of information on the history of Loma Linda University, the health sciences, and major collections on Adventism. It includes print materials; rare books; theses; dissertations; microforms; sound recordings; several thousand photographs; and archival materials, including papers of various denominational and University officials, as well as the congressional papers of the Honorable Jerry and Shirley Pettis. Searchable digitized indexes for various document files are also available via the department's Web page: <llu.edu/library/speccolls>.

For additional information about school- or program-specific libraries/ computer and research centers/learning resources, see the desired schools and programs in Section III of this CATALOG.

### Ellen G. White Estate Loma Linda Branch Office

Also located in the library is a branch office (<http://www.llu.edu/library/speccolls/white.page>) of the Ellen G. White Estate. It contains 60,000 typewritten pages of Ellen G. White's letters and manuscripts; 4,600 of her published articles; and several different files of materials pertaining to various aspects of her life and ministry. A computerized concordance to her published writings is available to researchers.

## Learning resources

On the campus, many learning resources for the student offer various opportunities for academic study and research. Each school center is listed with its most closely affiliated school.

### LLUH (Loma Linda University Health) institutes

- Behavioral Health Institute
- Cancer Center (Institute)
- Global Health Institute
- Institute for Community Partnerships
- Institute for Health Policy and Leadership
- Loma Linda International Heart Institute
- Perinatal Institute
- Rehabilitation, Orthopaedics, and Neurosciences Institute
- Transplantation Institute
- Wholeness Institute

### LLUH centers

- Center for Christian Bioethics
- Center for Spiritual Life and Wholeness

### LLUMC centers

- James M. Slater, M.D., Proton Treatment and Research Center
- Spine Center

### LLU centers

- Center for Biodiversity and Conservation Studies (School of Medicine)
- Center for Dental Research (School of Dentistry)
- Center for Health Disparities and Molecular Medicine (School of Medicine)
- Center for Health Promotion (School of Public Health)
- Center for Health Research (School of Public Health)
- Center for Interprofessional Education (Provost)
- Center for Neuroscience Research (School of Medicine)



- Center for Perinatal Biology (School of Medicine)
- Heritage Research Center (School of Religion)
- Neurosurgery Center for Research, Training, and Education (School of Medicine)

# Admission Policies and Information

## Personal qualities

Loma Linda University was established to provide professional health education in a distinctively Christian environment that prepares well-qualified, dedicated Christian health science professionals who are committed to fulfilling the mission of this University to serve humanity. Students at Loma Linda University are expected to uphold the Christian ethical and moral standards of this Seventh-day Adventist Church-related institution while on and off campus.

The University's emphasis on health and the health professions, as well as the practices of the supporting church, preclude admission of applicants who use tobacco, alcoholic beverages, or narcotics. The rights of the individual are recognized and respected; however, any conduct that is contrary to the principles governing a healthful and moral lifestyle is not acceptable for a Loma Linda University student. The prospective student has the freedom to accept or reject these principles and practices prior to applying. Once application is made to this University, the applicant has chosen to abide by these principles and practices.

In selecting students for entrance to programs in the schools, the admissions committees look for evidence of personal integrity, academic achievement, healthful lifestyle, self-discipline, self-direction, and service to others. An applicant accepted to a school must possess capabilities to complete the full curriculum in the allotted time at the levels of competence required.

While preference is given to Seventh-day Adventist Church members, anyone interested in studying at Loma Linda University and willing to live by the institution's standards is encouraged to apply.

Many programs require an interview with the faculty. Acceptance of an applicant into any curriculum is contingent on the recommendation of the department conducting the program.

## Applications and admissions

### Where to apply

It is important to know the specifics of the application process and to begin this process well in advance of the date of anticipated or desired entrance. Application procedures and the application can be found online at <[www.llu.edu/apply](http://www.llu.edu/apply)>.

### Application review process

All completed applications are reviewed by the appropriate admissions committee, which recommends the final decision regarding acceptance.

### Applicant's records

The application and all supporting records and documents become the property of the University.

## Application deferral

Applicants are accepted for a specified entering term. If the applicant does not enter the program at the time stated for admission, the application will become inactive unless the school receives a written request to defer the application. Not all programs permit an applicant to defer an application; however, for those programs for which this is permitted, an application may not be deferred for more than one year. After one year, a new application must be submitted. Accepted

applicants who wish to reactivate their acceptance at a later date must apply to the school for reactivation. Previous acceptance does not guarantee acceptance at a later time. Individuals must meet admission and graduation requirements that are in effect for the school year during which they first register.

## Re-entrance

See Continuous enrollment policy (p. 38).

## Combined degrees programs

Information regarding combined degrees programs, their curricula, pre-entry requirements, distribution of instruction, graduation requirements, finances, etc., may be obtained from the school and program directors responsible for the programs. See Section III of this CATALOG for combined degrees program options.

## Admissions classifications

Applicants are admitted under one of the following classifications and must be approved for acceptance by the department(s) in which they propose to do their major concentration. Acceptance into a specific program is required before any credit earned can be applied to a degree or certificate.

### Regular

Regular status is given to a student who has met all entrance requirements and is registered for a standard course of study leading toward a degree or certificate in one of the schools of the University.

### Provisional

Provisional status may be given to a student who has been accepted for admission but has not yet received regular status, either because of qualitative or quantitative deficiencies in the academic record.

### Nondegree

Nondegree status may be granted to a student who has not been admitted to a degree or certificate program but who is registered for selected courses in one of the schools of the University. Nondegree students are limited to a total of 12 units cumulative of courses that are applicable to a degree program at this University.

## Admission requirements

The following components of the application process are university admission requirements. Additional school and program specific admission requirements may be found in the program-specific pages of this CATALOG.

### Online application

The LLU application is only available online and can be found at <[llu.edu/apply](http://llu.edu/apply)>.

### Letters of recommendation

Three letters of recommendation are required. Some programs specify individuals from whom these recommendations should come. For programs requiring specific recommenders, information can be found on the respective program pages of this CATALOG.

## Official transcripts

The University accepts only official transcripts sent directly to Loma Linda University from the college, university, or high school issuing it. Transcripts submitted by the student are not considered official.

Applicants not applying through a central application service (such as AACAS, AADSAS, etc.) must provide official transcripts of all postsecondary education prior to offers of admission. International applicants (non-U.S. citizens and non-U.S. permanent residents) must meet all admission requirements for the chosen program before an offer of acceptance can be issued, whether or not the program uses a central application service. Official final transcripts documenting completion of all course work must be submitted to the University immediately upon completion.

Applicants to undergraduate programs of the University are required to furnish evidence (transcripts, GED, CHSPE, or equivalent) of completion of high school in order to be granted admission. The final transcript must include the date of graduation or completion. Applicants who hold an associate's degree from a regionally accredited college/university upon admission do not need to furnish a high school transcript, unless required to validate specific course work. Applicants expecting an associate's degree to be awarded before matriculation at Loma Linda University must provide documentation (e.g., letter mailed from registrar to the University) showing expected degree completion. Otherwise, evidence of completion of high school will be required for acceptance.

Final transcripts showing the awarding of a bachelor's degree are required for applicants to programs that require a bachelor's degree. If the degree is not yet posted on the transcript the applicant must submit documentation (e.g., letter mailed from registrar to the University) verifying completion of bachelor's degree prior to matriculation. Continuing enrollment is contingent upon the receipt of all official final transcripts.

Applicants who have attended international schools are required to submit official transcripts (mark sheets) in the original language, which convey the grades and credits earned in each subject; and an English translation of their transcripts, if not already in English.

Official education transcripts (or mark sheets), degrees earned from international institutions, or professional credentials must be sent to an evaluation center approved by Loma Linda University. The specified center reports the evaluation results directly to the Office of University Admissions.

Transcripts and evaluation results received by the University become the property of the University and will not be released to the student or forwarded to any other institution.

## English proficiency

Regardless of nationality or citizenship, an applicant whose native language is not English or whose secondary education has been obtained outside the U.S. is required to pass an approved test of English proficiency. Additionally, any applicant whose English competency is uncertain in regards to his/her professional success at Loma Linda University may be required to pass a test of English proficiency. The minimum required score for International English Language Testing System (IELTS) is 6.5. The minimum required score on Michigan English Language Assessment Battery (MELAB) is 77. A minimum Test of English as a Foreign Language (TOEFL) score of 80 (internet-based) or 550 (paper-based) is required. The TOEFL score is valid for two years from the test date. If it has been more than two years since the examinee last took

TOEFL, the test must be taken again to have the scores reported. Visit the TOEFL Web site at <<http://www.ets.org/toefl>> for the most up-to-date information and examination registration.

## Pre-entrance requirements

Some programs require official pre-entrance examination results. Specific instructions are available online.

### Health care

Operating under the Loma Linda University Center for Health Promotion, Student Health Service is committed to providing quality health care to the students within our University community. Our physicians and staff are dedicated to promoting a lifestyle that encourages a balance of physical, spiritual, emotional, and social well-being.

For needs that arise while a student is enrolled at Loma Linda University, Student Health Service is the primary source of care. Potential students will need to care for any routine medical and dental care and/or elective surgery needs prior to arriving on campus.

### Pre-entrance health requirements

Prior to enrolling in classes, newly admitted students must fulfill specific health requirements, as outlined on the New Student Health Requirements page. Unmet requirements are included in the New Student Portal. Loma Linda University is committed to protecting the health of our students, the University community, and our patient population. These health requirements not only promote health, but also accustom new students to the responsibilities of a health-care professional. A completed pre-entrance health requirements form (available on the web at <http://home.llu.edu/new-student-health>), with all the necessary documentation, should be submitted at least three weeks prior to the beginning of registration in order to register or attend classes.

- MMR (measles, mumps, rubella): Documentation of two MMR vaccinations given after age 1 year, or submit positive blood titer reports for each disease (must be quantitative IgG antibody titers)
- Tuberculosis Screening:
  1. All students will complete the "TB Screening form" within the Pre-Entrance Health Requirements form.
  2. All students must provide TB skin test results.
    - a. For negative results, submit documentation within 6 months prior to starting a program and/or classes.
    - b. For positive results, submit copy of chest-x-ray report taken within the last year.
- Tdap (tetanus, diphtheria, pertussis): A Tdap dose within the past 10 years OR a Td dose within the past 10 years and 1 dose of Tdap after age 18 years
- Varicella (chickenpox): Documentation of two Varicella vaccinations given after age 1, or submit a positive blood titer report (must be quantitative IgG antibody titers)
- Hepatitis B: Documentation of a complete series (three immunizations required), or submit positive blood titer report (must be quantitative hepatitis B surface antibody)
- Please note: Some schools will require titers in addition to immunizations.

For further information, visit the Student Health Service Web site at <http://home.llu.edu/student-health> or contact Student Health Service at 909/558-8770. For additional information on the communicable diseases

policy, consult the *Student Handbook at -llu* (<http://www.llu.edu/assets/central/handbook/documents/Student-Handbook.pdf>). *edu/student-handbook* (<http://www.llu.edu/assets/central/handbook/documents/Student-Handbook.pdf>), University Policies: Communicable disease transmission-prevention policy.

## Background check

After students are accepted and confirmed, they will receive a link on their New Student Portal that will allow them to get a required University-specific background check. Other background checks will not be accepted.

## Advisement

Upon admission into a degree program, each student is assigned an academic advisor who serves as the student's first line of communication in addressing professional and personal successes and potential challenges.

Academic advisors are prepared to discuss career opportunities, academic policies, academic problems, curriculum, and personal circumstances.

It is the student's responsibility to consult with his/her advisor in planning the program of study. Thereafter, advisees should schedule counseling sessions with their advisors to monitor progress and assure completion of degree requirements. When questions arise relating to curriculum or policy requirements, students should always refer first to the CATALOG and their own program curriculum outline. Next, they may seek counsel from their academic advisor. Questions arising after discussion with the advisor should be referred to the department chair or the academic dean.

Orientation and advisement sessions are scheduled for all new students. These sessions provide general guidance regarding student services, health care, library resources, safety and security, registration procedures, and academic policy.

## International students

International applicants (non-U.S. citizens and non-U.S. permanent residents) must meet all admissions requirements for the chosen program before an offer of acceptance can be issued. This includes all official postsecondary transcripts (or mark sheets) and degree certificates, official evaluations of non-U.S. course work, English proficiency, and admission examination requirements, as detailed below.

After acceptance into the chosen program, the Office of International Student and Scholar Services will contact international applicants and guide them through the appropriate procedures for obtaining student visas, which includes providing evidence of their financial ability to meet estimated living expenses and all financial obligations to the University that will occur during their program. For questions, please contact International Student and Scholar Services at 909/558-4955.

## Pre-entrance examination results

All official pre-entrance test scores (e.g., TOEFL, GRE) as required by each program must be sent directly to the Office of University Admissions by the testing organization.

## International evaluations

All international (non-U.S.) transcripts, including high school, must be submitted to one of the LLU-approved evaluation services. See [llu.edu/central/apply/intltrans.page](http://llu.edu/central/apply/intltrans.page) for a list of the approved companies.

## Finances and employment

United States immigration regulations and Loma Linda University require that international students must be prepared to provide an advance deposit and must provide documentation that additional funds will be forthcoming to meet school expenses. The deposit will be held by the University during the program of study and will be applied to the last quarter's tuition charge. Alternatively, the deposit may be refunded, less any outstanding balance on the account, if the student is denied a visa or terminates his/her program.

Scholarships and assistantships for international students are scarce. The student should contact the Loma Linda University Financial Aid office and speak with a financial aid advisor regarding availability and application information.

F- and J-visa international students must obtain written authorization from International Student and Scholar Services before accepting any on-campus employment. Off-campus employment requires prior issue of a work permit by the U.S. Citizenship and Immigration Services. F- and J-visa students must limit their employment to twenty hours or fewer per week while registered for courses and while classes are in session during three of four quarters in an academic year. Regulations allow full-time work (forty hours or fewer per week) during school breaks and summer vacations (if a student's program allows summer quarters off). For questions, please call International Student and Scholar Services at 909/558-4955.

## Visas

### F-1 student visas

Loma Linda University is authorized by the United States Department of Homeland Security to issue F-visa applications (i.e., I-20 forms). The F-1 student visa is the visa of choice for most international students coming to Loma Linda University. This visa allows some nondegree study (e.g., certificates and internships). Degree-earning students are subject to study load requirements and are allowed limited on-campus employment.

The I-20 is issued after a student:

- has been accepted into a program and all official transcripts (mark sheets) have been appropriately evaluated and received by the University;
- has paid the advance deposit, as required by their program; and
- has documented his/her financial plan for the chosen program.

International Student and Scholar Services can be contacted at 909/558-4955 for further information regarding F-1 student visas and the regulations governing this visa.

### J-visa exchange program

Loma Linda University has an approved exchange visitor program under the U.S. Department of State. This J-visa exchange program is authorized to sponsor/host degree-earning students, nondegree (continuing education) students, student interns, short-term scholars, visiting professors, and research scholars. A J-visa application form (i.e., DS-2019) is issued after an exchange visitor has been accepted into a program, scholar position, or professor position; and has documented

his/her financial plan (including health insurance for the J-1 and all J-2 dependents).

Loma Linda University also hosts exchange visitors who are sponsored by other organizations (e.g., Fulbright scholars). As a hosting institution, Loma Linda University has limited authority over these exchange visitors since the authority resides with the sponsoring organization.

Under current exchange visitor regulations, J-2 dependents are allowed to enroll part or full time at Loma Linda University. Also, their credits earned can either be degree or nondegree applicable.

J-1 exchange visitors are allowed to work; but employment guidelines differ, depending on the exchange category. Contact International Student and Scholar Services at 909/558-4955 for further information and regulations governing the exchange visitor program.

### Other visas

International students may enter the U.S. on a wide variety of visas. However, a visa may have to be changed before a student can commence academic studies at this University. For further information regarding regulations and study options for specific visa types, contact International Student and Scholar Services at 909/558-4955.

### Transfer students

International students currently attending other schools in the United States who have either an I-20 or a DS-2019 and who wish to attend Loma Linda University must do a school-to-school transfer. The timing of a transfer is critical in order to maintain visa status; therefore, it is important to consult with an international advisor at each school as soon as the acceptance letter is received.

### Study load

Both the F- and J-student-visa regulations require the successful completion of a full study load during each quarter of every academic year (as defined by each program). A minimum of 12 units per quarter is usually considered full time for an undergraduate program; 8 units per quarter is considered full time for a graduate program. In any quarter in which there will be a reduced study load, prior approval is needed from an international student advisor in International Student and Scholar Services.

## Division of General Studies

### General education requirements

The Division of General Studies offers general education courses that contribute to the fulfillment of requirements that apply to the Bachelor of Science degree programs in the Schools of Allied Health Professions, Dentistry, and Nursing. In addition, these schools offer a variety of general education courses that are open to students across all schools. The Division of General Studies also provides oversight for courses that may be selected to enrich a student's academic experience but that do not fulfill Loma Linda University general education requirements.

### Loma Linda University philosophy of general education

As a Seventh-day Adventist health sciences institution, Loma Linda University seeks to exemplify a life of service and sensitivity beyond the requirements of academic excellence within a professional discipline.

With its rich spiritual heritage, the University places special emphasis on educating its students for a life of service in a global community.

General education at Loma Linda University consists of courses, lectures, programs, and activities coordinated with the intent to integrate faith and learning. In addition to the basics of cultural heritage and diversity, scientific inquiry and analysis, communication, and wellness, the curriculum emphasizes the University's spiritual heritage; as well as moral and ethical decision making that is grounded in Christian principles.

Thus, a general education is considered to be the cornerstone upon which students begin cultivating their abilities to:

1. Understand the fundamental Christian principles and Adventist heritage that undergird Loma Linda University.
2. Make informed moral and ethical decisions.
3. Incorporate critical thinking skills into personal and professional experience.
4. Value individuals with diverse capabilities and ideological, ethnic, gender, and generational perspectives.
5. Communicate effectively.
6. Undertake scientific inquiry and analysis.
7. Appreciate the contributions of the arts and humanities to society.
8. Examine the historical basis of the health sciences professions.
9. Develop self-awareness through balance of mental, physical, social, and spiritual aspects of daily living.
10. Model servant leadership in health care as exemplified by Jesus of Nazareth.

The Loma Linda University philosophy of general education creates a unique learning environment committed to the concept of human wholeness. Faculty are selected who embrace the spirit as well as the specifics of general education and who purpose to extend its goals into all aspects of University life—from the residence hall programs to the core of professional studies—thus adding an invisible curriculum to the required course offerings. It is this spirit in tandem with the specifics of a liberal arts education that inspires students to achieve academic excellence, value diversity, pursue lifelong learning, and live to bless others.

### Loma Linda University criteria for general education courses

- The course assists the health sciences student in cultivating abilities in one or more of the preceding ten aspects described in the Loma Linda University philosophy of general education for baccalaureate degrees.
- The primary focus of the course contributes to the relevant knowledge and understanding of a subject area within one of the following domains described in the Loma Linda University general education requirements for baccalaureate degrees.
- The course is based on appropriate prerequisites, particularly when offered at the upper division level.
- The course is open to all baccalaureate degree students of Loma Linda University for general education credit.
- Courses transferred to Loma Linda University for general education credit from another accredited institution must fall within one of the

domains described in Loma Linda University's general education requirements for the baccalaureate degree.

## Course requirements

### Loma Linda University general education requirements (68 quarter units)

In harmony with its commitment to wholeness, Loma Linda University requires all students graduating with a baccalaureate degree to complete a minimum of 68 quarter units of general education, which are integrated into the entire undergraduate program. Requirements are organized into five domains, as outlined in the following:

#### Domain 1: Religion and Humanities (28–32 quarter units)

The study of religion must include an average of 4 units of religion course work for every 48 quarter units earned while attending a Seventh-day Adventist college or university. For students who did not earn all their credit at a Seventh-day Adventist college or university, the required religion units will be prorated based on the number of credits earned at a Seventh-day Adventist college or university (i.e., one unit for every 12 units taken at a Seventh-day Adventist institution). All students earning a bachelor's degree, including those who have met the preceding requirements, must take at least one course in religion from Loma Linda University (see following paragraph). All required credits in religion must be earned from a Seventh-day Adventist institution, but it is strongly recommended that students at other institutions include some religion as part of the overall requirement for Domain 1.

One religion course dealing with the spiritual heritage of the philosophy and mission of Loma Linda University is required of all graduates and must be taken from Loma Linda University. Courses that fulfill this requirement are: RELT 406 Adventist Beliefs and Life, RELT 423 Loma Linda Perspectives, RELT 436 Adventist Heritage and Health, and RELT 437 Current Issues in Adventism.

Students whose required units in religion from a Seventh-day Adventist institution have been prorated (reduced) are encouraged to make up the additional units in Domain 1 (28 quarter units) with further religion courses and/or additional units in humanities from Loma Linda University.

The study of humanities must include a minimum of 12 units. The credits in humanities must be selected from at least three of the following areas: civilization/history, fine arts, literature, modern language, performing/visual arts (not to exceed 4 quarter units), philosophy, or general humanities elective.

#### Domain 2: Scientific Inquiry and Analysis (24–32 quarter units)

Scientific inquiry and analysis encompass both the natural and social sciences. The study of natural sciences must include a minimum of 12 units. The units in natural sciences must be selected from two of the following content areas: biology, chemistry, geology, mathematics, physics, and statistics. At least one natural science course must include a lab component.

The study of social sciences must include a minimum of 12 units. Units in social sciences must be selected from two of the following content areas: anthropology, economics, geography, political sciences, psychology, and sociology. One course (or components integrated into several courses) dealing specifically with issues of human diversity is required.

#### Domain 3: Communication (9–13 quarter units)

Course work in communication must include a complete sequence in English composition that meets the baccalaureate degree requirements of a four-year college or university. Other areas of study in communication may include courses in computer information systems, critical thinking, and public speaking.

#### Domain 4: Health and Wellness (2–6 quarter units)

To encourage the pursuit of lifelong leisure activities and wellness, the study of health and wellness must include at least two separate physical activity courses totaling a minimum of 1 quarter unit; and one course in personal health or nutrition. Additional units may include other areas of health, nutrition, and physical fitness.

#### Domain 5: Electives

Electives from the previous four domains may be selected to complete the general education minimum requirements of 68 quarter units.

## LLU courses

General education courses offered by the schools are listed below in Domains 1–4.

Descriptions for general education courses are available in Section IV—The Courses—of this CATALOG.

### Domain 1: Religion and Humanities (28–32 quarter units)

#### Humanities

AHCJ 225	History of Radiation and Imaging 1890-1940	3
AHCJ 226	History of Radiation and Imaging 1940-Present Day	3
AHCJ 422	History of Disability	3
CMSD 217	Beginning Sign Language	3

#### Religion

RELE 455	Christian Understanding of Sexuality	2
RELE 456	Personal and Professional Ethics	2
RELE 457	Christian Ethics and Health Care	2
RELR 404	Christian Service	1,2
RELR 408	Christian Perspectives on Marriage and the Family	2
RELR 409	Christian Perspectives on Death and Dying	2
RELR 415	Christian Theology and Popular Culture	2
RELR 427	Crisis Counseling	2
RELR 429	Cultural Issues in Religion	2
RELR 475	Art of Integrative Care	2
RELT 404	New Testament Writings	2
RELT 406	Adventist Beliefs and Life	2
RELT 416	God and Human Suffering	2
RELT 423	Loma Linda Perspectives	2
RELT 436	Adventist Heritage and Health	2
RELT 437	Current Issues in Adventism	2
RELT 440	World Religions	2
RELT 464	Paul's Message in Romans	2

### Domain 2: Scientific Inquiry and Analysis (24–32 quarter units)

#### Natural sciences

AHCJ 101	Introductory Chemistry	4
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AHCJ 102	Introductory Organic Chemistry	4
AHCJ 103	Introductory Biochemistry	4
AHCJ 111	Introductory Physics	4
AHCJ 112	Introductory Physics	4
AHCJ 241	Microbiology	2.5
AHCJ 242	Microbiology	2.5
AHCJ 250	Human Anatomy and Physiology I	5
AHCJ 251	Human Anatomy and Physiology II	5
AHCJ 402	Pathology I	4
AHCJ 403	Pathology II	3,4
AHCJ 418	Physiology I	4
AHRM 471	Statistics and Research for Health Professionals I	3
AHRM 472	Statistics and Research for Health Professionals II	3
AHRM 475	Health-Care Research and Statistics	4
CMSD 304	Hearing Science	4
CMSD 376	Anatomy of Speech-Hearing Mechanism	4
DNHY 390	Introductory Statistics	2
EPDM 414	Introduction to Epidemiology	3
STAT 414	Introduction to Biostatistics I	3
STAT 415	Computer Applications in Biostatistics	1

**Social sciences**

AHCJ 305	Infectious Disease and the Health-Care Provider	1
AHCJ 315	Psychosocial Aspects of Health Care	3
AHCJ 323	Economics and Business Management	3
AHCJ 324	Psychosocial Models and Interventions	2
AHCJ 328	Wholeness Portfolio I	1
AHCJ 331	Human Resource Management	3
AHCJ 407	Financial Management	2
AHCJ 498	Wholeness Portfolio II	1
ANTH 315	Cultural Anthropology	4
DNHY 414	Personal Finance	2
PSYC 101	Introduction to Psychology	4
PSYC 226	Lifespan Development	4
PSYC 305	Psychological Foundations of Education	4
PSYC 460	The Exceptional Individual	3
PSYC 479	Human Neuropsychology	4

**Domain 3: Communication (9–13 quarter units)**

AHCJ 308	Professional Communications	1-2
AHCJ 426	Introduction to Computer Applications	2
AHCJ 465	Seminars in Leadership	2
AHCJ 499	Directed Study	1-4
ENGL 300	Writing Seminar for Health-Care Professionals	2

**Domain 4: Health and Wellness (2–6 quarter units)**

DTCS 301	Human Nutrition	3
DTCS 311	Human and Clinical Nutrition for Nursing	4
DTCS 312	Clinical Nutrition for Nursing	2
PEAC 110	Independent Activities	1
PEAC 128	Recreation Swimming	1

**Domain 5: Electives**

Electives from Domains 1-4 may be selected to complete the general education minimum requirements of 68 quarter units.

**Loma Linda University general education courses—online and booklet**

A complete listing of courses offered each academic term at this University to meet general education domain requirements is included on the Loma Linda University Web site at <llu.edu/central/ssweb> under the course schedules.

By linking from Course Schedules to General Education Brochure and Course Descriptions, the student has access also to the entire list of general education courses and course descriptions. This list is also available at the above Web site as a printable booklet—"Loma Linda University General Education Philosophy, Requirements, and Courses."

**Student Life**

The information on student life contained in this CATALOG is brief. The most current *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies; and is available to each registered student. Students need to familiarize themselves with the contents of the *Student Handbook*. Additional information regarding policies specific to a particular school or program within the University is available from the respective school.

**From University to student**

Loma Linda University was established to provide education in a distinctively Christian environment. Students are expected to respect the standards and ideals of the Seventh-day Adventist Church. Prospective students have the freedom to choose or reject University or school standards, but the decision must be made before enrollment. Application to and enrollment in Loma Linda University constitute the student's commitment to honor and abide by the academic and social practices and regulations stated in announcements, bulletins, handbooks, and other published materials; and to maintain a manner that is mature and compatible with the University's function as a professional institution of higher learning.

It is inevitable that the student will come under question if academic performance is below standard; student duties are neglected; social conduct is unbecoming; or attitudes demonstrate deficiencies such as poor judgment, moral inadequacy, or other forms of immaturity.

Procedures for evaluation of academic and nonacademic performance—as well as for the student to exercise his/her right of appeal—are described in the current CATALOG and in each school's section of the *Student Handbook*. Grievances regarding both academic and nonacademic matters must be processed according to these published grievance procedures. After a student files an appeal or grievance, the faculty assesses the student's fitness for a career in the chosen profession and recommends to the dean appropriate action regarding the student's continuance or discontinuance.

Prospective students who have questions concerning the University's expectations should seek specific information prior to enrollment.

**Whole person health**

The University regards the student from a cosmopolitan and comprehensive point of view. It is cosmopolitan in that historically the

University's global mission has promoted bonds and opportunities in education and service without regard to gender or to national, racial, or geographical origin. It is comprehensive in that the University's concern for the welfare of the student traditionally has been an integrated concern for assisting the student toward whole person health—balanced development of spiritual, social, physical, and mental health. Cultivating the health of any one part enhances the health of all parts. Neglecting or abusing the health of one harms the health of all. Before one can experience whole person health, there must be a practical appreciation of the interdependent interaction of each part of the whole.

Students from all schools of Loma Linda University may congregate and participate in the multifaceted programs offered that involve the holistic concept of social, intellectual, physical, emotional, and spiritual wellness. These programs support Loma Linda University's motto, "To make man whole."

### Spiritual health

In addition to personal quiet times, opportunities for the student to further develop rich, personal spiritual resources are provided in scheduled religious exercises and activities and in informal association with others who cherish spiritual values. Religion classes as well as weekly chapel services are part of the required curriculum.

### Social health

Situated within easy access of the ocean, mountains, and desert, the University provides numerous opportunities for students to complement their formal learning through participation in a wide variety of recreational, cultural, and other activities. A variety of University-, school-, and group-sponsored events encourages students to relax and become better acquainted with one another. Through these activities and events, students can enrich their group interaction and leadership experiences, increase their enjoyment of and interest in fields outside their profession, develop their talents, enhance wholesome and memorable association with others, and cultivate supportive and lifelong social relationships.

### Mental health

The University promotes mental health by encouraging students to study and practice principles of sound psychological health and to access state-of-the-art counseling and mental health services, as needed.

### Physical health

The University promotes physical fitness by encouraging recreational interests and by providing courses in field exercises, body building, and health instruction. An effort is exerted to interest each student in some recreational and health-building activity that may be carried over to enhance future life.

## Immunizations

As a member of a health science university, whether we are directly involved in patient care or not, we are responsible for the wellbeing of others. As a result, Loma Linda University requires that all students receive the flu vaccine annually.

## Recreation/wellness: The Drayson Center

The Drayson Center serves as the focal point for recreation and wellness at Loma Linda University. Encompassing 100,000 square feet, the facility offers a plethora of fitness options to promote physical, intellectual, social, emotional, and spiritual wholeness. The Drayson Center showcases a 21,000 square-foot multipurpose gymnasium

that can accommodate three full-size basketball courts, five volleyball courts, or nine badminton courts. Circling the gymnasium's interior is an elevated, three-lane running track. Five racquetball courts and six outdoor tennis courts are available for play. Aerobics studios and cardiovascular rooms can accommodate anything from Pilates, cycling, and Zumba classes, to strength training, sports conditioning, and bodybuilding—and everything in between.

An outdoor aquatics center includes a heated, ten-lane lap pool, a leisure pool, and a jacuzzi; along with a 22-foot high water slide and recreational pool. Saunas are installed in the fully-equipped men's and women's locker rooms. A 400,000 square-foot outdoor multipurpose recreational area hosts two softball fields, a half-mile track, a beach volleyball court, and numerous picnic and game areas.

The Drayson Center also offers personal training services, massage therapy, and a variety of leisure classes, such as ballet and karate. Conference rooms are available for hosting meetings, exhibitions, and banquets. This full-service facility serves to promote health and wellness to Loma Linda University students, staff, faculty, and the surrounding community.

## Student Health Service

Operating under the Loma Linda University Center for Health Promotion, Student Health Service is committed to providing quality health care to the students within our University community. Our physicians and staff are dedicated to promoting a lifestyle that encourages a balance of physical, spiritual, emotional, and social well-being. The services provided include primary care, women's health, immunizations, laboratory testing, health education, counseling, and referrals to specialty services. Enrollment in the Risk Management Student Health Plan is required to receive the comprehensive coverage of services. Provider visits are available free to all students after acceptance into Loma Linda University and during any lapses in Risk Management Health Plan enrollment.

Student Health Service is located in Evans Hall, Suite 111, at the corner of Anderson and Stewart streets. The hours of operation are Monday-Thursday 8 a.m.-12 noon and 1-5 p.m., and Friday 8 a.m.-1 p.m. To schedule an appointment or for more information, call 909/558-8770.

## Loma Linda University Student Health Plan

The University-sponsored Student Health Plan is designed to provide comprehensive medical coverage for the student and his/her eligible dependent(s). It is not an insurance program. The plan includes coverage for hospital care, surgery, emergency care, prescription drugs, limited dental and more. Generally, to be eligible for reimbursement under the provisions of the plan, expenses must be incurred while coverage is in effect. Expenses incurred before plan coverage becomes effective or after plan coverage has terminated will not be covered. This plan will only provide medical coverage on an excess basis. This means that all medical expenses must first be submitted to any other available source of health-care coverage. There is no optical coverage available. Please see the Loma Linda University Web site for Student Health Services for a complete explanation of the Student Health Plan (<llu.edu/central/studenthealth>).

### Enrollment

The process to enroll in the Student Health Plan is completed through the on-line registration process. Once your registration is complete, information will be relayed to Risk Management. If you are adding an



eligible dependent to your Student Health Plan, the Student Health Plan Enrollment form will need to be completed and submitted to Risk Management with the necessary payment.

## Preferred provider plan

The health plan has been developed as a PPO (preferred provider) plan. Benefits for services utilized outside the preferred provider structure will be reduced.

## Plan year

The plan benefit year is a fiscal year and runs from July 1 through June 30.

## Eligibility

A student is eligible for benefits if s/he:

- Is attending Loma Linda University as a graduate or undergraduate student; and
- Is a degree-track student. A student who is accepted into a degree program and who is registered for more than 0 units will be eligible regardless of the number of units for which s/he is registered.
- Is a nondegree student registered for more than 4 units. A student who is not accepted into a degree program but who is registered as a nondegree student for more than 4 units will be eligible. However, a nondegree student registered for 4 units or fewer will not be eligible and will not be eligible to buy into the Student Health Plan.
- Chooses to buy in, was covered under the Plan during the previous quarter, and on an approved leave of absence from his/her academic program.
- Is an IP-only student. A student who is working on an "In Progress" course and is not registered for any other units will be eligible.

## Additional information regarding eligibility

- A student who drops all units before the deadline will not be covered by the plan. Any student who drops all units before the last day for a full refund will not be eligible for the University Student Health Plan for that quarter.. Please refer to the Student Finance 100-percent refund policy.
- LLUH employees who are "full-time, benefit eligible" will not be eligible for the Student Health Plan.
- Students participating in an off-campus or online program will not be eligible for the Student Health Plan.
- An eligible student's coverage will become effective on the first day of class or new student orientation, whichever occurs first.

## Buy-in provision

Under the following provisions, a student may obtain coverage under this health plan or extend coverage to a spouse or dependent children each quarter. In order to receive any coverage under this plan, a student must apply for coverage during an open enrollment period—within thirty days of a status change (i.e., within thirty days of marriage or within thirty days of the birth of a newborn child) and pay the appropriate quarterly student contribution, as outlined below:

1. Spouse/Dependent children. If a student is covered under this plan, s/he may extend health plan coverage to his/her spouse or dependent child(ren).
2. Leave of absence (LOA). If a student has been covered under the plan up until leaving school on an approved leave of absence (LOA), s/he

may extend coverage under the plan for the length of the approved LOA, up to a maximum extension of one year.

3. Continuation coverage. If a student has been covered under this plan but no longer meets the eligibility requirements, s/he and eligible dependents would be able to continue coverage for up to one quarter through the buy-in provision.

The open enrollment period for eligible students and dependents is the last two weeks of each calendar quarter. Buy-in coverage will be effective from January 1 to March 31, April 1 to June 30, July 1 to September 30, and October 1 to December 31. No invoices or reminders are sent to students who are buying into the plan. The Department of Risk Management cannot add Student Health Plan buy-in fees to the student's account. All payments must be made by check, money order, or credit card with the Visa or MasterCard logo by calling 909/651-4010. A newborn child must also be enrolled in the plan within thirty days of birth or adoption in order to receive any coverage under this plan. There is no automatic or temporary coverage provided for any dependents, including adopted or newborn children.

Extension/Continuation coverage—Rates below effective 10-01-2016

- Student—\$525 per quarter for the student plus one of the amounts below for dependents is charged for extension/continuation coverage:
- One dependent (spouse or child) of a covered student—\$560 per quarter
- Two or more dependents—\$1,120 per quarter

## Prescription drug coverage

Each enrolled student will be given a CVS/Caremark health-care identification card, which can be used at any participating pharmacy displaying the CVS/Caremark decal. The cost of the prescription will be billed directly to the plan after the student pays a copayment. Prescriptions filled through CVS/Caremark will be limited to a maximum of a thirty-day supply. The copayment amounts will be \$15 for generic drugs and \$30 for brand-name\* drugs that are dispensed at the health plan's preferred pharmacies: the LLUMC Pharmacy, the Faculty Professional Pharmacy (located in the Faculty Medical Offices), the LLU Meridian Pharmacy, the LLU Highland Springs Pharmacy, the LLUMC Murrieta Physicians Office Building Pharmacy, and the LLU Community Pharmacy.

If the prescription is filled at any other participating CVS/Caremark pharmacy, there will be a \$25 copayment for generic products or a \$40 copayment for brand-name\* drugs. Prescriptions not filled by the CVS/Caremark system will not be covered under the plan.

\*The copayment is shouldered by the plan when a name brand is purchased because no generic substitute is available; however, if a student chooses a name brand over a generic drug, the student will be responsible for the generic copayment plus any difference in cost between the two medications.

## Utilization review

All services that require preadmission review or prior authorization must be processed through the Department of Risk Management. The types of services that require prior authorization include:

- All hospital admissions

Scheduled admissions must be authorized prior to entrance to the hospital. In the case of emergency admissions, notification must be made within 48 hours or the next business day

- All outpatient surgeries
- Home health services, skilled nursing facilities
- Orthotics and purchase or rental of durable medical equipment

Please refer to the plan document for a complete description of required authorizations. Participants in this plan must follow the preadmission review process in order to receive full hospitalization benefits. If a participant does not follow the preadmission review process, hospitalization benefits will be reduced by 50 percent.

In order to fully understand plan benefits, students need to obtain a University Student Health Plan document, which describes all of the plan coverage, limitations, and exclusions. Questions regarding the plan should be directed by telephone to the Department of Risk Management at 909/651-4010.

## Malpractice coverage

Students are covered by malpractice insurance while acting within the course and scope of any approved clinical assignment.

## Disability insurance

All students in the School of Medicine and the School of Dentistry are automatically enrolled in a disability insurance program while enrolled at this University. This program provides limited disability insurance for students while in the program and also allows for conversion to an individual disability insurance policy at the time of graduation. Details of this program are available from the School of Medicine or the School of Dentistry.

## Counseling services

### Loma Linda University Student Counseling Program

The University Counseling Center offers a variety of private, confidential services to students and their families—including individual, premarital, marital, and family counseling; as well as medication treatment. Counselors use practical, problem-solving strategies to help students deal more effectively with stresses of school and personal life in a healthy and healing way.

The program is staffed by members of the Employee and Student Assistance Programs, which includes licensed clinical social workers and marriage and family therapists.

To schedule an appointment or for more information, call 909/558-9534 or campus extension 39534. Eligible students do not have a co-pay for these visits.

The University Student Counseling Center is located in the Hartford Building, 11360 Mountain View Avenue, Suite A, in Loma Linda.

### Loma Linda Student Assistance Program

The Loma Linda Student Assistance Program (LLSAP) provides professional and caring assessment and treatment for a variety of personal, family, work, and school-related issues. The LLSAP clinicians will develop a treatment plan that may include free short-term counseling. All LLSAP services are free of charge.

If more extensive treatment is appropriate, the client is referred to a community therapist who specializes in the student's area of concern

and who is covered by the student's health plan. All information is confidential. Community therapists and LLSAP clinicians will not release information without the written consent of the student, with the exception of matters that fall under mandatory reporting laws.

The LLSAP, the only nationally accredited student assistance program in California, has provided state-of-the-art services to students since it was established in 1990.

Appointments may be scheduled Monday through Wednesday, 8 a.m. to 5 p.m., by calling on-campus extension 66050 or 909/558-6050; Thursday, 8 a.m. to 7 p.m.; Friday, 8 a.m. to 1 p.m. Additional appointment times may be available upon request.

The program is located in the Hartford Building, 11360 Mountain View Avenue, Suite A, in Loma Linda.

## Governing practices

At Loma Linda University, nonacademic policies have been established that help foster a fulfilling University experience. Students are expected to uphold these policies, which govern nonacademic student life on and off campus. Information in this section of the CATALOG, as well as in the *Student Handbook* (<http://www.llu.edu/student-handbook>) pertains to requirements governing all students. The student is reminded of individual responsibility to be fully informed of the general and specific requirements of his/her school and program.

### Identification number and card

All accepted students will be assigned a unique University identification number. This seven-digit number will be used on all correspondence and noted on all payments to the University. A University identification card using this identification number and a bar code will be issued to each student after s/he completes initial registration and financial clearance.

The identification card allows access to various student services, including the libraries, Student Health, recreation facilities (i.e., the Drayson Center), parking, etc. Also, the bar code on the card allows currently enrolled and financially cleared students to charge against their accounts at the Campus Bookstore and campus cafeterias, and for ticket sales available through the Student Services office. In subsequent quarters, the card's bar code is automatically reactivated at each registration upon financial clearance.

For further information regarding these identification cards, please contact Student Services.

### Residence hall

The University is coeducational and accepts both single and married students. Any single student who prefers to live on campus may do so. Students are expected to live on campus unless they are:

- married,
- twenty-one years of age or older,
- in a graduate program, or
- living with their parents.

Students who wish to live off campus but who do not meet one of the foregoing requirements may petition the vice president for student services for a possible exception. This should be done well in advance of registration to allow the student adequate time to plan. Additional information about campus housing can be obtained from the housing Web site at [llu.edu/central/housing](http://llu.edu/central/housing).

The student must keep the University informed of his or her current address and telephone number and other contact numbers.

## Marriage

A student who marries or changes marital status during the academic year must provide the school with advance written notification of the change in status in order to keep school records correct and up to date. It is wise for students to make every effort to schedule their wedding ceremonies during academic recesses.

## Name change

Currently enrolled students may change their names on University records when they provide evidence (e.g., certified copy of a marriage certificate) that the name change is official. In addition to filing with the Office of University Records on University Records forms a request for change of name, the student must present a current ID card or other form of picture ID with his or her name as it appears on University records, along with official documentation of the name change.

Name changes must be processed no later than six months prior to graduation if the new name is to appear on the diploma.

## Professional apparel

Clinic and laboratory apparel are distinctive articles of dress specified by the department or school and are to be worn only in the manner prescribed and under the conditions specified in the school or department dress code. Student uniforms are to be maintained in clean, presentable condition. Information on the required professional dress is provided in Section III of this CATALOG and in the University *Student Handbook*.

## Personal appearance

Students in the classroom or clinical environment must exhibit personal grooming consistent with expectations of the health-care institution, the profession, the school, and the University. Specific guidelines regarding grooming and attire are provided in Section III of this CATALOG and in the University *Student Handbook*.

## Personal property

The school assumes no responsibility for the loss of the student's personal property, instruments, or other items by theft, fire, or unknown causes. The student is expected to assume responsibility for the safekeeping of personal belongings.

## Cars and transportation

Because the student is responsible for transportation arrangements and costs for special projects and off-campus clinics, it is advantageous for the student to have access to a car.

The University enforces traffic rules and regulations as provided for by the State of California Vehicle Code. It is the sole responsibility of the driver of any vehicle on University property to become familiar with these regulations. Drivers are held responsible for any infraction of the regulations. Copies of the brochure entitled "Loma Linda University Traffic and Parking Regulations" are available at the Department of Security.

Vehicles used by students on campus must be registered with the Department of Parking. Returning students must renew the registration of their vehicles online with the Department of Parking annually in September.

## Confidentiality

The Health Insurance Portability and Accountability Act (HIPAA) of 1996 requires that all health-care professionals maintain the highest level of confidentiality in matters pertaining to clients. Discussions or written assignments relating to client information, either health related or personal, may not include identifying data. Clients' privacy and rights are to be protected.

Failure to maintain confidentiality could result in legal action.

For additional information, see "Introduction to HIPAA" at <[home.mc.llumc.edu/Departments/LLUHS-Departments/HIPAA-Information/HIPAA-Help/Introduction-to-HIPAA/Index.html](http://home.mc.llumc.edu/Departments/LLUHS-Departments/HIPAA-Information/HIPAA-Help/Introduction-to-HIPAA/Index.html) (<http://home.mc.llumc.edu/Departments/LLUHS-Departments/HIPAA-Information/HIPAA-Help/Introduction-to-HIPAA/Index.html>)>.

## Substance abuse

As a practical application of its motto, "To make man whole," Loma Linda University is committed to providing a learning environment conducive to the fullest possible human development. Because the University holds that a lifestyle free of alcohol, tobacco, and recreational/illegal drugs is essential for achieving this goal, it maintains policies that foster a campus environment free of these substances.

All students are expected to refrain from the use of tobacco, alcohol, or recreational or illegal mind-altering substances. Possession or use of these substances may be cause for dismissal.

For details regarding the University's drug-free environment—as well as information regarding prevention, detection, assessment, treatment, relapse prevention, confidentiality, and discipline—see the Loma Linda University *Student Handbook*, Section V, University Policies: Alcohol, controlled substances, and tobacco policy.

## Sexual harassment

Sexual harassment is reprehensible and will not be tolerated by the University. It subverts the mission of the University and threatens the well-being, educational experience, or careers of students, faculty, employees, and patients.

Because of the sensitive nature of situations involving sexual harassment and to assure speedy and confidential resolution of these issues, students should contact the office of the dean of the school in which they are enrolled.

A more comprehensive statement of the policy regarding sexual harassment and sexual standards can be found in the Loma Linda University *Student Handbook*, Section V, University Policies.

## Employment

It is recommended that students limit work obligations (outside employment for income) that divert time, attention, and strength from the arduous tasks of class preparation, clinical practice, and/or training in their chosen career. A student wishing to work during the school year should consult the office of the dean of the school in which s/he is enrolled regarding employment restrictions or prohibitions.

## Employment for international students

International students must obtain written authorization from International Student and Scholar Services before accepting any on-campus employment. Off-campus employment requires prior issue of a work permit by the Bureau of Citizenship and Immigration Services. F- and J-visa students must limit their employment to twenty hours or fewer

per week while registered for courses and while classes are in session during three of four quarters in an academic year. Regulations allow full-time work (forty hours or fewer per week) during school breaks and summer vacations (if students' programs allow summer quarters off). For questions, please telephone International Student and Scholar Services at 909/558-4955.

## Academic authority

The office of the dean of the school in which the student is enrolled is the final authority in all academic matters, with the exception of general education requirements, and is charged with the interpretation and enforcement of academic requirements. Any exceptions or changes in academic requirements, graduation requirements, or grades are not valid unless approved by the dean. Any actions taken by individual faculty members with regard to these matters are advisory only and are not binding on the school or the University unless approved by the dean.

## Academic integrity

The academically dishonest act considers that academic dishonesty intentionally violates the community of trust upon which all learning is based, intentionally compromises the orderly transfer of knowledge from teacher to student, and is inconsistent with good professional and moral behavior. Accordingly, the penalty for academic dishonesty is severe.

Acts of dishonesty include but are not limited to:

- theft;
- falsifying or changing grades or other academic records;
- plagiarism or excessive paraphrasing of someone else's work;
- knowingly giving, obtaining, or falsifying information during examinations or other academic or professional practice assignments;
- using unauthorized aids during examinations;
- loud and disruptive behavior during lectures, demonstrations, or examinations;
- excessive unexcused absences from classes or from clinical assignments.

"Examinations" are defined as regularly scheduled tests, quizzes (scheduled or unscheduled), final examinations, comprehensive assessments, take-home tests, open-book tests, and any other assignment given by an instructor or preceptor whether for a grade, points toward a grade, or for zero points (e.g., a learning exercise).

Instructors and students are responsible for reporting instances of academic dishonesty for investigation. An instructor may take immediate action during an examination or other point-generating activity in order to maintain the integrity of the academic process. Substantiated violations are to be brought before the designated disciplinary body for action. Disciplinary action may include receiving a failing grade on the examination or assignment, receiving a failing grade in the course, suspension, or permanent dismissal from the program.

## Conduct

Students are expected to conduct themselves in a professional manner during didactic and clinical training. Professional conduct includes (but is not limited to) punctuality and respect for other people, their property, and their right to learn. It also includes an appropriate respect for those in authority. Students of Loma Linda University are expected to behave in

a manner that will not bring criticism upon themselves, the program, the school, or the University.

Because students may be exposed to patients' relatives and friends in any public place, and because their conversations and their attitudes have an effect on those around them, students are asked to observe the following:

- Any information given to the student by a patient or contained in a medical record must be held in strict confidence. Therefore, the discussion of a patient's diagnosis and treatment or other clinically related topics should be extremely guarded. A patient's family and community people may be listening and may incorrectly interpret the things discussed. Careless talk may lead to malpractice litigation.
- A joking or casual attitude toward illness and medical treatment should not be displayed since it may seem uncaring and be disturbing to those who are ill and suffering, as well as to the family members.
- Student and staff behavior in professional situations may be the deciding influence for or against Christian beliefs, values, and a health-enhancing lifestyle.

An in-depth description of the professional conduct expected of students is contained in the Loma Linda University *Student Handbook*.

## Grievance procedure

Grievances related to sexual harassment, racial harassment, or discrimination against the disabled shall be pursued in accordance with University policies specifically relating to these items. Grievances related to academic matters or other issues covered by specific policies shall be made pursuant to the policies of the school in which the student is enrolled. A student who questions whether the process provided by the school has followed the policy of the school in regard to his/her grievance may request that the Office of the Provost conduct a review of the process used by the school in responding to his/her academic grievance.

Students who believe that an error has been made or that they have been dealt with in an inappropriate manner by an office or nonacademic department of the University such as records, student finance, student affairs, health services, Drayson Center, etc., may seek correction by the following steps:

1. The student may put his/her complaint in writing and provide it to the head of the department or office involved. The student may request an appointment and discuss this matter with the department head. The department head will make a decision and provide a written answer to the student within fourteen days of receiving the student's written complaint or meeting with the student, whichever is later. If the answer is not satisfactory to the student, s/he may—
2. Put the complaint in writing and send it to the dean of student affairs for review. The matter will be considered at the next meeting of the dean's council, and the student will be informed in writing of the council's response within seven days of the council's consideration of the complaint.

An individual may contact the Bureau for Private Postsecondary Education for review of a complaint. The bureau may be contacted at 2535 Capitol Oaks Drive, Suite 400, Sacramento, CA 95833; e-mail, <http://www.bppe.ca.gov>; telephone, 926/ 431-6924.

## Copyright violations

The copyright law of the United States (Title 17, USC) governs the making of photocopies or other reproductions of copyrighted material. Under certain conditions specified in the law, libraries and archives are authorized to furnish a photocopy or other reproduction. One of these specific conditions is that the photocopy or reproduction is not to be "used for any purpose other than private study, scholarship, or research." If a user requests for or later uses a photocopy or reproduction for purposes in excess of "fair use," that user may be liable for copyright infringement. This institution reserves the right to refuse to accept a copying order if, in its judgment, fulfillment of the order would involve violation of copyright law.

## Communication devices

All communication devices must be set to "off" or "vibrate" during class, laboratory, clinic, or chapel. No cell phones, PDAs, calculators, laptops, or other electronic or communication items may be used in the classroom, testing facility, or laboratory unless specifically a part of that activity and approved by the faculty member in charge.

## Academic Policies and Information

Students of the University are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. In this section (Section II) are the University regulations. See Section III for regulations that pertain to each school and program.

## Academic residence

A student must meet the residence requirements indicated for a particular degree or certificate.

## Academic standing

The following classifications are based on scholastic performance, as defined by each school within the University: regular standing or academic probation.

## Catalog in effect for degree requirements

Subject to department approval, students may complete degree requirements outlined in any CATALOG in effect during the time they are enrolled as accepted students in a school. However, students who have been on leave of absence for more than one year, or who failed to register without leave of absence (consult office of the dean of the school in which the student is enrolled regarding number of quarters), may be required to re-enter the program under the CATALOG in effect at the time of re-entry, with the exception of students who are on leave from a school to pursue a medical or dental degree at this University. Such students may complete their program under their original CATALOG.

## Course numbers

Courses are numbered as:

001-099	nondegree-applicable credit
101-299	lower division
301-499	upper division
501-599	graduate
601-699	graduate: seminar, research, thesis, or dissertation
701-899	professional or clinical

901-999 extension with credit; continuing education units, if preceded by letter prefix ending with "CE" (e.g., ASCE 916); without academic credit; or undergraduate certificate clinical affiliation/practicum courses

500-level course work may not apply toward a baccalaureate degree unless the instructor approves it and both deans (dean of the school offering the course and dean of the school in which the student is enrolled) give permission, and provided the credit does not apply toward both an undergraduate and a graduate degree. Approval is not needed if the course is part of a coordinated program.

No courses numbered in the 700s, 800s, or 900s may apply toward a baccalaureate degree.

## Grade change

Faculty members are responsible for evaluating and assigning grades. A grade may not be changed except when an error has been made in arriving at or recording a grade. Such changes are permissible up to the end of the succeeding term.

The faculty member must obtain the dean's signature on the change of grade form after the initial grade has been entered.

## Privacy rights of students in academic records

Under the Family Education Rights and Privacy Act (FERPA), students have full rights of privacy with regard to their academic records, including their grade reports. Grades are available to the student online at <llu.edu/central/ssweb>.

The campus is authorized under FERPA to release directory information concerning students. The University has classified the following as student directory information that may be released: name, address (permanent and local), picture, marital status, birth date, school, program, class, previous college, and telephone number—unless the student specifically requests in writing that the information not be released. Directory information will be released only by the academic dean's office of the school in which the student is enrolled. Requests for directory information received by other offices of the University will be transferred to the appropriate school office.

## Repeating a course

Once grades have been posted for a course, a student wishing to improve his/her grade must repeat the course. When repeating a course, the student must attend class and laboratory sessions as ordinarily required and take all regularly scheduled examinations. The amount of tuition paid for repeated courses is determined by the school. Both the original and the repeat grades will appear on the student's permanent record, but only the repeat grade is computed in the G.P.A. and included in the total units earned. *A student may repeat a course only once, and no more than two courses may be repeated in a student's degree program.*

## Transcripts

The University provides Loma Linda University transcripts to other institutions or to the student or graduate only upon written request of the student or graduate.

The University reserves the right to withhold all information concerning the record of any student who is in arrears in the payment of accounts

or other charges, including student loans. No transcripts will be issued until all of the student's financial obligations to the University as defined in this CATALOG have been met.

## Scholastic standing

### Grades and grade points

The following grades and grade points are used in this University. Each course taught in the schools has been approved for either a letter grade and/or an S/U grade.

A	4.0	Outstanding performance.
A-	3.7	
B+	3.3	
B	3.0	Very good performance for undergraduate credit; satisfactory performance for graduate credit.
B-	2.7	
C+	2.3	
C	2.0	Satisfactory performance for undergraduate credit. Minimum performance for which credit is granted toward a degree in the School of Nursing or the School of Allied Health Professions.
C-	1.7	Minimum performance for which credit is granted toward a degree in the School of Dentistry, the School of Pharmacy, or the School of Public Health.
D+	1.3	
D	1.0	Minimum performance for which undergraduate credit is granted, except as indicated above.
F	0.0	Failure—given when course work was attempted but when minimum performance was not met.
FA/UA	0.0	Failure to attend (U/A for S/U graded courses)—given when a student discontinues attendance without withdrawing. Last date attended is to be noted on instructor grade report.
S	none	Satisfactory performance—counted toward graduation. Equivalent to a C grade or better in undergraduate courses, or a B grade or better in graduate courses. An S grade is not computed in the grade point average. A student may request a grade of S in only a limited amount of course work, as determined by the school in which the student is enrolled. This is done by the student's filing with the Office of University Records the appropriate form prior to fourteen calendar days before the final examination week. Once filed, the grade is not subject to change.
U	none	Unsatisfactory performance—given only when performance for an S-specified course falls below a C grade level in an undergraduate course or a B grade level in a graduate course. Similar filing procedures as given for S grade above are required. The U grade is not computed in the grade point average.
S/N	none	Satisfactory performance in a clock-hour course. Not included in total units. Same grading criteria as the S grade given for a credit-hour course.
U/N	none	Unsatisfactory performance in a clock-hour course. Not included in total units. Same grading criteria as the U grade given for a credit-hour course.

CR	none	Credit for credit by examination. Counted toward graduation/units earned but not units attempted. Such credit cannot be counted for financial aid purposes.
NC	none	No credit for credit by examination. Does not count for any purpose.
W		Withdrawal—given for withdrawal from a course prior to fourteen calendar days before the final examination week. Withdrawals during the first fourteen calendar days of a quarter or the first seven calendar days of a five-week summer session are not recorded if the student files with the Office of University Records the appropriate form prior to the cut-off date. Withdrawals outside this time frame, upon recommendation of the dean, may be removed at the discretion of the vice president for academic affairs. In the case of nontraditionally scheduled courses, a W notation will be given for withdrawal from a course prior to completion of 80 percent of the course, excluding the final examination period. Withdrawals during the first 20 percent of a course, excluding the final examination period, are not recorded if the student files with the Office of University Records the appropriate form prior to the date when 20 percent of the course is completed. A student may withdraw only once from a named cognate course that s/he is failing at the time of withdrawal.
UW		Unofficial Withdrawal—indicates that the student discontinued class attendance after the close of registration but failed to withdraw officially.
I		Incomplete—given when the majority of the course work has been completed and circumstances beyond a student's control result in the student being unable to complete the quarter. An I notation may be changed to a grade only by the instructor before the end of the following term (excluding the summer sessions for those not in attendance during that term). Incomplete units are not calculated in the grade point average. By use of the petition form—available online at <a href="http://www.llu.edu/central/ssweb/registration.page">http://www.llu.edu/central/ssweb/registration.page</a> —the student requests an I notation from the instructor, stating the reason for the request and obtaining the signatures of the instructor, the department chair, and the associate dean. The form is left with the instructor. The instructor reports the I notation on the grade report form, as well as the grade the student will receive if the deficiency is not removed within the time limit. The petition form is then filed with the Office of University Records along with the grade report form. The I notation is not granted as a remedy for overload, failure on final examination, absence from final examination for other than an emergency situation, or a low grade to be raised with extra work.
IP		In Progress—indicates that the course has a duration of more than a single term and will be completed by the student no later than the final term of the course, not to exceed five quarters for independent study and research courses (original quarter of registration plus four additional quarters). The student's final grade will be reported on the instructor's grade report at the end of the term in which the course is completed. If the course work is not completed within the five-quarter time limit, a grade of U will be given.

**AU** Audit—indicates registration for attendance only, with 80 percent class attendance considered a requirement. A request to change a credit course to audit or an audit course to credit may be made no later than the fourteenth calendar day after the beginning of a quarter, or the seventh calendar day after the beginning of the five-week summer session. (This does not apply to short summer courses lasting only a week or two.)

**AUW** Audit Withdrawal—given for withdrawing from a course, or to indicate that the 80 percent class attendance requirement was not met.

## Student level

Students enrolled in block programs are classified according to the level of the block in which they are enrolled (e.g., master's-1st, 2nd, or 3rd year; or freshman, sophomore, junior, senior, as is appropriate for the degree program; or PY1 [professional year 1]).

Undergraduate students enrolled in nonblock programs are classified based on the transfer credits accepted that fulfill LLU degree requirements at the time of matriculation. Subsequent updates to classifications will include units earned at LLU. Undergraduate classifications are as follows:

0 - 44.9 quarter units	Freshman
45 - 89.9 quarter units	Sophomore
90 - 134.9 quarter units	Junior
135+ quarter units	Senior

## Academic credit

### College Level Examination Program (CLEP)

The College Level Examination Program (CLEP), a national program of credit by examination, offers persons of all ages and backgrounds new opportunities to obtain recognition for college-level achievement, no matter how acquired.

As of July 2001, general examinations are no longer offered; however, the policy remains in effect for students who took general examinations prior to that date. No credit is granted for the CLEP general examinations in English composition, mathematics, or science courses requiring a laboratory.

As of July 1, 2004, in order to receive Loma Linda University credit, students must complete all examinations for CLEP credit within six months after having received their initial degree compliance report. A student will be allowed to challenge a given course by examination only once. CLEP scores will be accepted at C or better until percentiles are available from CLEP. Credit is granted for scores at or above the 50th percentile for the subject examinations, and at the 65th percentile for general examinations in the humanities, natural sciences, and social sciences/history.

### Course waiver

Certain course requirements in a program may be waived on the basis of previously completed course work, experience, or licensure. An examination for waiver credit, if required, may be taken only once and must be taken before the last quarter of the program of study. Waiver of a specific course requirement does not reduce the number of units required for a program or residency. A waiver examination does not carry academic credit and cannot be used to make up for a course in which an

unsatisfactory grade was received. For examination fee, see Schedule of Charges in the Financial Information section.

Permission to waive a course requirement in the School of Pharmacy requires prior approval of the department chair and consent of the dean.

### Credit by examination

For certain courses offered by the University, a student in an undergraduate degree program may earn credit by passing an equivalency examination administered by the appropriate school and department. Such an examination is at least equal in scope and difficulty to a final examination in the course and may include materials supplied by CLEP or other agencies.

A graduate program should be used to acquire new knowledge. Since the purpose of credit by examination is to validate prior knowledge, graduate credit may not be earned by examination. If a required course in the degree program is a repeat of prior learning, the student may request a waiver, thus making it possible to take elective courses that would increase knowledge.

A student currently enrolled in a degree program at this University who desires credit by equivalency examination petitions the dean of the school offering the course, and, upon approval, pays a testing fee. See Schedule of Charges in the Financial Information section for examination fee.

Equivalency examinations may not duplicate credit already earned through course work, including courses taken for audit.

A grade of CR (Credit) is given only after the student has completed one quarter, or the equivalent, at this University; and has earned 12 units of credit with a grade point average of at least 2.0 in undergraduate courses.

Units earned by equivalency may not be used as part of the enrolled load.

Equivalency examinations must be taken before the final quarter of residency.

The maximum amount of credit that may be earned by equivalency examination is determined by each school but may not exceed a maximum of 20 percent of the units required for the degree or certificate.

### Extension study

To be acceptable for credit, an extension course must be evaluated as to its equivalence to an accepted course. To assure that the course will transfer to Loma Linda University, the student should contact the Office of University Records prior to taking the course. Registration for extension study requires prior approval of the department chair and consent of the dean of the school in which the student is enrolled.

### Independent study

Independent study may be undertaken subject to the consent of the department chair and/or the office of the dean of the school in which the student is enrolled. The student is responsible for completion of the Directed/Independent Study Title Request (<https://myllu.llu.edu/apps/studproc/istr/Start.php>) form in addition to the regular registration. University policy limits directed study to 12 quarter units of undergraduate credit and 8 units of graduate credit in a degree program. Individual programs may further limit these units. The office of the dean of the school in which the student is enrolled should be consulted regarding limits on credit earned through independent study.

Independent study is to be completed in adequate time before graduation to allow recording in the Office of University Records.

## Transfer credit

Applicants must file with the Office of University Admissions complete records of all studies taken on the college/university level. Transfer credit is defined as credit completed at another U.S.A. college or university accredited by a regional association, credit earned at an institution accredited by the Seventh-day Adventist educational system, or credit earned at an international institution recognized by its government. The University reserves the right to require an applicant to satisfactorily complete written and/or practical examinations in any course for which transfer credit is requested. Remedial, high school-level courses, and courses identified by the transfer institution's catalog as not applicable toward a baccalaureate degree are not accepted for transfer into an undergraduate program. Graduate transfer courses must be equivalent to courses appropriate to degree requirements.

## Junior colleges

A maximum total of 70 semester units or 105 quarter units of credit will be accepted from regionally accredited junior colleges. Subject and unit requirements for admission to the respective programs are outlined in Section III.

## International

Credits submitted from a college outside the United States are evaluated on an individual basis by an evaluation center approved by Loma Linda University, which reports the evaluation results directly to the Office of University Admissions. It is the applicant's responsibility to contact an approved evaluation service and supply the required documents for evaluation.

## Professional schools

Credits earned in a professional school are accepted only from a school recognized by its regional or national accrediting association and only for a course that is essentially the equivalent of what is offered at this University or is substantially relevant to the curriculum.

## Military schools

Credit for studies taken at a military service school is granted to veterans according to recommendations in the *Guide of the American Council on Education*.

## Correspondence/distance course work

Course work taken at a regionally accredited school is ordinarily accepted. Griggs University (formerly Home Study International) is the officially affiliated correspondence school for Loma Linda University.

## Unit of credit

Credit is recorded in quarter units. One unit represents a minimum of ten class hours in lecture or thirty hours in laboratory practice.

# Enrollment

## Registration

Standard term registration dates are published on the Web at <http://www.llu.edu/students/university-records/registration-dates.php>. For programs that do not operate on standard term dates the Registration Portal should be checked for specific registration dates and deadlines per student, since these dates can vary depending on where students are in their program. Deadlines for courses taught in a condensed or extended format may differ from standard term or program deadlines. Course specific deadlines can be found by going to the Course Schedule

<http://www.llu.edu/students/university-records/course-schedule.php>, selecting a course, and clicking on the Course Reference Number (CRN) link. Posted deadlines for registration on the Web and in the Registration Portal are in effect and binding.

Students register online using their Registration Portal. Registration procedure includes clearing holds, entering classes, and clearing finance.

Upon completion of their first quarter registration, the student must obtain an ID card at the University Office of Student Affairs. All future interactions in the Student Services Center will require presentation of a valid student ID card.

A late registration period of five business days after the quarter begins is provided, unless the course is offered as an intensive that requires registration before the end of the five days. During these five business days for standard term courses a late registration fee of \$200 will be charged.

Students may not attend class without being registered. No credit is granted for academic work performed during any quarter without registration.

## Change in registration

If financial clearance has been obtained and registration is still open for the student's program, a change in registration requires a reversal of financial clearance in the Registration Portal. Students have until 11:59 pm PST the following day to complete registration changes and to request financial clearance again. If financial clearance is not obtained by the end of the following day any changes made in the Registration Portal will be reversed. Students are advised of this process via their LLU email account.

A student may add courses that follow the standard term University calendar during the first seven calendar days of the quarter. Courses that follow the standard term University calendar may be dropped during the first fourteen days of the quarter without academic penalty. Course changes after the fourteenth day of the quarter affect the permanent grade record with a "W" grade indicating withdrawal. Students may withdraw from a course prior to the fourteen calendar days before the final examination week, after which time withdrawals are no longer permitted.

## Study load

Usually an academic study load is defined in terms of credit units. A full undergraduate load is considered to be 12 or more units per quarter; a full graduate load is considered to be 8 units per quarter.

The normal course load, including all course work for which a student may be registered at this or another institution, is 16 quarter units for an undergraduate student and 12 quarter units for a graduate student. Full-time study loads are those specified by the departments for each program. Students of exceptional ability may register for additional course work upon recommendation of the department and consent of the dean.

A person who is not enrolled in regular classes but who is occupied in research, dissertation, or thesis, is classified as a student. By filing an academic load validation form every quarter at registration, the academic load may be validated for loan deferment and for living expenses for aid-eligible students or to maintain immigration status for international students.

The primary faculty mentor who is primarily responsible for the student's research is required to sign the load validation form (electronic workflow)



verifying that the student will be working on his/her research, thesis, or dissertation for a minimum of 18 hours per week (half-time status) or a minimum of 36 hours per week (full-time status). This is a projection each quarter. The faculty mentor before signing the load validation form for the current quarter must determine that the student indeed qualified for load validation in the previous quarter.

## Attendance

Regular attendance at all appointments (class, clinic, laboratory, University at Worship) is required beginning with the first day of each term. A pattern of absence, excused and/or unexcused, will be referred to the school's designated academic authority for consideration and action.

Excused absences are defined as follows:

- Illness, verified by a physician's statement or official statement from Student Health Service submitted to the school's designated academic authority;
- Participation in an institution-sponsored activity (verified by a written statement from a faculty sponsor);
- Recognizable emergency approved by the school's designated academic authority.

Tardiness is disruptive, distracting, and inconsistent with professional behavior. Students who arrive after the beginning of class may be counted absent.

Information regarding the school's designated academic authority can be obtained from the office of the dean.

## Continuous enrollment

A student who has not enrolled for any classes, or paid the continuous registration fee for courses still in progress from a previous term, will be inactivated at the beginning of the second quarter of nonenrollment, unless s/he is on an approved leave of absence (maximum of four academic quarters, including Summer Quarter). (Example: A student who enrolled for Autumn Quarter but who does not enroll for Winter Quarter will be inactivated at the close of registration [two weeks into the quarter] for the subsequent Spring Quarter).

Inactivated or formally withdrawn students who wish to return to complete their degree program are required to reapply with sufficient time for adequate review of any new transcript credits and advisement of any new program requirements.

The reapplication process also requires the submission of official transcripts from all colleges/universities attended since the student last attended this University. Official transcripts from colleges/universities the student attended while enrolled at this University must also be submitted if they were not submitted prior to inactivation.

Students who reapply to a program are subject to the program requirements published in the Catalog in effect at the time of reentry. All graduates are expected to have documented current knowledge in their field of study as of the date of graduation (date on diploma).

## Personal leave of absence

A leave of absence is defined as being away from school for the remainder of the quarter, to a maximum of one year, with the intent to return. The appropriate program withdrawal form (<https://myllu.llu.edu/apps/studproc/pw/Start.php>) is an online workflow. This form is to be approved by the dean or his/her designee prior to the student's departure. Stipulations for re-entry are given to the student in writing. The student

should consult the office of the dean of the school in which s/he is enrolled regarding the possibility of maintaining health coverage and continuous registration during the leave period.

## Withdrawal

To withdraw from a course(s), the student must complete an Add/Drop Registration form (<http://www.llu.edu/assets/central/ssweb/documents/regchange.pdf>). If a student finds it necessary to withdraw from a degree or certificate program, the dean (or his/her designee) must be notified in writing. The student then arranges for formal withdrawal from the program by filing a Program Withdrawal form (<https://myllu.llu.edu/apps/studproc/pw/Start.php>) which is a workflow available on the University Web site. The Change of Program form or the Add/Drop Registration form should be completed as soon as possible after the student determines that s/he cannot complete the quarter. These forms must be filed no later than fourteen days prior to the end of the quarter.

Courses dropped during the first two weeks of the term are not included in the student's permanent record.

If a student is discontinuing the entire program, the date the Program Withdrawal form is properly submitted to the Office of University Records will be the date of withdrawal used to calculate tuition refunds. Tuition is refunded according to the practice outlined in the Financial Information section of this CATALOG. Failure to file the Program Withdrawal form may result in avoidable charges to the student's account. *The tuition refund policy for off-campus students is listed under the applicable school in Section III of this CATALOG.*

## Administrative withdrawal

Students who fail to make arrangements for a leave of absence or continuing registration may be administratively withdrawn from school. After one quarter, if the student has not re-enrolled, s/he will be inactivated.

## Satisfactory academic progress

For the purposes of financial aid eligibility, federal regulations governing Title IV HEA program funds require the University to establish a standard of satisfactory academic progress (SAP), and to monitor students' progress toward completion of a degree or certificate. Information relevant to the University's SAP standard is provided below.

Students' academic progress is evaluated at least once annually. For students in programs that are less than one academic year in length, academic progress is evaluated at the end of each enrollment period.

Failure to meet the University's satisfactory academic progress (SAP) standard requirements may result in financial aid suspension. Financial aid will be reinstated only after eligibility is re-established.

*The satisfactory academic progress requirements below apply to all University students and are consistently applied, whether or not a student is receiving financial aid.*

## Evaluation measures

Satisfactory academic progress is evaluated based on three measures: qualitative, quantitative, and maximum time frame.

*Qualitative.* The qualitative measure specifies the grade point average (G.P.A.) that must be achieved at each evaluation. If the G.P.A. is not an appropriate qualitative measure, a comparable assessment measured against a norm will be used. Calculation of the G.P.A. does not include incompletes (I), withdrawals (W), or transfer courses; however, courses

repeated for additional credit (such as seminars and research) will be included. Courses repeated for a better grade will include only the most recent grade in the G.P.A. calculation.

**Quantitative.** The quantitative measure specifies the pace at which a student should progress through his/her educational program in order to successfully complete a sufficient number of units at a rate that ensures program completion within the maximum time frame. The pace at which a student is progressing is calculated by dividing the cumulative number of units the student has successfully completed by the cumulative number of units the student has attempted. Units (credit hours) transferred from another institution that are accepted toward the student's educational program will be counted as both attempted and completed units.

**Maximum time frame.** The maximum time frame for an undergraduate program measured in units cannot exceed a period longer than 150 percent of the published length of the program. The maximum time for completion of a master's degree is five years; the maximum time for completion of a doctoral degree is seven years. Calculation of the time frame begins with the term in which the first LLU course applicable toward a degree or certificate is taken.

## Program requirements

**Undergraduate programs.** Undergraduate students must maintain a cumulative G.P.A. of at least 2.0. They must also maintain a cumulative completion rate equal to or exceeding two-thirds (67 percent) of the units attempted. Maximum time for completion of an undergraduate program is a period no longer than 150 percent of the published length of the academic program, as measured in credit hours or in clock hours required and expressed in calendar time.

**Graduate programs.** Graduate students must maintain a cumulative G.P.A. of at least 3.0. They must also maintain a cumulative completion rate equal to or greater than two-thirds (67 percent) of the units attempted. For programs with a limited or no research component, the number of units per term needed to complete the program on time will be determined by dividing the total number of units required for completion by the length of the program—expressed in academic quarters (e.g., five years for a master's degree equals twenty academic quarters, etc.). Research-intensive programs will provide information regarding the number of units that must be completed by the midpoint and three-quarters point of the program. Maximum time for completion of a master's degree is five years; maximum time for completion of a doctoral degree is seven years—except in the case of block programs.

**Professional practice doctorates.** All professional practice doctoral degrees (D.P.T., Pharm.D., D.D.S., M.D.) are block programs requiring students to enroll full time. See specific programs below for SAP policy information.

**Doctor of Physical Therapy (entry-level D.P.T.).** Students must maintain a cumulative G.P.A. of 3.0—with no grade less than C (2.0) in any required course—and must demonstrate satisfactory clinical performance. In addition, they must receive a grade of B or better in AH CJ 510 Human Gross Anatomy (taken during the first quarter of the program). Students must maintain a cumulative completion rate equal to or greater than two-thirds (67 percent) of the units attempted. Students are expected to complete the program in three years; however, if a leave of absence becomes necessary, the maximum allowable time to degree completion is seven years.

**Doctor of Pharmacy (Pharm.D.).** The G.P.A. required for graduation is 2.30. Students must maintain a cumulative completion rate equal to or

exceeding two-thirds (67 percent) of the units attempted. In addition, students must hold a valid, nonprobationary intern pharmacist license. Six years is the maximum time allowed to degree completion, which is also the maximum time intern pharmacist licensure is granted by the California State Board of Pharmacy.

**Doctor of Dental Surgery (D.D.S.).** Students must maintain a cumulative G.P.A. of 2.0. They must also maintain a cumulative completion rate equal to or exceeding two-thirds (67 percent) of the units attempted. Students are expected to complete the program in four years; however, the maximum allowable time to degree completion is six years.

**Doctor of Medicine (M.D.).** In order to progress to the next academic year, students must not receive a U (Unsatisfactory) grade in any course. They must also maintain a cumulative completion rate equal to or exceeding two-thirds (67 percent) of the units attempted. Although students are expected to complete the program in four years, they are allowed to complete the first two years (basic sciences) within three years before progressing to the clinical years (third and fourth years of the program). The two clinical years must be completed within three years.

## Loss of eligibility for financial aid

On the basis of the SAP evaluation, Title IV HEA program funds may be suspended for any of the following reasons:

- Student fails to achieve the required G.P.A.
- Student is not successfully completing his/her education program at the required pace.
- Student is unable to complete the program within the allotted time frame.

The student is suspended from federal financial aid eligibility only and may not receive additional financial aid funds. However, s/he may continue enrollment at this University either without any financial assistance or, if eligible, with the assistance of private loans. The Financial Aid Office can supply the student with additional information regarding these loans.

## Suspension letter

A student who fails to meet the University's satisfactory academic progress standard will be informed in writing by the Financial Aid Office that financial aid has been suspended until such time as the student is again in compliance with SAP guidelines. The letter will include instructions regarding the appeal process.

## Appeal process

Students may appeal loss of eligibility for financial aid. Instructions for submitting a Satisfactory Academic Progress Appeal are available on the Web for students wishing to have their aid reinstated. The appeal must be filed by the deadline specified in the letter of suspension, even if the student believes an error has been made in his/her case. The completed appeal must be submitted to the director of financial aid, who will present it to the Financial Aid Appeals Committee. The Financial Aid Office will notify the student in writing within five business days following the decision by the appeals committee.

The student is required to submit his/her appeal in writing. The appeal must include the following information:

- A full explanation of the circumstances that led to his/her inability to meet the minimum progress requirements.
- Supporting documentation verifying the circumstances.

- A personalized academic plan. With the assistance of his/her academic advisor, the student is expected to explore options available to eliminate the deficiencies; as well as to develop a realistic term-by-term listing of specific courses to be taken towards graduation; and noncourse requirements to be completed (e.g., advancement to candidacy, qualifying examinations, dissertation defense, etc.). This plan is designed to ensure that the student will be able to meet the satisfactory academic progress standard by a specified point in time. The academic plan is signed by the academic advisor, department chair, and school academic dean.

If the appeal is approved, the student will be expected to adhere to the units and courses specified in the academic plan portion of the appeal. The academic plan will be closely monitored by the Financial Aid Office staff. Failure to follow the courses and units outlined may constitute the basis for future denial of financial aid.

The progress of students on an academic plan will be reviewed at the end of one payment period, and then according to the academic plan; but not less frequently than the rest of the institution's population.

### **Financial aid eligibility reinstatement**

A student who has failed to make satisfactory progress but who has appealed financial aid suspension and has had eligibility for aid reinstated is placed on financial aid probation. Clear financial aid eligibility will be regained when s/he is again in compliance with the satisfactory academic progress standard.

## **Graduation**

The responsibility for meeting graduation requirements rests primarily upon the student. Therefore, students should read and understand the requirements as set forth in this CATALOG and consult carefully with their advisor to plan a sequence of courses each term that fulfills these requirements. A student's program of study is governed by the requirements listed in the University CATALOG at the time of admission; however, when circumstances demand, the University reserves the right to make changes with reference to admission, registration, tuition and fees, attendance, curriculum requirements, conduct, academic standing, candidacy, and graduation.

The undergraduate who plans to graduate must submit an Undergraduate Intent to Graduate form two quarters prior to graduation. The form is available online at <[llu.edu/ssweb/documents/intgrad.pdf](http://llu.edu/ssweb/documents/intgrad.pdf)>.

### **Commencement exercises**

The candidate completing requirements in the Spring Quarter is expected to be present at the commencement exercises and receive the diploma in person. Permission for the degree to be conferred in absentia is contingent upon the recommendation of the dean of the school in which the student is enrolled to the provost and can be granted only by the provost. If a candidate has not satisfactorily fulfilled all requirements, the University reserves the right to prohibit participation in commencement exercises.

### **Diploma**

When the profession is named in the degree title, or when the degree is indicated by the school name, no other designation is included on the official diploma issued to the graduate. When the profession or major is not named in the degree title, the profession or specialization is also indicated on the official diploma.

## Financial Policies and Information

The student is expected to arrange for financial resources to cover all expenses before the beginning of each school year. Accounts with other schools or with this University must be settled before enrollment will be allowed or services offered. Registration is not complete until tuition and fees for each term are paid; therefore, the student should be prepared to make these payments during scheduled registration periods for each academic year. Tuition and fees may vary from amounts shown. Please refer to the Student Account Disclosure statement for additional student account financial information (<llu.edu/assets/central/ssweb/studentfinance/documents/disclosure.pdf>).

### Student fees

#### Enrollment fees

Students attending this University will be charged an enrollment fee, based on the criteria indicated below. Neither the fee in total nor any portion of the fee will be waived under any circumstance. Other school-specific charges—such as technology fees, laboratory fees, etc.—may also appear on the student account. The following criteria govern the enrollment fee:

1. Students who are accepted into a degree program and are registered will be charged the enrollment fee, regardless of the number of units for which they are registered.
2. Students who are not accepted into a degree program but who are registered as nondegree students for more than four units (five units for School of Allied Health Professions) will be charged the enrollment fee.
3. Students who are working on "In Progress" courses and who are not registered for any other units will be charged the enrollment fee.
4. A student who is charged the enrollment fee but who drops all units before the deadline for a full refund (generally one week after the first day of classes) will receive a full refund of the enrollment fee and will have no access to any University benefits. Please refer to the refund policy.
5. LLU HEALTH employees who are "full-time, benefit eligible" will not be charged the enrollment fee, whether they are using their education benefit or not. Spouses of employees who are using the employee benefit will be charged the enrollment fee.
6. Students participating in an off-campus or online program will not be charged the enrollment fee unless the program specifically requires this fee.
7. Other school-specific fees will be charged independent of the enrollment fee.

#### Other fees

Late payment fee (term)	\$100
Late registration fee	\$200
Returned check fee	\$25
Lost check reissue fee	\$15
Returned direct deposit fee	\$15

### General practices

#### Tuition payments/refunds

Students who have not paid the balance due for registration, or who have not been awarded financial aid sufficient to cover the balance prior to registration, will be charged a late payment fee. Tuition and

fees are due and payable in full to complete registration each term. If a student withdraws from a per-unit course or program, or from a block program up to 60 percent into a term, tuition will be refunded on a pro rata basis. Students who drop a course from a block program of courses will not receive a refund (please refer to the refund percentages and dates attached to individual courses).

#### Monthly statement

The amount of the monthly statement is due and payable in full upon presentation or notification of statement availability. A student unable to meet this requirement must make proper arrangements with the director of student finance. An account that is more than thirty days past due is subject to a finance charge of .833 percent per month (10 percent per year). Failure to pay scheduled charges or to make proper arrangements will be reported to the respective school administrator and may cause the student to be considered absent, discontinued, or ineligible to take final examinations. Students may also request that monthly statements be sent to a parent or sponsor.

#### Financial clearance

The student is expected to keep a clear financial status at all times. Financial clearance must be obtained—

- each term in order to complete registration;
- before obtaining access to University services;
- before marching for graduation;
- before receiving a certificate or diploma;
- before requesting a transcript, statement of completion, or other certification to be issued to any person, organization, or professional board.

All University registration holds must be cleared before financial clearance can be granted.

To obtain financial clearance from the Student Loan Collections Office, students with campus-based student loans must be current on all scheduled loan account payments and must have fully completed a loan exit interview after ceasing to be enrolled for at least half time at this University. If the student's loan accounts are not current, or an exit interview has not been fully completed, a hold will be placed by the Student Loan Collection Office on transcript, diploma, or degree verification; and P1E requests and other services may be denied. Please note that all student loans are reported to a credit bureau organization on a monthly basis. If a student fails to comply with the terms and conditions of the promissory note, the Student Loan Collection Office will accelerate the loan(s), place the student loan(s) in collection with an outside agency, and demand immediate payment of the entire unpaid balance—including principal, interest due, late fees, other fees, collection costs, attorney costs, and legal costs.

#### Account charges

Students who are currently enrolled on campus in a degree or certificate program are allowed to charge items and services to their accounts.

Campus services that permit student account charges include the Campus Store, Student Affairs, the food service locations on campus, and other providers.

#### Payments

Bankcard, ACH, check, wire transfer, International to US funds conversion, and cash payments are accepted. Checks should be made payable to Loma Linda University and should indicate the student's ID number to ensure that the correct account is credited. International students

can also make payments in their local currency through the Flywire Service (<https://www.flywire.com>). In case a payment is returned, a \$25 returned item fee will be assessed. Payments are accepted in person at Student Finance, by mail, through the Student Service Center drop box, and online at <[llu.edu/central/ssweb/studentfinance](http://llu.edu/central/ssweb/studentfinance)>. Account refunds resulting from financial aid, tuition refunds, or other payments may be credited back to any bankcard used—to the extent of the card payment made—before a refund check or direct deposit will be issued.

Please note that student identification cards are required for enrolled students to obtain service at the Student Service Center. (LLU HEALTH employees may present their employee ID cards in lieu of student ID.)

### Account withdrawals

Students who have credit balances on their accounts after all University charges are covered may request a withdrawal of these funds. Each account withdrawal must be requested by the student. Withdrawals will be processed as checks or direct deposits; no cash withdrawals or automatic account withdrawal services are available.

Student withdrawal requests made in person at the Student Finance cashier's window, by fax during office hours, or online before midnight on Tuesday of each week will be processed on Thursday of that week. Students may also request rush withdrawal processing for next business day service. A \$20 processing fee is charged.

Checks will be available for pickup after 11:00 a.m. at the Student Finance cashier's window each business day, or they can be mailed.

Direct deposit authorization and online account withdrawals can be initiated by logging in on <[ssweb.llu.edu/llu/twbkwbis.P\\_WWWLogin](http://ssweb.llu.edu/llu/twbkwbis.P_WWWLogin)> and going to the Student Finance menu. If direct deposit funds are returned to the University due to the entry of inaccurate bank account information, a fee will be charged. Direct deposits may take two days or more after processing to appear in bank accounts. It is the student's responsibility to verify the receipt and availability of direct deposit funds before initiating any transactions.

Students are cautioned to budget the use of withdrawn funds carefully because additional funds may be needed to cover education and living expenses for current and/or future terms. The Financial Aid Office should be contacted with questions about student budgeting and the use of funds available for withdrawal.

## Deposits

### Acceptance deposit

Upon notification of acceptance, the student makes the required deposit (see school or program for specific deposit amount). This amount is deducted from the tuition and fees due at registration, or is forfeited if the student does not enroll.

### Room and key deposit

Residence hall room and key deposits for Daniells Complex and for Lindsay Hall are forfeited after August 15 if occupancy does not follow for the Autumn Quarter. At the close of the term of residence, both the room deposit and the key deposit are refunded after the dean's inspection and clearance and the student's return of the key.

### International student deposit

Loma Linda University requires that international students be prepared to provide an advance deposit and provide documentation that additional funds will be forthcoming to meet school expenses. The deposit will be

held by the University during the program of study and will be applied to the final quarter's tuition and fees. Alternatively, the deposit may be refunded, less any outstanding balance on the account, if the student is denied a visa or terminates his/her program.

## Housing

If a student is interested in on-campus/residential housing, application may be made online at <[llu.edu/central/housing](http://llu.edu/central/housing)>.

## International students

International applicants (non-U.S. citizens and non-U.S. permanent residents) must meet all admissions requirements for the chosen program before an offer of acceptance can be issued. This includes providing evidence of their ability to meet estimated living expenses and all financial obligations to the University that will occur during their program.

After acceptance into the chosen program, the office of International Student and Scholar Services will contact international applicants and guide them through the appropriate procedures. For questions, please call International Student and Scholar Services at 909/558-4955.

## Health service

A student enrolled in an on-campus certificate or degree program may be covered by the Student Health Plan provisions. Nondegree students taking more than four units (five units for School of Allied Health Professions) may also be covered by the plan. Please view student registration portal for notice of coverage. A nondegree student may request and pay for health plan coverage if s/he is a part-time student who has been accepted into a board-approved (degree or certificate) program and is currently registered for up to and including four units. For further information, see the Student Health Plan in the Student Life section of this CATALOG.

## Student aid

The Office of Financial Aid strives to provide prospective and enrolled students with information and resources to financially support their educational goals. Through the administration of federal student aid programs, state grant programs, and University-based institutional loans and scholarships, the financial aid office assists students in removing financial barriers to obtaining a higher education. It is the responsibility of LLU to ensure that funds are administered according to federal and state law.

### Applying for aid

To apply for financial aid, citizens and eligible noncitizens must complete a Free Application for Federal Student Aid (FAFSA), available online at [www.fafsa.ed.gov](http://www.fafsa.ed.gov) (<http://www.fafsa.ed.gov>). The FAFSA is available January 1, 2016, for the upcoming 2016-2017 academic year. Students should apply as soon as possible. The results of the FAFSA, called the Student Aid Report (SAR), will be electronically sent to Loma Linda University if the student listed the institution on the application. The school code for LLU is 001218. The FAFSA must be completed for each academic year.

International students are not eligible for government assistance. International students may receive private funding, such as private educational loans, from a lending institution or bank. Lenders may require international students to have a cosigner who is a U.S. citizen or permanent resident. Please contact the lending institution for more

information on the application process and the terms and conditions of the applicable loans.

Students must be in an eligible degree or certificate program to receive financial aid. Additionally, most financial aid programs require a student to be attending at least half time in eligible units/hours.

### Eligibility

Eligibility for need-based financial aid is determined by many factors, including the family's income, assets, family size, and number in college.

All information is used to calculate expected family contribution (EFC). The EFC formula is found in Part F of Title IV of the Higher Education Act (HEA) of 1965, as amended; and updates are published in the *Federal Register*. Eligibility for need-based funds is calculated by subtracting a student's EFC from the estimated cost of attendance.

Non-need-based aid is financial aid that is not based on one's EFC. If a student requires additional aid, s/he may apply for other non-need-based forms of aid to supplement the cost of attendance. Non-need-based aid may not exceed a student's estimated cost of attendance minus any other assistance s/he has been awarded. Students must apply for need-based funding and complete a FAFSA to receive most forms of non-need-based assistance.

Merit-based aid is awards given without regard to financial need. Merit-based aid is typically awarded based on academic achievements, talents, demographic characteristics, and other criteria. Students seeking merit-based aid may apply to outside agencies or contact their program to inquire about availability. The Office of Financial Aid does not select recipients for merit-based aid.

For more information on eligibility and general requirements students must meet, please visit <http://www.llu.edu/students/financial-aid/eligibility.php>.

### Financial aid awards

If a student is eligible for financial aid, his/her need may be funded by various sources. Students who met the priority funding deadline (March 20, 2016, for the 2016-2017 academic year) are given greatest consideration during the awarding process. After priority funding deadline consideration, most funds are distributed on a first-come, first-served basis due to the limited availability of certain awards.

### Types of aid

For detailed information on the types of aid available through the Office of Financial Aid, please visit: <http://www.llu.edu/students/financial-aid/types-of-aid.php>.

Aid available to **undergraduate** students:

- Federal PELL Grant
- Federal Supplemental Educational Opportunity Grant (FSEOG)
- Cal Grant (California residents only)
- Direct Subsidized Stafford Loan

Aid available to **undergraduate** and **graduate** students:

- Direct Unsubsidized Stafford Loan
- Direct PLUS Loan (parent and graduate)
- Federal Perkins Loan
- Federal Work Study (FWS)

- Institutional loans and scholarships
- Private educational loans from outside lenders

### Reporting outside assistance

Students are required to report any outside financial aid assistance to the Office of Financial Aid. Outside assistance must be coordinated with any federal, state, or institutional funds to prevent an overaward. Failure to report outside assistance may result in owing back funds to either the institution or the U.S. Department of Education.

## Veterans benefits

Under Title 38 of the U.S. Code, Loma Linda University is approved for the training of veterans and other eligible persons. Information regarding eligibility for these programs may be obtained by calling 888/GIBILL1 or 888/442-4551. Application for benefits must be made directly to the Veterans Administration (VA) and may be done via the Web at <[www.gibill.va.gov](http://www.gibill.va.gov)> (<http://www.gibill.va.gov>).

The Office of University Records serves as the certifying official for Loma Linda University. Students should contact the certifying official prior to their first enrollment certification. A veteran cannot be certified until he/she registers. Payments are usually received 30 days after certification.

Students receiving veteran's benefits who fail for three consecutive quarters to maintain the cumulative grade point average (G.P.A.) required for graduation will have their benefits interrupted, and the VA office will be notified.

School of Medicine students must maintain satisfactory grades for all required courses for the year in which they are currently enrolled. If a grade in a required course reflects unsatisfactory progress, the School of Medicine student will not be certified VA until s/he progresses to the next academic year.

For more information, open links to the Veterans Information site under the "Student Life" section on the University Web page at <[www.llu.edu/students](http://www.llu.edu/students)>.

## WICHE

The University participates in the student exchange program of the Western Interstate Commission for Higher Education (WICHE). Eligibility requirements vary among states. Interested students should apply to their state's certifying officer for further information.

The name and address of the certifying officer can be obtained from the Western Interstate Commission for Higher Education, 3035 Center Green Drive, Suite 200, Boulder, CO 80301. Web page: <[wiche.edu/psep](http://wiche.edu/psep)> (<http://wiche.edu/psep>).

Inquiry may also be made at the Office of Student Financial Aid. The application deadline is October 15 prior to the year aid is needed.

# SCHOOL OF ALLIED HEALTH PROFESSIONS

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Craig R. Jackson, J.D., M.S.W.  
Dean, School of Allied Health Professions

## Dean's welcome



Fifty years is considered a golden celebration; and this is the golden year for the School of Allied Health Professions. Since 1966, our school has graduated thousands of alumni who have brought healing and comfort to their communities and the world.

If you have considered starting a new allied health career or returning to advance your current one, 2016 is a great year to become a student at Loma Linda University. We are committed to providing quality professional education and fostering personal and spiritual development, and we believe this is what sets us apart.

Our allied health programs attract students from diverse cultural backgrounds from more than forty countries around the world. Our students are challenged through their academics and clinical experiences where they develop into compassionate and caring health care professionals. We encourage all of our students to learn through mission and service both internationally and in our own community.

The School of Allied Health Professions can be your first step towards becoming a part of this exciting mission. We believe you will find our unique educational experience and opportunities exactly what you are looking for.

## School foundations

The School of Allied Health Professions was established in 1966 (under the name School of Health Related Professions, 1966-1971) to consolidate the administration of individual curricula initiated earlier in the University: medical technology, 1937; physical therapy, 1941; medical radiography, 1941; occupational therapy, 1959; health information management (formerly medical record administration), 1963.

Curricula added since the school was established are nuclear medicine technology, 1970; radiation therapy technology, 1970; cardiopulmonary sciences (formerly respiratory therapy), 1971; nutrition and dietetics, 1972; medical sonography, 1976; special imaging technology, 1976; cytotechnology, 1982; coding specialist, 1987; physical therapist assistant, 1989; emergency medical care, 1993; physician assistant, 2000; rehabilitation sciences, 2001; polysomnography, 2002; radiologist assistant, 2003; medical dosimetry, 2003; orthotics and prosthetics, 2007; health administration, 2008; cardiac electrophysiology technology, 2009; health professions education, 2010. The curriculum in speech-language pathology and audiology, renamed communication sciences and disorders in 2009, was initiated in 1965 under the auspices of the College of Arts and Sciences of La Sierra University (formerly Loma Linda University, La Sierra campus). The program was transferred to the School of Allied Health Professions in 1987. Particulars governing programs currently offered are detailed in this section of the CATALOG following information that pertains to all School of Allied Health students.

## Mission and goals

### Our mission

The School of Allied Health Professions is dedicated to fulfilling the mission of Loma Linda University through academic and clinical training of allied health professionals. The school prepares competent health professionals in a Christian environment that emphasizes the healing and teaching ministry of Jesus Christ "to make man whole."

To meet local, national, and international allied health-care needs, the school seeks to serve:

1. Students choosing to become health-care professionals.
2. Individuals in need of medical care or health promotion programs.
3. Faculty and staff committed to working with students in a Christian educational setting.

### Our goals

The goals of the School of Allied Health Professions are to:

1. Provide an environment in which the student may develop responsibility for integrity, ethical relationships, and empathic attitudes that contribute to the welfare and well-being of patients.
2. Help the student accept responsibility for integrity, ethical relationships, and empathic attitudes that can contribute to the welfare and well-being of patients.
3. Help the student develop a background of information and attitudes conducive to interprofessional understanding and cooperation.
4. Encourage the student to cultivate habits of self-education that will foster lifelong growth.
5. Engender and nurture in the student the desire to serve humankind—and, in particular, to serve as needed, in the medical centers sponsored by the Seventh-day Adventist Church, both in this country and elsewhere.

The School of Allied Health Professions has adopted the University's institutional learning outcomes (p. 19).

## Evaluation of mission and institutional learning outcomes—Wholeness Portfolio

Portfolio is a tool students use to develop and achieve mission-focused learning outcomes as established by Loma Linda University. Portfolio courses integrate the concept of wholeness into the lives of students and assess the outcome of their educational process. Portfolio faculty and staff assist students in understanding and modeling the mission of Loma Linda University and the School of Allied Health Professions.

Each portfolio course continues for three to four quarters, during which time the student develops a portfolio based on personal, professional, and public goals. The final portfolio provides the student with organized, goal-driven documentation of growth and achieved competence in personal and professional areas.

**Wholeness Portfolio I:** Completed by students in cardiac electrophysiology technology, medical radiography, emergency medical care services, advanced practitioner in respiratory care, respiratory care (entry level), clinical laboratory services, cytotechnology, communication sciences and disorders, health informatics and information administration, and physical therapy (DPT).

**Wholeness Portfolio II:** Completed by students in emergency medical care services, advanced practitioner in respiratory care, respiratory care (entry level), clinical laboratory services, cytotechnology, communication sciences and disorders, health informatics and information administration, and physical therapy (DPT).

**Graduate Wholeness Portfolio:** Completed by students in post-professional physical therapy rehabilitation sciences (MSR), respiratory care (graduate level), and PhD in rehabilitation sciences.

**Self-Care Portfolio and Community Outreach:** Completed by students in orthotics and prosthetics.

## General regulations

Students of the University are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. Section III gives the general setting for the programs of each school and the subject and unit requirements for admission to individual professional programs. It is important to review specific program requirements in the context of the general requirements applicable to all programs.

## Admissions policies and information

The program admissions committees of the University intend that an applicant to any of the schools is qualified for the proposed curriculum and is capable of profiting from the educational experience offered by this University. The admissions committees of the school accomplish this by examining evidence of scholastic competence, moral and ethical standards, and significant qualities of character and personality. Applicants are considered for admission only on the recommendation of the program in which study is desired.

In selecting students, the Admissions Committee of the School of Allied Health Professions looks for evidence of self-discipline, personal integrity, and intellectual vigor. The committee also looks for evidence that students possess the capabilities required to complete the full



curriculum in the allotted time and to achieve the levels of competence required. Acceptance of the applicant into any program is contingent on the recommendation of the department conducting the program.

An interview with faculty is required by most programs. Loma Linda University was established to provide education in a distinctively Christian environment, and its students are expected to adopt Christian ethical and moral standards as a basis for their conduct. It must be understood further that, in harmony with the University's emphasis on health and the health professions and the practices of the supporting church, applicants who use tobacco, alcoholic beverages, or narcotics should not expect to be admitted.

Loma Linda University is committed to equal opportunity and does not discriminate against qualified persons on the basis of handicap, gender, race, color, or national or ethnic origin in its educational and admissions policies, financial affairs, employment programs, student life and services, or any University-administered program. It does, however, retain the right to give preference in student admissions to qualified Seventh-day Adventist applicants. While this right is retained, it should be emphasized that admission is not limited exclusively to Seventh-day Adventist applicants.

## Application and acceptance

### Where to write

Correspondence about admission to all programs and requests for application information should be addressed to the Office of Admissions and Records, School of Allied Health Professions, Loma Linda University, Loma Linda, CA 92350.

### Apply early

One class is admitted annually to most of the professional programs. Most programs begin with the Autumn Quarter. Exceptions are noted in the respective programs of this CATALOG.

Late applications are considered as long as space is available. Notifications generally are sent between January 1 and May 15, depending on the completeness of information provided and the date of application. Applicants should inquire at the Office of Admissions and Records if notice of action is not received by March 15 for occupational therapy and physical therapy, and by July 15 for other programs.

### Application review process

All completed applications are first reviewed by the department chair and faculty. A recommendation on each application is then submitted to the school's Admissions Committee, which makes the final decision regarding acceptance.

### Procedure

The procedure for application and acceptance is given below. All correspondence is to be sent to the Office of Admissions and Records, School of Allied Health Professions, Loma Linda University, Loma Linda, CA 92350. All official transcripts, international evaluations, and test scores are to be sent to Admissions Processing, Loma Linda University, 11139 Anderson Street, Loma Linda, CA 92350.

1. Apply online at [www.llu.edu/central/apply](http://www.llu.edu/central/apply). Be prepared to enter the names and email addresses for your recommenders. Have date of attendance for all colleges/universities attended ready for entry on the application.
2. Request that transcripts of all college course work be sent to Admissions Processing. High school transcripts are required of all applicants in order to verify graduation. High school transcripts are

not required if you have completed either an associate or bachelor's degree unless course work in high school is used to satisfy a requirement.

3. Upon receipt of the notice of acceptance, submit the required deposit to confirm acceptance.
4. Send health records or certificates to Student Health Services, 24785 Stewart Street, Evans Hall, Suite 111, Loma Linda, CA 92354.

## Entrance requirements

### Subject/Diploma requirements

High school and college subject requirements for each program are outlined in the respective programs. Students are required to furnish evidence of completion (official transcript) of high school in order to be granted admission to undergraduate programs in any of the schools of the University. Applicants who have completed either an associate or bachelor's degree are exempt from submitting a high school transcript unless course work in high school is used to satisfy a subject requirement. A high school diploma or its equivalent, the GED, is required.

### Grade requirement

Eligibility for consideration by the Admissions Committee is based on a G.P.A. of at least 2.0 (on a 4.0 scale) for all course work (science and nonscience subjects computed separately), presented in fulfillment of entrance requirements for all programs in the school. A G.P.A. considerably higher than the minimum is expected because of the nature of the studies in many professional programs and the competition for the limited number of openings. In general, G.P.A.s between 2.5 and 3.0 are considered minimal, depending on the program. A minimum grade of C (2.0) is required for all college transfer courses.

## Student life

The information on student life contained in this CATALOG is brief. The most current *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies; and is available to each registered student. Students need to familiarize themselves with the contents of the *Student Handbook*. Additional information regarding policies specific to a particular school or program within the University is available from the respective school.

### Professional standards

Good taste indicates that haircut, hairstyling, and personal grooming be neat and conservative rather than ostentatious.

Grooming and style should also be practical so that the student can perform assigned duties without embarrassment or inconvenience. Specifically:

- Men's hair must be neatly trimmed and not fall below the collar. Ponytails, spikes, and dreadlocks are not acceptable.
- Mustaches and beards, if worn, must be neat and closely trimmed.
- Women's hair, if long, may be required to be tied back. Spikes and dreadlocks are not acceptable.
- The wearing of hats indoors is not acceptable.
- Words, pictures, and/or symbols displayed on clothing should be consistent with a Christian institution and sensitive to a diverse student population.
- Excessive makeup and fragrances are not appropriate.
- Rings, if worn, should be low profile and limited to one finger per hand. Male students are not allowed to wear ear ornaments. If worn by women, ear ornaments are limited to simple studs and should not drop below the bottom of the earlobes. Such ornaments are limited

to one per ear. Rings or ornaments in other anatomical sites are not acceptable.

- Fingernails should be maintained in a professional manner, closely trimmed, and should not interfere with patient safety and comfort during treatments. Nail polish, if worn, should be of a subdued color.

## Academic policies and information

Students are responsible for informing themselves of the policies and regulations pertinent to registration, matriculation, and graduation; and for satisfactorily meeting these requirements.

### Academic probation

Students whose cumulative G.P.A. at the end of any quarter is less than the minimum required by the school or program will be placed on academic probation, and the number of units for subsequent registrations will be restricted to a maximum determined by the school or program. A student on academic probation jeopardizes his or her standing in a degree or certificate program.

### Academic residence

In order to graduate from Loma Linda University with a bachelor's degree, a student must complete at least 32 of the last 48 units, or a minimum of 45 total units of course work, at this University. A minimum grade of C (2.0) or better is required for all B.S. and postbaccalaureate degrees.

### Graduation ceremonies

Graduation events include formal ceremonies identified as conferring of degrees, awarding of diplomas, and recognition of candidates for degrees. Other related graduation events include the baccalaureate and vespers services. The conferring of degrees ceremony(ies) occurs at the close of the Spring Quarter and includes an academic procession, the formal conferring of degrees by the president, and the presentation of diplomas by the dean of the school. Candidates who complete the requirements for degrees and certificates are invited, with families and friends, to attend and participate in these important and colorful events.

To be eligible to participate in graduation events, candidates must have completed all requirements for the degree, including prerequisites and/or corequisites, as specified by the school. In certain degree programs, upon authorization of the dean, exceptions will be made for candidates who:

- Have only clinical experience requirements to complete and can project completion by the end of the calendar year;
- Can complete remaining degree requirements by the end of the Summer Quarter; or
- Are in a block program.

The still in-progress course work may not exceed 8 units for graduate students or 12 units for undergraduate students. A student who completes the requirements for a degree or certificate (other than clinical experience) at the end of the Summer, Autumn, or Winter quarter is invited to participate in the subsequent June commencement events. The official date of graduation on the diploma is ordinarily the last day of the term in which the requirements for a degree are completed.

Superior academic performance and achievement in scholarship and leadership are recognized in the printed graduation program for persons who complete their baccalaureate degree and who at the end of the quarter preceding their final term have acquired a cumulative grade point average for all college work (includes course work taken at other colleges/universities, except for remedial courses), as follows:

3.5 Graduation cum laude

3.8 Graduation magna cum laude

3.9 Graduation summa cum laude

Although the official commencement program indicates names of graduates who qualify for honors on the basis of their grade point average as of the end of the quarter preceding their final term, the subsequently issued diploma and transcript may indicate graduation with honors if the student's final quarter record has increased the grade point average sufficiently to qualify for honors at that time.

### Scholastic standing

#### Repeating a course

A student who receives an unsatisfactory grade in a required course and is required by the faculty to do additional work may request permission of the faculty to pursue one of the following plans. In either plan, the student must register and pay the applicable tuition.

1. Review the course work under supervision and take a make-up examination (usually not given before a minimum of two weeks of study). A passing grade resulting from a repeat examination will be limited to a C (2.0). (See the Schedule of Charges in the Financial Information section of this CATALOG for the tuition rate for tutorial course work.)
2. Repeat the course, attend class and/or laboratory, and take the final course examination. Full tuition will be charged, whether regular or occasional attendance is required. (See the Schedule of Charges in the Financial Information section of this CATALOG for the tuition rate.)

A student who receives an unsatisfactory grade in a required clinical experience course and is required by the faculty to do additional work must reregister and pay the applicable fee. (See the Schedule of Charges in the Financial Information section of this CATALOG for the fee for repeat of clinical experience.)

Both the original and repeat grades are entered in the student's permanent academic record, but only the repeat grade is computed in the grade point average. A course may be repeated only once.

#### Promotion and probation

Each student's record is reviewed quarterly by the faculty. Promotion is contingent on satisfactory academic and professional performance and on factors related to aptitude, proficiency, and responsiveness to the established aims of the school and of the profession. As an indication of satisfactory academic performance, the student is expected to maintain the following grade point average:

2.0 Associate and baccalaureate degree programs

3.0 Master's degree program

3.0 Doctoral degree program

A student whose grade point average in any term falls below the minimum required for the degree, who receives in any professional or required course a grade less than a C (2.0), or whose clinical performance is unsatisfactory is automatically placed on academic probation. Continued enrollment is subject to the recommendation of the department. If continued enrollment is not recommended, the case is referred to the Administrative Council of the school for final action.

If continued enrollment is recommended, the student will be required to institute a learning assistance plan within the first two weeks of the following quarter and to meet regularly scheduled appointments with the academic advisor. The learning assistance plan should: identify the

problem, identify and list the goals, state the time frame, and include student and advisor signatures and date.

A student who is on academic probation and fails to make the minimum required grade point average the following quarter or fails to have an overall minimum grade point average after two quarters will have disqualified him-/herself from the program.

**Standard of student progress (time framework)**

After initial enrollment in a program, students must complete program requirements within the following time frames:

A.S. degree	3 years
B.S. degree	5 years
Master's degree	5 years
Doctoral degree	7 years

**Additional requirements**

For additional policies governing Loma Linda University students, see general policies of the University (p. 35), as well as the University *Student Handbook*. Students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation.

**Financial information  
Financial policies and information**

The Office of the Dean is the final authority on all financial matters and is charged with the interpretation of all financial policies. Any exceptions to published policy in regard to reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members, program directors, or department chairs in regard to these matters is not binding on the school or the University unless approved by the dean.

Registration is not complete until tuition and fees for the required installment are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic year. There may be adjustments in tuition and fees as economic conditions warrant.

**General Financial Practices**

The student is expected to arrange for financial resources to cover all expenses before the beginning of each school year. Previous accounts with other schools or this University must have been settled.

**Schedule of Charges (2016-2017)**

(Subject to change by Board of Trustees action)

NOTE: Tuition rates are effective Summer Quarter through the following Spring Quarter.

**Tuition information: by department**

Column	Item	Description
Column 1	Year	academic year/class
Column 2	Units	total units for academic year
Column 3	Tuition	total tuition for academic year
Column 4	Per Unit	per unit rate for the academic year

**Allied Health Sciences  
Rehabilitation Science—Doctor of Philosophy**

Units and tuition vary, depending upon units transferred into Loma Linda University.

Year	Units	Tuition	Per Unit
Multi Year	Units Vary	Varies	\$672

**Health Care Administration—Bachelor of Science**

Year	Units	Tuition	Per Unit
Multi Year	Units Vary	Varies	\$466

**Health Professions Education—Master of Science—units vary (online and face-to-face)**

Units and tuition vary, depending upon units transferred into Loma Linda University.

Year	Units	Tuition	Per Unit
Multi Year	48	\$36,000	\$750

**Health Professions Education—Certificate—units vary (online and face-to-face)**

Units and tuition vary, depending upon units transferred into Loma Linda University.

Year	Units	Tuition	Per Unit
Multi Year	27	\$20,250	\$750

**Cardiopulmonary Science  
Respiratory Care—Bachelor of Science**

Year	Units	Tuition	Per Unit
1	53	\$31,005	\$585
2	61	\$35,685	\$585

**Emergency Medical Care—Bachelor of Science**

Year	Units	Tuition	Per Unit
1	40-42	\$23,400 - \$24,570	\$585
2	40-42	\$23,400 - \$24,570	\$585

**Respiratory Care—Bachelor of Science (advanced practitioner)**

Year	Units	Tuition	Per Unit
1	54	\$31,590	\$585
2	16	\$9,360	\$585

**Cardiac Electrophysiology—Certificate**

Year	Units	Tuition	Per Unit
1	46	\$20,240	\$440
2	8	\$3,520	\$440

**Cardiac Electrophysiology—Associate in Science**

Year	Units	Tuition	Per Unit
1	49	\$21,560	\$440
2	12	\$5,280	\$440

**Respiratory Care—Master of Science Respiratory Care**

Year	Units	Tuition	Per Unit
1	41-48	\$29,930-35,040	\$730
2	12-15	\$8,760-\$10,950	\$730

**Polysomnography—Certificate**

Year	Units	Tuition	Per Unit
1	27	\$11,880	\$440

**Clinical Laboratory Science  
Cytotechnology—Bachelor of Science**

Year	Units	Tuition	Per Unit
1	54	\$32,400	\$600
2	58	\$34,800	\$600

**Clinical Laboratory Science—Bachelor of Science**

Year	Units	Tuition	Per Unit
1	63	\$37,800	\$600
2	63	\$37,800	\$600

**Phlebotomy—Certificate**

Year	Units	Tuition	Per Unit
1	5	\$2,250	\$450

**Communication Sciences and Disorders  
Communication Sciences and Disorders—Bachelor of Science**

Year	Units	Tuition	Per Unit
1	47-53	\$27,354-30,846	\$582
2	41-47	\$23,862-\$27,354	\$582

**Communication Sciences and Disorders—Master of Science (transitional program)**

Year	Units	Tuition	Per Unit
1	45	\$32,670	\$726
2	37	\$26,862	\$726
3	23	\$16,698	\$726

**Communication Sciences and Disorders—Master of Science**

Year	Units	Tuition	Per Unit
1	33	\$23,958	\$726
2	23	\$16,698	\$726

**Speech-Language Pathology—Doctorate**

Year	Units	Tuition	Per Unit
1	18	\$13,500	\$750
2	25	\$18,750	\$750

**Health Informatics and Information Management  
Health Information Administration—Bachelor of Science**

Year	Units	Tuition	Per Unit
1	52	\$30,160	\$580
2	49	\$28,420	\$580
Part-time	Units Vary	Varies	\$580

**Health Information Administration—Certificate**

Year	Units	Tuition	Per Unit
Cert	Units may vary depending upon units transferred into Loma Linda University.	Varies	\$580

**Health Informatics—Master of Science**

Year	Units	Tuition	Per Unit
1, 2	Units may vary depending upon units transferred into Loma Linda University.	Varies	\$684

**Coding Specialist—Certificate**

Year	Units	Tuition	Per Unit
1	10	\$2,300	\$230
2	16	\$3,680	\$230
3	6	\$1,380	\$230

**Nutrition and Dietetics  
Nutrition and Dietetics—Bachelor of Science**

Year	Units	Tuition	Per Unit
1	50	\$29,400	\$588
2	48	\$28,224	\$588

**Nutrition and Dietetics—B.S. and M.S. (coordinated program)**

Year	Units	Tuition	Per Unit
1	50	\$29,400	\$588
2	48	\$28,224	\$588
3	48	\$35,232	\$734

**Nutrition Care Management—Master of Science**

Year	Units	Tuition	Per Unit
1	18	\$13,212	\$734
2	25	\$18,350	\$734
3	5	\$3,670	\$734

**Nutrition and Dietetics—Master of Science (DPD track)**

Year	Units	Tuition	Per Unit
1	37	\$27,158	\$734
2	37	\$27,158	\$734
3	6	\$4,404	\$734

**Nutrition and Dietetics—Master of Science (for those who have an RD)**

Year	Units	Tuition	Per Unit
1	48	\$35,232	\$734

**Nutrition and Dietetics—Master of Science (coordinated program for bachelor's degree graduates in non-nutrition areas)**

Year	Units	Tuition	Per Unit
1	48	\$28,224	\$588
2	48	\$35,232	\$734
3	31	\$22,754	\$734

**Occupational Therapy  
Occupational Therapy—Master of Occupational Therapy (entry level)**

Year	Units	Tuition	Per Unit
1	57	\$39,900	\$700
2	41	\$28,700	\$700
3	24	\$16,800	\$700

**Occupational Therapy—Doctor of Occupational Therapy**

Year	Units	Tuition	Per Unit
1	18	\$12,600	\$700
2	21	\$14,700	\$700
3	14	\$9,800	\$700

**Physical Therapy****Physical Therapist Assistant—Associate in Science (does not include prerequisite units)**

Year	Units	Tuition	Per Unit
1	57	\$23,256	\$408
2	6	\$2,448	\$408

**Physical Therapist Assistant—Associate in Science (2-year track) (does not include prerequisite units)**

Year	Units	Tuition	Per Unit
1,2,3	Units vary per quarter; 63 total units	Depends on units per quarter	\$408

**Physical Therapy—Master of Science in Rehabilitation**

Year	Units	Tuition	Per Unit
1	32	\$19,296	\$603
2	13	\$7,839	\$603

**Physical Therapy—Doctor of Physical Therapy (Entry Level)**

Year	Units	Tuition	Per Unit
1	73	\$40,880	\$560
2	62	\$34,720	\$560
3	28	\$15,680	\$560

**Physical Therapy—Doctor of Physical Therapy (post-professional)**

Year	Units	Tuition	Per Unit
1	36	\$21,708	\$603
2	9	\$5,427	\$603

**Physical Therapy—Doctor of Physical Therapy (post-professional 65-unit track)**

Year	Units	Tuition	Per Unit
1	35	\$21,105	\$603
2	30	\$18,090	\$603

**Physical Therapy—Doctor of Science (post-professional)**

Year	Units	Tuition	Per Unit
1	30	\$18,090	\$603
2	39	\$23,517	\$603
3	12	\$7,236	\$603
4	3	\$1,809	\$603

**Orthotics and Prosthetics—M.S.O.P (Entry Level)**

Year	Units	Tuition	Per Unit
1	54	\$29,970	\$555
2	63.5	\$35,243	\$555
3	38.5	\$21,368	\$555

**Physical Therapy- Ph.D.**

Year	Units	Tuition	Per Unit
1	30	\$18,600	\$620
2	40	\$24,800	\$620

**Physician Assistant Sciences****Physician Assistant—Master of Physician Assistant**

Year	Units	Tuition	Per Unit
1	59	\$38,940	\$660
2	54	\$35,640	\$660
3	12	\$7,920	\$660

**Radiation Technology****Medical Radiography—Associate in Science**

Year	Units	Tuition	Per Unit
1	35	\$16,310	\$466
2	25	\$11,650	\$466

**Radiation Sciences—Bachelor of Science**

Year	Units	Tuition	Per Unit
1,2	Units may vary depending upon units transferred into Loma Linda University.	Varies	\$466

**Radiation Therapy—Certificate**

Year	Units	Tuition	Per Unit
1	No longer offered		
2	5	\$3,960	\$792

**Diagnostic Medical Sonography—Certificate**

Year	Units	Tuition	Per Unit
1- (General/ Vascular)	18	\$14,256	\$792
2- (General/ Vascular)	18	\$14,256	\$792
3- (General/ Vascular)	3	\$2,376	\$792
1- (Cardiac)	17	\$13,464	\$792
2- (Cardiac)	4	\$3,168	\$792

**Medical Dosimetry—Certificate**

Year	Units	Tuition	Per Unit
1- (Track A Physics)	29	\$22,968	\$792
2- (Track A Physics)	10	\$7,920	\$792
1- (Track B Rad Therapist)	19	\$15,048	\$792
2- (Track B Rad Therapist)	10	\$7,920	\$792

**Nuclear Medicine Technology—Bachelor of Science (non-rad tech background)**

Year	Units	Tuition	Per Unit
1	56	\$34,944	\$624
2	57	\$35,568	\$624
3	13	\$8,112	\$624

**Nuclear Medicine Technology—Bachelor of Science (rad tech background)**

Year	Units	Tuition	Per Unit
1	44	\$27,456	\$624
2	52-57	\$32,448 - \$35,568	\$624
3	13	\$8,112	\$624

**Special Imaging Technology: CT and MRI—Certificate**

Year	Units	Tuition	Per Unit
1	16	\$12,672	\$792
2	6	\$4,752	\$792

**Special Imaging Technology: Computed Tomography (CT)—Certificate**

Year	Units	Tuition	Per Unit
1	12	\$9,504	\$792

**Special Imaging Technology: Magnetic Resonance Imaging (MRI)—Certificate**

The 2-quarter MRI program is offered twice per year. One cohort starts in the spring and one cohort starts in the autumn.

Quarter	Units	Tuition	Per Unit
1	8	\$6,336	\$792
2	6	\$4,752	\$792

**Radiation Sciences—Master of Science in Radiation Sciences**

Year	Units	Tuition	Per Unit
1	18	\$13,572	\$754
2	24	\$18,096	\$754
3	7	\$5,278	\$754

**Imaging Informatics—Certificate**

Year	Units	Tuition	Per Unit
1	18	\$8,388	\$466
2	6	\$2,796	\$466

**Radiologist Assistant—Master of Science in Radiation Sciences**

Year	Units	Tuition	Per Unit
1	38	\$28,652	\$754
2	30	\$22,620	\$754

**Radiography Advanced Placement—School Certificate**

Year	Units	Tuition	Per Unit
Cert	3-11	\$1,398 - \$5,126	\$466

**Cardiac and Vascular Imaging- School Certificate**

Year	Units	Tuition	Per Unit
1	33.5	\$15,611	\$466
2	9	\$4,194	\$466

NOTE: Tuition excludes enrollment fee.

**Supplies**

Estimated annual expense of \$600-\$1,500 for supplies (textbooks, professional apparel, materials), depending on program and year of study.

**Special tuition charges**

Fee	Description
\$50	CMSD 589 Remediation/Advance Directed Teaching, CMSD 599 Remediation/Externship

Remediation clinic: Students who do not complete the required skill set within one quarter of assigned clinical experiences may need to register for additional clinical work. In this case, registration for remedial clinic is required for a minimum of 1 unit at the regular tuition rate.

Fee	Description
\$60	Technology Fee for PPMSR and PPDPT (Prior MS) charged in Year 1
\$60	Technology Fee for Entry Level DPT, PPDPT (Prior BS in PT) and DSc charged in Year 1, 2 and 3

**Special charges**

Fee	Description
\$25	Application fee for Phlebotomy
\$60	Application fee for all other SAHP programs. There is no school application fee for DPT, OT, and PA.
\$30	Reapplication
\$500	Acceptance deposit, nonrefundable (applied on tuition)—M.P.A.
\$350	Acceptance deposit, nonrefundable (applied on tuition)—entry-level D.P.T.
\$200	Acceptance deposit, nonrefundable (applied on tuition)—CMSD M.S. and TM, PP D.P.T., D.Sc., entry-level OT, O.T.D.; and entry-level M.S.O.P.
\$100	Acceptance deposit, nonrefundable (applied on tuition)—all other SAHP programs (excludes Phlebotomy, which is \$50)
\$100	Late registration charge (if student registers later than one full week before the first day of the term; see University calendar for specific dates.
\$25	Returned check charge

**On- and off-campus student housing**

Students may go to <llu.edu/central/housing> for housing information and a housing application form.

**Awards and scholarships**

Awards for scholastic attainment and leadership ability have been made available to students whose performance and attitudes reflect well the ideals and purposes of the school.

**School-wide scholarships****President's Award**

The President's Award is given annually in recognition of superior scholastic attainment and active participation in the student community, within the framework of Christian commitment. A recipient is selected from each school of the University.

**Dean's Award**

The Dean's Award is given annually in recognition of academic excellence and commitment to the objectives of the school.

**SAHP Endowment Scholarship**

The SAHP Endowment Scholarship is given to students who require financial aid assistance in order to attend the school. Recipients are chosen by the SAHP dean's office.

### **Hervig Scholarship Fund**

The Robert and Ruth Hervig School of Allied Health SDA Scholarship is given to students enrolled in the school who are members of the Seventh-day Adventist Church and exhibit a Christian lifestyle.

### **Selma Andrews Award**

The Selma Andrews Award is open to all students of the school. Students are encouraged to apply to their departments for scholarships from this fund. There is no application deadline.

## **Cardiopulmonary Sciences**

### **American Medical Response**

The American Medical Response (AMR) Scholarship is given to a student who demonstrates excellence in the clinical practice of emergency medical service (EMS) and outstanding academic achievement in the Emergency Medical Care Program. Preference is given to current or past employees of AMR.

### **Emergency Medical Care Alumni Scholarship**

The Emergency Medical Care Alumni Scholarship Award is presented to a student who has shown exceptional quality of work in the Emergency Medical Care Program and related projects, with contributions to the emergency medical care community through acts of diversity, service, or volunteerism.

### **Faculty Award**

The Faculty Award is presented to a student from the Emergency Medical Care B.S. degree and the Respiratory Care B.S. degree programs who has shown promise of outstanding professional achievement and whose performance is in harmony with the objectives and goals of the University.

### **Louisa Jezerinac Cardiopulmonary Scholarship Award**

The Louisa Jezerinac Cardiopulmonary Scholarship Award is given to a student whose patient care exemplifies the qualities of compassion and dedication.

### **Robert L. Wilkins Memorial Fund**

The Robert L. Wilkins Memorial Fund was established to honor the memory of alumnus and longtime faculty member Dr. Robert L. Wilkins. This scholarship is given to a student with financial need, who is in good standing with the department, and who has an interest in research and/or teaching.

### **William von Pohle Memorial Respiratory Care Clinical Excellence Award**

The William von Pohle Memorial Respiratory Care Clinical Excellence Award is given each year to a senior respiratory care student who demonstrates excellence in clinical practice and case presentations, as well as an attitude consistent with the mission of Loma Linda University.

## **Clinical Laboratory Science**

### **Affiliate Recognition Award**

The Affiliate Recognition Award is presented to a senior clinical laboratory science student for outstanding performance, cooperation, and motivation during the clinical practicum year. Selection is based on recommendation of the clinical faculty.

### **Chair's Award**

The Chair's Award is given to a senior clinical laboratory science student or to a cytotechnology student in recognition of outstanding scholarship and leadership qualities that are in harmony with the objectives and

goals of the University. Selection is based on the recommendation of the faculty.

### **Clinical Laboratory Science (CLS) Scholarship**

The Clinical Laboratory Science (CLS) Endowment Scholarship is presented to CLS students on the basis of scholarship and promise of professional achievement.

### **Faculty Award**

The Faculty Award is presented to a senior clinical laboratory science student or to a cytotechnology student who have shown promise of outstanding professional achievement and who intend to pursue a career in the area of medical technology or cytotechnology. Selection is based on recommendation of the faculty.

### **Marlene Ota Scholarship**

The Marlene Ota Scholarship is awarded to a cytotechnology student who has demonstrated integrity, leadership, and academic excellence.

### **Moncrieff Scholarship Award**

The Moncrieff Scholarship Award is presented annually to a clinical laboratory science student who has demonstrated superior scholarship; professional dedication; financial need; and such personal attributes as dependability, integrity, and initiative.

### **Walsch-Loock Scholarship Award**

The Walsch-Loock Scholarship Award is presented annually to a clinical laboratory science student on the basis of scholarship, promise of professional achievement, and financial need.

## **Communication Sciences and Disorders**

### **Evelyn Britt Promising Student Award**

The Evelyn Britt Promising Student Award is presented to students preparing for graduate work in speech-language pathology and audiology. It recognizes students who show promise of scholastic and professional achievement.

### **Outstanding Senior Award**

The Outstanding Senior Award is given to a student who has performed well academically, developed good clinical skills, and contributed to creating a positive learning environment within the department.

## **Health Informatics and Information Management**

### **Elizabeth M. Guerra Scholarship**

The Elizabeth M. Guerra Student Aid Endowment Scholarship is given to a senior student in the bachelor's degree program with a grade point average of at least 3.5. The student must demonstrate a dedication to the profession of health information management, good leadership skills, and good personal qualities, as determined by the faculty of the department.

### **Audrey Shaffer Endowment**

In the interest of promoting student involvement in the international mission of Loma Linda University, the Audrey Shaffer Endowment provides travel expenses for student clinical and affiliation experiences in health-care facilities outside the United States. Candidates must demonstrate academic excellence and leadership qualities. Recommendations from department faculty and students are required.

### **Faculty Award**

The Faculty Award is presented to students who have shown promise of leadership, scholarship, and potential contribution to their chosen profession. One award is given annually to students graduating from the

programs in health information administration and health information systems.

### **Health Information Management Student Awards**

The Health Information Management Student Awards are given by classmates to the graduating students who have shown promise of leadership, scholarship, and potential for contribution to their chosen profession.

### **Margaret B. Jackson Scholarship Award**

The Margaret B. Jackson Scholarship Award is presented by the department to a senior student on the basis of scholarship, promise of outstanding professional achievement, and financial need.

### **Sally Jo Davidian Scholarship**

The Sally Jo Davidian Scholarship is presented to a student who demonstrates professionalism, leadership potential, scholastic achievement, and financial need. Preference is given to single mothers returning to college.

### **Smart Corporation Scholarship Award**

The Smart Corporation Scholarship Award is presented to a health information administration student on the basis of scholarship and financial need.

## **Nutrition and Dietetics**

### **Fred Lambert Memorial Scholarship Award**

The Fred Lambert Memorial Scholarship Award is given annually to a junior student who has demonstrated outstanding potential for success as an administrative dietitian. The award will be given based on academic success, involvement in social and professional activities, personal promotion of the profession and image of the administrative dietitian, and submission of an essay discussing how the food service administrator can contribute to the mission of the Seventh-day Adventist Church.

### **Kathleen Keen Zolber Scholarship**

The Kathleen Keen Zolber Scholarship Award is given by the department to selected junior students in recognition of scholarship and promise of outstanding professional achievement.

### **Lydia Sonnenberg Scholarship Award**

The Lydia Sonnenberg Scholarship Award is presented annually to selected junior students. Selection is based on academic performance, as well as demonstrated skill and interest in publishing nutrition information for the public.

### **Martha Miller Scholarship Award**

The Martha Miller Scholarship Award is given annually to a sophomore or junior student based on scholarship, demonstrated financial need, and promise of outstanding professional achievement.

### **Nutrition and Dietetics Alumni Association Scholarship Award**

The Nutrition and Dietetics Alumni Association Scholarship Award is given annually to a senior student who has demonstrated outstanding academic performance and promise of expertise in professional achievement.

### **Nutrition and Dietetics Faculty Award**

The Nutrition and Dietetics Faculty Award, presented to selected junior students, is based on scholarship, promise of professional achievement, and demonstrated financial need.

### **Ruth Little Nelson Scholarship Award**

The Ruth Little Nelson Scholarship Award is presented to selected junior students. Selection is based on scholarship; leadership; financial need; and such personal attributes as integrity, dependability, and initiative.

### **Winifred Van Pelt Schmitt Scholarship Endowment**

The Winifred Van Pelt Schmitt Scholarship Endowment provides scholarships to nutrition and dietetics students who have demonstrated financial need, satisfactory progress toward a degree, and professional promise.

## **Occupational Therapy**

### **Daniel Alan Gibson Memorial Scholarship Award**

The Daniel Alan Gibson Memorial Scholarship Award is given to M.O.T. degree students based on financial need and recognized commitment to focus on physical dysfunction/orthopaedics in occupational therapy.

### **Edwinna Marshall Scholarship Award**

The Edwinna Marshall Scholarship Award is given annually to M.O.T. degree students based on financial need and potential for leadership and education in the field of occupational therapy.

### **Faculty Award**

The Faculty Award is presented to a graduating student who has shown promise of outstanding professional achievement and whose performance is in harmony with the objectives of the University.

### **Hamid Javaherian Memorial Award**

The Hamid Javaherian Award is given to a student in the second or third year of the Doctor of Occupational Therapy Program who exemplifies compassion, leadership, program innovation, and dedication to the community in the spirit of occupational justice.

### **Inland Counties Occupational Therapy Association of California Award**

The Inland Counties Occupational Therapy Association of California Award is presented to senior OT students in recognition of excellent academic and clinical performance.

### **Lynn Arrateig Memorial Scholarship Award**

The Lynn Arrateig Memorial Scholarship Award is given annually to an M.O.T. degree student based on financial need and recognized commitment to the practice of pediatrics or geriatrics in the field of occupational therapy.

### **Occupational Therapy Alumni Association Award**

The Occupational Therapy Alumni Association Award recognizes outstanding scholastic and professional achievement in occupational therapy.

### **Occupational Therapy Endowment Scholarship Award**

The Occupational Therapy Endowment Scholarship Award is given annually to students based on scholarship, financial need, and promise of professional achievement.

### **Rose Bucher Memorial Scholarship**

The Rose Bucher Memorial Scholarship is given to M.O.T. degree students based on financial need and recognized commitment and creativity in the practice of occupational therapy.

## **Physician Assistant**

### **PA Faculty Award**

The PA Faculty Award is presented to a physician assistant student who has shown promise of outstanding professional achievement and



whose performance is in harmony with the objectives and goals of the University.

### **Spirit of LLU Physician Assistant Award**

The Spirit of LLU Physician Assistant Award recognizes students who have dedicated themselves to their professional goal, persevering with good humor in the face of adversity; have shown compassion for and sensitivity to others; have a positive attitude; and have served as positive ambassadors for this program throughout their PA program training.

### **The Chair's Award**

The Chair's Award is presented to a senior PA student in recognition of outstanding performance and professional deportment in both the didactic and clinical phases of the program. The recipient is an individual who has consistently demonstrated qualities that are in harmony with the goals of the department and the University.

### **Physician Assistant Alumni Award**

Recipients of the Physician Assistant Alumni Award demonstrate the following criteria: sound judgment in resolving student issues, willingness to lead activities or study groups, mature and responsible behavior, good rapport with peers and faculty/staff, and recent involvement in community service.

### **Association of Schools of Allied Health Professions Scholarship for Excellence Award**

The Association of Schools of Allied Health Professions Scholarship for Excellence Award is presented to the student who is recognized for outstanding performance in the allied health professions, who is achieving excellence in his/her academic program, and who has significant potential to assume future leadership roles in an allied health profession.

### **The Rising Star Award**

The Rising Star Award is presented to the student whose overall performance exemplifies the following criteria: advancement of the physician assistant profession, entrepreneurship in invention or learning, noteworthy performance in research, outstanding community service, interest in mentoring patients, and contributions to the department and/or University.

## **Physical Therapy**

### **Faculty Award**

The Faculty Award is presented to a senior who has shown promise of outstanding professional achievement and whose performance is in harmony with the objectives and goals of the University.

### **Jonna Hughes Memorial Scholarship**

The Jonna Hughes Memorial Scholarship was established by Dr. Billy Hughes to continue his mother's tradition of service. The scholarship benefits female physical therapy students who have risen above personal circumstances to fulfill a life in service to others.

### **Fred B. Moor Award**

The Fred B. Moor Award is presented to a senior who has demonstrated exceptional clinical skills and knowledge in the care of physical therapy patients.

### **Physical Therapy Alumni Association Achievement Award**

The Physical Therapy Alumni Association Achievement Award recognizes outstanding scholastic attainment and active participation in physical therapy student activities and community involvement.

### **Physical Therapy Alumni Association Scholarship Award**

The Physical Therapy Alumni Association Scholarship Award recognizes the student with the highest scholastic attainment in professional studies.

### **Randall C. Isley Memorial Award**

The Randall C. Isley Memorial Award recognizes a graduating PTA student who demonstrates scholarship, outstanding compassion, and inspiration in his/her pursuit of PTA as a second career.

### **Ron Hershey Student Endowment**

The Ron Hershey Student Endowment provides scholarship funds for students who demonstrate financial need and who exemplify the Christian qualities of love, patience, caring, humility, and a striving for excellence.

### **Thomas G. Burke Memorial Scholarship Award**

The Thomas G. Burke Memorial Scholarship Award recognizes the outstanding student dedicated to the pursuit of a second career.

## **Radiation Technology**

### **Faculty Award**

The Faculty Award is given by the department in recognition of superior scholarship.

### **Walter L. Stilson Award**

The Walter L. Stilson Award is given to a student in each clinical facility who has shown promise of outstanding professional achievement and whose performance is in harmony with the objectives of the University.

## **Departments**

- Department of Allied Health Studies (p. 57)
- Department of Cardiopulmonary Sciences (p. 63)
- Department of Clinical Laboratory Sciences (p. 78)
- Department of Communication Sciences and Disorders (p. 84)
- Department of Health Informatics and Information Management (p. 92)
- Department of Nutrition and Dietetics (p. 98)
- Department of Occupational Therapy (p. 107)
- Department of Orthotics and Prosthetics (p. 111)
- Department of Physical Therapy (p. 114)
- Department of Physician Assistant Sciences (p. 128)
- Department of Radiation Technology (p. 131)

## **Programs**

- Cardiac Electrophysiology – A.S. (p. 63), Certificate (p. 63), Comparison (p. 66)
- Clinical Laboratory Science – B.S. (p. 78)
- Coding Specialist – Certificate (p. 92)
- Communication Sciences and Disorders – B.S. (p. 84), M.S. (p. 86)
- Cytotechnology – B.S. (p. 81)
- Diagnostic Medical Sonography – Certificate, Track 1 (p. 133); Certificate, Track 2 (p. 133); Comparison (p. 134)
- Emergency Medical Care – B.S. (p. 67)
- Health Care Administration – B.S. (p. 58)
- Health Informatics – M.S. (p. 93)
- Health Information Administration – B.S., Certificate (p. 94)

- Health Professions Education – M.S. (p. 61), Certificate (p. 60)
- Imaging Informatics – Certificate (p. 135)
- Medical Dosimetry – Certificate, B.S. in Physics Track (p. 135); Certificate, A.S. in Radiation Therapy Track (p. 135); Comparison (p. 137)
- Medical Radiography – A.S. (p. 137)
- Nuclear Medicine Technology – B.S. (p. 140) (Comparison) (p. 143)
- Nutrition and Dietetics – B. S (p. 101), B.S. and M.S. (p. 102), M.S. (prior B.S.) (p. 101), M.S. (DPD) (p. 100), M.S. (prior R.D.) (p. 98), Comparison (p. 104)
- Nutrition Care Management – M.S. (p. 105)
- Occupational Therapy – M.O.T. (p. 107), O.T.D. (p. 109)
- Orthotics and Prosthetics, entry level – M.S.O.P. (p. 111)
- Phlebotomy – Certificate (p. 83)
- Physical Therapist Assistant – A.S. (p. 114)
- Physical Therapy, entry level – D.P.T. (p. 117)
- Physical Therapy, Postprofessional – M.S.R. (p. 122), D.P.T. (45-unit track) and D.P.T. (65-unit track) (p. 120), D.Sc. (p. 121), Ph.D. (p. 125); Comparison (p. 124)
- Physician Assistant – M.P.A. (p. 128)
- Polysomnography – Certificate (p. 69)
- Radiation Sciences – B.S. (p. 144), M.S.R.S. (p. 146)
- Radiation Therapy Technology – B.S. (p. 147)
- Radiography Advanced Placement – Certificate (p. 150)
- Radiologist Assistant – M.S.R.S. (p. 150)
- Rehabilitation Science – Ph.D. (p. 61)
- Respiratory Care – B.S., traditional (p. 70); B.S., advanced practitioner (p. 70); M.S.R.C. (p. 70)
- Speech-Language Pathology – S.L.P.D. (p. 91)
- Special Imaging CT and MRI – Certificate (p. 151)
- Special Imaging CT – Certificate (p. 151), Comparison (p. 154)
- Special Imaging MRI – Certificate (p. 151), Comparison (p. 154)

## Department of Allied Health Studies

The Department of Allied Health Studies provides a variety of administrative and support services to the school's academic departments, including: development, marketing, admissions, computer support and training, portfolio, and financial services. In addition, the Department of Allied Health Studies supports programs offered at distance education sites online, and programs offered in conjunction with other schools of the University. It also houses academic programs not naturally a subset of existing disciplinary departments of the school.

### Life Support Education (LSE)

Life Support Education (LSE) is a program in the School of Allied Health Professions. The program offers a variety of American Heart Association (AHA) classes for health-care and nonhealth-care professionals. Courses are approved by the California Board of Nursing and the California Medical Board for continuing education (CEU or CME) units.

The LSE program is located in the University Arts building at 24887 Taylor Street, Suite 102, Loma Linda, CA 92354; telephone: 909/558-4977.

#### Courses offered

##### Basic Life Support (BLS)

This course is designed for persons who need information about basic airway management and first responder basic management of cardiac arrest in adults, children, and infants.

##### Prerequisite

Proof of current AHA BLS card, if renewing certificate. Candidates include anyone who needs to know how to perform CPR in a health-care setting. Required manual must be brought to class. Participants must study the textbook and the CD prior to class attendance.

For more information, call LSE: telephone 909/558-4977; or visit <llu.edu/life-support-education>.

##### Advanced Cardiac Life Support (ACLS)

This course is designed to certify/recertify medical professionals as ACLS providers and to increase their skills in advanced management of cardiac arrest, airway management, arrhythmia recognition, and team dynamics.

##### Prerequisite

Proof of current AHA BLS card if certifying for the first time, or proof of current AHA BLS and ACLS card if renewing. Candidate must be a health-care provider whose activities demand proficiency in ACLS skills. Required manual must be brought on the day of class. Self-assessment test (<http://www.llu.edu/assets/lifesupport-education/documents/ACLS-Pre-Test.pdf>) is highly recommended. Participants must study the textbook and the CD prior to class attendance.

For more information, call LSE: telephone 909/558-4977; or visit <llu.edu/life-support-education>.

##### Pediatric Advanced Life Support (PALS)

This course is designed to certify/recertify medical professionals who need information about the recognition and advanced management of cardiac arrest, shock, and airway management in infants and children.

##### Prerequisite

Proof of current AHA BLS card if certifying for the first time, or proof of current AHA BLS and PALS card if renewing. Candidate must be a health-care provider whose activities demand proficiency in PALS skills.

Required manual must be brought on the day of class. Self-assessment test (<http://www.llu.edu/assets/lifesupport-education/documents/ACLS-Pre-Test.pdf>) is highly recommended. Participants must study the textbook and the CD prior to class attendance.

For more information, call LSE: telephone 909/558-4977; or visit <llu.edu/life-support-education>.

##### Neonatal Resuscitation Program (NRP)

This course is designed to certify/recertify medical professionals as NRP providers and to renew/update their skills in the management of neonatal resuscitation. The skills testing complies with the guidelines of the American Academy of Pediatrics and the American Heart Association.

##### Prerequisite

Proof of current NRP card when renewing. Candidate must be a health-care provider whose activities demand proficiency in NRP skills. Required manual must be brought on the day of class. Self-assessment test (<http://www.llu.edu/assets/lifesupport-education/documents/ACLS-Pre-Test.pdf>) is highly recommended. Participants must study the textbook and the CD prior to class attendance.

For more information, call LSE: telephone 909/558-4977; or visit <llu.edu/life-support-education>.

##### Heartsaver First Aid and Heartsaver

This class is for nonhealth-care and health-care providers who need to renew/update their CPR and first aid management skills.

##### Prerequisite

For health-care and nonhealth-care providers whose activities demand proficiency in CPR and first aid skills. Required manual must be brought on the day of class. Participants must study the textbook and the CD prior to class attendance.

For more information, call LSE: telephone 909/558-4977; or visit <llu.edu/life-support-education>.

### LSE terms and conditions

#### Registration

The student should register a month before class date. Class starts promptly at scheduled time. Anyone who is more than 15 minutes late will be asked to reschedule. Registration closes when classes are full. If a student registered online, s/he must bring printed registration confirmation on the day of class.

#### Certification

American Heart Association certificates are provided upon course completion for BLS, ACLS, Heartsaver CPR/AED, Heartsaver First Aid, PALS, and PEARS. The American Association of Pediatrics provides NRP certification.

#### Required cards for AHA courses

	Required cards for provider	Required cards for renewal
BLS		BLS
ACLS	BLS	BLS, ACLS
PALS	BLS	BLS, PALS
PEARS	BLS	BLS
NRP		NRP

**Books**

Students must bring required book(s) to class. Anyone without the required book(s) will not be granted admission and will be rescheduled. Rescheduling fees apply. Books can be purchased at the Life Support Education office or online.

**Fees**

A 72-hour notice is required for full refunds, cancellations, and rescheduling of classes. If less than a 72-hour notice is given, a \$25 processing fee applies for ACLS, PALS, and NRP classes. A \$10 processing fee will be charged for PEARS, ECG and pharmacology, BLS, Heartsaver CPR, and first aid. No refunds will be given for no-shows.

A \$25 fee will be charged for retesting ACLS, PALS, and NRP; a \$10 fee will be charged for PEARS and BLS retesting. Retesting is not allowed less than 48 hours after the class date.

**CME/CEU/ICEMA**

The California Medical Association, California Board of Nursing, and Inland Counties Emergency Medical Agency (ICEMA) have approved ACLS, PALS, and NRP provider courses for 16 continuing education units; and renewal courses for 8 continuing education units. PEARS has been approved for 8 continuing education units. No continuing education units for BLS and first aid are applied. *CME Category 1. CEP No. 100403. California CEP No. 62-0004. Pharmacy.*

**Primary faculty**

Benjamin J. Becerra

Rafael Canizales

Kent Chow

Noha S. Daher

G. Charles Dart, Jr.

Katherine G. Davis

Intithar S. Elias

Craig R. Jackson

Karla G. Lavin Williams

Arthur B. Marshak

Helen Martinez

Gail T. Rice

Ernest R. Schwab

Donna Thorpe

Ardis E. Wazdatskey

Grenith J. Zimmerman

**Adjunct faculty**

Allan R. Handsides

**Associated faculty**

Lisa M. Beardsley-Hardy

Lee Berk

Kathryn M. Cockrill

Everett Lohman III

**Emeritus faculty**

Joyce W. Hopp

**Programs**

- Health Care Administration – B.S. (p. 58)
- Health Professions Education – Certificate (p. 60), M.S. (p. 61)
- Rehabilitation Science – Ph.D. (p. 61)

**Health Care Administration – B.S. (Online)****Program director**

Karla Lavin Williams

The Health Care Administration Program leading to the B.S. degree prepares individuals to serve in midlevel administration. Settings include assisted living and skilled nursing facilities; rehabilitation centers; private, public, and proprietary clinics; and medical centers.

Graduates will be skilled in health-care sustainability, information systems, accounting, finance, assessment, strategic and marketing plan development, personnel management, budget development and management, law and policy, and operations management.

**Program outcomes**

Upon completion of the B.S. degree program, the graduate should be able to demonstrate the following competencies:

1. Apply health-care management concepts and theory to sustainable decision-making practices, operations management, and strategic health-care administration.
2. Apply advanced proficiency in communicating with the public, staff, and constituencies.
3. Apply health-care law to policy and procedure development.
4. Demonstrate advanced knowledge and skill in managing human resources and providing effective resolution strategies.
5. Demonstrate advanced knowledge and competence in applying financial management models to health-care organizations.
6. Develop innovative information systems skills applicable to the health-care environment.
7. Develop advanced emotional and social intelligence skills applicable to health-care management.

**Admissions**

In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

For regular admittance, applicants must demonstrate the following academic qualifications:

- Minimum of 96-quarter units academic credit (students transferring from a community college may transfer a maximum of 105 quarter units; all other credits must come from a senior college)
- Minimum 2.5 G.P.A. for all freshman and sophomore course work from accredited educational institutions

- High school diploma or its equivalent (e.g., the GED) is required
- Statement of purpose
- Three letters of recommendation
- Official transcripts of all previous undergraduate work sent by each previous institution to LLU
- University general education requirements listed below

## Required general education courses

### Domain 1: Religion and Humanities (28-32 quarter units)

Religion: The study of religion must include an average of 4 units of religion course work for every 48 quarter units earned while attending a Seventh-day Adventist college or university.

Humanities: Minimum of 12 units chosen from at least three of the following areas: civilization/history, fine arts, literature, modern language, performing/visual arts (not to exceed 4 quarter units), or philosophy.

### Domain 2: Scientific Inquiry and Analysis (24-32 quarter units)

#### Natural sciences (12 units minimum)

Anatomy and physiology (one quarter or semester)

Intermediate algebra. Two years of high school algebra course work with grades of C and above are acceptable.

Choose remaining units from: biology, chemistry, geology, mathematics, physics, and statistics.

#### Social sciences (12 units minimum)

Choose units from: anthropology, economics, geography, political science, psychology, and sociology.

The cultural diversity requirement is met by AHCJ 493 Senior Portfolio I and AHCJ 494 Senior Portfolio II, courses taken during the program.

### Domain 3: Communications (9-13 quarter units)

English composition, complete sequence, must meet the baccalaureate degree requirements of a four-year college or university.

Oral communication (one course)

Computer (high school or waiver examination is acceptable)

Communication electives may include courses in computer information systems, critical thinking, and public speaking.

### Domain 4: Health and Wellness (2-6 quarter units)

Personal health or nutrition

Two separate physical activity courses

### Other

Medical terminology

### Electives

Electives from any of the four domains may be selected to complete the general education minimum requirement of 68 quarter units. In addition, some students may need to complete additional elective course work to bring their overall course unit total to a minimum of 192 quarter units while enrolled at Loma Linda University in order to meet graduation requirements.

### Professional core

Health-care professional units may apply. Details will be discussed on a case-by-case basis with the program director.

## Program requirements

### Major

AHCJ 318	Emotional Intelligence and Leadership Skills for Health-Care Professionals	3
AHCJ 493	Senior Portfolio I	3
AHCJ 494	Senior Portfolio II	3
AHRM 475	Health-Care Research and Statistics	4
HCAD 305	Health-Care Communication	3
HCAD 328	Health-Care Organizational Behavior	3
HCAD 336	Legal Environment of Health Care	3
HCAD 359	Health-Care Marketing	3
HCAD 374	Health-Care Human Resources	3
HCAD 375	Health-Care Information Systems	3
HCAD 401	Health-Care Operations Management	3
HCAD 409	Principles of Health-Care Administration	3
HCAD 414	Sustainability for Health-Care Management	3
HCAD 417	GIS for Health-Care Management	3
HCAD 418	Essentials of Project Management for Health Care Managers	3
HCAD 465	Health-Care Financial Mangement	3
HCAD 498	Health-Care Policy and Strategy	3
RTCH 387	Writing for Health-Care Professionals	3
<b>Religion</b>		
RELE 4__	Upper-division ethics	2
REL R 4__	Upper-division relational	2
REL_ 4__	Upper-division religion	2
Choose one from the following:		2
RELT 406	Adventist Beliefs and Life	
RELT 423	Loma Linda Perspectives	
RELT 436	Adventist Heritage and Health	
RELT 437	Current Issues in Adventism	
<b>Electives</b> <sup>1</sup>		33
AHCJ 225	History of Radiation and Imaging 1890-1940	
AHCJ 226	History of Radiation and Imaging 1940-Present Day	
AHCJ 228	Hispanic Culture for Allied Health Professionals	
AHCJ 305	Infectious Disease and the Health-Care Provider	
AHCJ 314	Managing Stress	
AHCJ 324	Psychosocial Models and Interventions	
ANTH 315	Cultural Anthropology	
DTCS 300	Contemporary Nutrition	
HGIS 422	Principles of Geographic Information Systems	
HLCS 241	Medical Terminology	
PEAC 110	Independent Activities	
RTCH 464	Moral Leadership	
RTED 476	Adult Learning Theory for the Radiation Science Student	
RTII 354	Introduction to Informatics	
Total Units		96

<sup>1</sup> Available online courses if needed to bring the overall course unit total to a minimum of 192 quarter units to meet graduation requirements. Students who come to Loma Linda University with a minimum of 96 quarter units must select 32 units from the elective course list:

## Normal time to complete the program

2 years at LLU) based on full-time enrollment

# Health Professions Education – Certificate, M.S.

## Program director

Arthur B. Marshak

## Advisory committee

B. Lyn Behrens

Rafael Canizales

Marilyn Eggers

Robert Handysides

D. P. Harris

Joyce W. Hopp

Art Kroetz

Everett Lohman III

Christine Neish

W. P. Naylor

Doyle Nick

Gail Rice

Ernie Schwab

Tammi Thomas

Dolores Wright

## The program

The 27-unit health professions education certificate and the 48-unit Master of Science degree are designed for health professionals who want to enhance the effectiveness and efficiency of student learning in the classroom and clinic. Upon completion, graduates will be able to plan for effective learning experiences; improve assessment and evaluation of learning and instruction; and evaluate clinical performance with confidence, improve classroom performance, enhance academic administration skills, and develop expertise in health professions education. The certificate or master's degree programs may be taken online or in a face-to-face classroom setting.

Courses to complete the Master of Science degree include the required 24 units and a minimum of 6 units in Domain I and 6 units in Domain II, for a total of 48 units.

Units to complete the postbaccalaureate certificate include the required 24 units and a minimum of 9 units in Domains I and II selected in consultation with the program director.

Additional courses may be added to each domain in consultation with the program director.

## Program outcomes

In addition to the stated institutional learning outcomes, Master of Science degree Health Professions Education Program graduates are expected to meet the following program and curriculum learning outcomes:

*Outcome 1:* Students will demonstrate teaching competence.

Performance indicators: students will be able to—

- construct learning modules that incorporate teaching and learning theory
- create learning activities that stimulate interaction and reflection
- apply current educational research in their teaching

*Outcome 2:* Students will demonstrate competence in program and curriculum assessment.

Performance indicators: students will be able to—

- produce curricular objectives and outcomes
- design educational experiences
- develop a curriculum and course assessment plan

*Outcome 3:* Students will exhibit competency in educational leadership.

Performance indicators: students will be able to—

- formulate their own personal philosophy of leadership
- apply leadership competency in managing change, developing policy, coaching, and mentoring

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- Minimum of a baccalaureate degree from an accredited U. S. institution of higher education or an equivalent degree from an international degree-granting institution that is recognized by the appropriate government agency.
- Licensed (current), or eligible for licensure if international student (where country does not require licensure), to practice in a recognized health-care profession. The program director will advise on a case-by-case basis if the above categories are not definitive.
- Interview
- Note: Applicants should check with their respective professional, state, governmental (international students), and licensing requirements to determine if this degree program meets their professional needs.

## Program requirements

- Health Professions Education – Certificate (p. 60), M.S. (p. 61)

# Health Professions Education – Certificate

## Required

AHCJ 506	Educational Evaluation and Clinical Assessment	3
AHCJ 509	Transformational Teaching and Learning	3
AHCJ 555	Writing for Health-Care Professionals	3
AHCJ 556	Administration in Higher Education (or other religion course chosen in consultation with program director)	3
RELE 524	Bioethics and Society	3
AHCJ 515	Curriculum Development in Higher Education	3

or NGRD 601 Curriculum Development in Higher Education

#### Domain I electives

Teaching, leading, assessment, and evaluation

Select from the following: 3-6

AHCJ 564 Collaborative Learning in Higher Education

AHCJ 599 Directed Teaching

AHCJ 600 Active Online Learning

AHCJ 699 Directed Study

HPED 504 Pedagogy and Technology

HPED 535 Current Issues in Health Professions Education

– Elective (additional courses may be chosen in consultation with the program director)

#### Domain II electives

Leadership electives

Select of the following: 3-6

AHCJ 545 Legal and Ethical Issues in the Health Professions

AHCJ 566 Theoretical Foundations of Leadership

AHCJ 567 Personal Leadership

AHCJ 699 Directed Study

HADM 528 Organizational Behavior in Health Care

HPED 517 History and Philosophy of Adventist Medical and Health Education

HPED 561 Leadership in the Health Professions I

RELR 525 Health Care and the Dynamics of Christian Leadership (May be used to satisfy the religion requirement for the program. May not double count.)

– Elective (additional courses may be chosen in consultation with the program director)

Total Units 27

### Normal time to complete the program

Three (3) years based on less than half-time enrollment

## Health Professions Education – M.S.

#### Required

AHCJ 506 Educational Evaluation and Clinical Assessment 3

AHCJ 509 Transformational Teaching and Learning 3

AHCJ 555 Writing for Health-Care Professionals 3

AHCJ 556 Administration in Higher Education 3

RELE 524 Bioethics and Society (or other religion course chosen in consultation with program director) 3

AHCJ 515 Curriculum Development in Higher Education 3

or NGRD 601 Curriculum Development in Higher Education

#### Capstone or Thesis

Choose one option 6

Capstone option:

HPED 581 Capstone Project in Health Professions Education I

HPED 582 Capstone Project in Health Professions Education II

Thesis option:

HPED 551 Masters Thesis I

HPED 552 Master's Thesis II

#### Domain I electives

Teaching, learning, assessment and evaluation

Select from the following: 6-18

AHCJ 564 Collaborative Learning in Higher Education

AHCJ 599 Directed Teaching

AHCJ 600 Active Online Learning

AHCJ 699 Directed Study

HPED 504 Pedagogy and Technology

HPED 535 Current Issues in Health Professions Education

– Elective (additional courses may be chosen in consultation with the program director)

#### Domain II electives

Leadership electives

Select from the following: 6-18

AHCJ 545 Legal and Ethical Issues in the Health Professions

AHCJ 566 Theoretical Foundations of Leadership

AHCJ 567 Personal Leadership

AHCJ 699 Directed Study

HADM 528 Organizational Behavior in Health Care

HPED 517 History and Philosophy of Adventist Medical and Health Education

HPED 561 Leadership in the Health Professions I (May be used to satisfy the requirement for the program.)

– Elective (additional courses may be chosen in consultation with the program director)

Total Units 48

### Normal time to complete the program

Three (3) years based on half-time enrollment

## Rehabilitation Science – Ph.D.

#### Program director

Grenith J. Zimmerman

The School of Allied Health Professions offers the Doctor of Philosophy degree in rehabilitation science. By design, the degree program is inclusive of the many rehabilitation professions and offers opportunities for qualified clinical professionals in allied health to prepare for careers in independent research, teaching, and administration. It is the goal of this program to prepare graduates who will:

- Provide vision and direction for the integration of the rehabilitation professions.
- Commit themselves to whole-person care.
- Advance the theory and practice of rehabilitation science through research.
- Acquire and integrate knowledge related to the social and basic medical sciences.
- Assess, develop, and implement interdisciplinary community-based services.

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admissions requirements, applicants must meet the following minimum requirements:

- Bachelor's or master's degree in any allied health professions area or discipline related to rehabilitation science.
- Minimum G.P.A. of 3.0 in academic and professional course work.

Prospective students are required to submit the following:

1. A formal letter of support from a primary research faculty member at Loma Linda University whose research interests and availability most closely match those of the applicant. The program director will coordinate meetings between applicants and prospective research faculty.
2. Curriculum vita, including work history, formal education, continuing education, licensure or certification, professional organizations, honors, awards, publications, presentations, and grants.
3. At least one example of written work (e.g., term paper, course assignment, publication, master's degree research project or thesis).

## Program requirements

A minimum of 114 units beyond the bachelor's degree is required for students holding a master's or doctoral degree in a professional area; up to 45 academic graduate-level quarter units taken in completion of the graduate academic or professional degree may be applicable to the Doctor of Philosophy degree. Application of these credits to the Doctor of Philosophy degree must be reviewed by the School of Allied Health Professions Doctor of Philosophy in Rehabilitation Science Committee prior to submission to the Faculty of Graduate Studies for approval. The student's program course work for the degree must be approved by the Doctor of Philosophy in Rehabilitation Science Committee.

### Domain 1

Political and professional advocacy		
RESC 517	Profession Advocacy in Allied Health Professions	4
RESC 519	Rehabilitation Theories and Applications in Health Care	3
Choose from the following (9 units minimum):		9
AHCJ 528	Lifestyle Health and Wholeness	
AHCJ 545	Legal and Ethical Issues in the Health Professions	
AHCJ 568	Spirituality and Health: The Wholeness Connection	
EPDM 567	Epidemiology of Aging	
EPDM 588	Environmental and Occupational Epidemiology	
ORPR 540	Rehabilitative Care in Developing Nations	
ORPR 575	Couples, Families, and Disabilities	
PTGR 524	Women's Health Issues I	

### Domain 2

Leadership		
Choose from the following (6 units minimum):		6
AHCJ 548	Human Resource Management in the Health-Care Environment	
AHCJ 556	Administration in Higher Education	
AHCJ 566	Theoretical Foundations of Leadership	
AHCJ 567	Personal Leadership	
HADM 506	Principles of Health-Care Finance	

HADM 509	Principles of Health Policy and Management	
HADM 528	Organizational Behavior in Health Care	
HADM 580	Foundations of Leadership	
HADM 586	Building Healthy Communities: Integrative Health Policy	
Domain 3		
Education		
Choose from the following (6 units minimum):		6
AHCJ 506	Educational Evaluation and Clinical Assessment	
AHCJ 509	Transformational Teaching and Learning	
AHCJ 564	Collaborative Learning in Higher Education	
AHCJ 599	Directed Teaching	
IDMT 521	Instructional Design I	
Religion and wholeness		
Include 9 units of religion, chosen from the following ethical, theological, and relational courses; and the Graduate Wholeness Portfolio		
AHCJ 519	Graduate Wholeness Portfolio	1
Choose from the following (3 units minimum):		3
RELE 564	Ethics and Health Disparities	
RELE 567	World Religions and Bioethics	
Required		
RELR 525	Health Care and the Dynamics of Christian Leadership	3
Choose from the following (3 units minimum):		3
RELT 527	The Bible and Ecology	
RELT 534	Anthropology of Mission	
RELT 539	Christian Understanding of God and Humanity	
RELT 540	World Religions and Human Health	
RELT 557	Theology of Human Suffering	
RELT 563	Health Care, Humanity, and God	
Research and dissertation		
Didactic course work (15 units minimum)		
AHRM 581	Research and Statistics I	3
AHRM 582	Research and Statistics II	3
EPDM 509	Principles of Epidemiology	3
Select from the following (6 units minimum):		6
AHRM 605	Critical Analysis of Scientific Literature	
HPRO 589	Qualitative Research Methods	
STAT 515	Grant- and Contract-Proposal Writing	
STAT 564	Survey and Advanced Research Methods	
RESC 697	Research	21
Selectives		
Advanced coursework in speciality area		6
Total Units		80

## Comprehensive examinations

The written comprehensive examination is designed to establish that the student has a broad understanding of rehabilitation science. A student is eligible to take the written examination after completing a minimum of 30 quarter units of course work, including 6 units from each of the four core domains and 6 units in research and statistics.



The oral examination is designed to establish that the student has adequate foundational information in appropriate content areas, as well as a plan to answer a research question appropriate for a doctoral dissertation. Following successful completion of the written comprehensive examination, the oral examination will be scheduled by the student's research mentor in consultation with the program director. Questions for the examination will be over the student's research proposal and the content areas on which the proposal rests.

### Advancement to candidacy

The student may apply for admission to doctoral candidacy after (a) passing the written and preliminary oral comprehensive examinations; and (b) securing the approval of his/her research advisory committee.

### Dissertation

The candidate's capacity for independent investigation and scholarly achievement must be demonstrated by the presentation and oral defense of an acceptable dissertation, resulting in at least two publications in peer-reviewed journals. One paper must be accepted for publication in a peer-reviewed journal before the candidate's graduation.

#### General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the Policies and General Regulations sections of this catalog for the University (p. 35) and the School of Allied Health Professions (p. 46).

### Normal time to complete the program

4.5 years based on three-quarter-time enrollment

## Department of Cardiopulmonary Sciences

The Department of Cardiopulmonary Sciences offers a full range of clinical and professional programs related to cardiac, pulmonary, sleep, and critical and emergency care. The department's goal is to offer excellent education through small class sizes, access to expert faculty, and a faith-based educational environment. Our graduates become advocates and leaders while serving as patient-care providers, researchers, and administrators.

#### Chair

David López

#### Primary Faculty

Alan Alipoon

Matthew Caffey

David López

Traci L. Marin

Ehren B. Ngo

Abdullah K. Alismail

Richard D. Nelson

Brendan Gongol

### Secondary and adjunct faculty

Stanley Baldwin

N. Lennard Specht

Michael Osur

Anthony Yvanovich

Christopher Robertson

Thurman A. Merritt

Lindsey M. Simpson

Charles B. Spearman

### Clinical Faculty

Stanley Baldwin

Leo M. Langga

Michael Lum

Mark S. Rogers

Thomas W. Taylor, Jr.

Loreen K. Scott

### Associated faculty

Noha S. Daher

Grenith Zimmerman

## Programs

- Cardiac Electrophysiology Technology – A.S. (p. 63), Certificate (p. 63), Comparison (p. 66)
- Emergency Medical Care – B.S. (p. 67)
- Polysomnography – Certificate (p. 69)
- Respiratory Care – B.S. (Traditional) (p. 70), B.S. (Advanced Practitioner) (p. 70), M.S.R.C (p. 70).

## Cardiac Electrophysiology Technology – A.S., Certificate

**The Associate in Science degree and certificate programs are both closed to admissions for the 2016-17 academic year.**

#### Program director

Alan Alipoon

Electrophysiology is a subspecialty of cardiology that focuses on treating heart rhythm abnormalities. The cardiac electrophysiology technologist assists the cardiologist during invasive procedures, including diagnostic electrophysiology studies, arrhythmia mapping, catheter ablation for supraventricular and ventricular tachycardias; and for pacemaker, implantable cardioverter defibrillator (ICD), and cardiac resynchronization therapy device implantations.

The Cardiac Electrophysiology Technology Program leads either to a University certificate or to an Associate in Science degree.

The Associate in Science degree in cardiac electrophysiology is based on one year of prerequisites completed at any regionally accredited college or university. The four quarters of course work at Loma Linda

University begin with the Autumn Quarter of the sophomore year. Course work includes clinical experience at affiliated cardiac electrophysiology departments. The Associate in Science degree is primarily face to face, with some web-enhanced courses.

The four-quarter certificate in cardiac electrophysiology is available to those currently working in the cardiac electrophysiology profession (with documented experience by their medical director) or another health-related profession (such as respiratory, radiography, or nursing). Progression through the certificate curriculum is primarily online, with few face-to-face meetings on the Loma Linda University campus.

## CPR certification

Students are required to have current health-care provider cardiopulmonary resuscitation (CPR) certification (adult, child, and infant) for all scheduled clinical experience. Cardiopulmonary resuscitation certification must be completed at the American Heart Association health-care provider level. This may be completed prior to beginning the program of study or be obtained at Loma Linda University. Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102.

## Student learning outcomes

Upon completion of the program, the graduate should be qualified to:

1. Demonstrate clinical competence.
2. Communicate effectively.
3. Develop critical-thinking and problem-solving skills.
4. Demonstrate the values and attitudes of an entry-level cardiac electrophysiology technologist.

## Certification

Upon completion of the program, students will be eligible for certification by the International Board of Heart Rhythm Examiners (IBHRE).

## Accreditation

The Cardiac Electrophysiology Program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) upon the recommendation of the Joint Review Committee on Education in Cardiovascular Technology (JRC-CVT), 1361 Park Street, Clearwater, FL 33756; telephone: 727/210-2350; Website <[www.caahep.org](http://www.caahep.org) (<http://www.caahep.org>)>.

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

Minimum G.P.A. is 2.4. Prerequisites (listed below) should be completed.

### Prerequisites

Religion: 4 units per year of attendance at a Seventh-day Adventist college or university

High school algebra or intermediate algebra in college

Anatomy and physiology

Introductory chemistry or high school chemistry

Introductory physics or high school physics, recommended

Choose one from the following: general psychology, general sociology, cultural anthropology

English composition, complete sequence

Electives to meet the minimum total requirement of 39 quarter (26 semester) units for the A.S. degree

## Program requirements

- Cardiac Electrophysiology Technology - A.S. (p. 64), Certificate (p. 65), Comparison (p. 66)

## Cardiac Electrophysiology Technology – A.S.

Autumn Quarter		Units
AHCJ 326	Fundamentals of Health Care	2
AHCJ 328	Wholeness Portfolio I	0
CEPT 245	Cardiovascular Anatomy and Physiology	3
CEPT 248	Cardiovascular Patient Assessment	2
CEPT 251	Cardiac Electrophysiology and Rhythm Recognition I	2
CEPT 258	Fundamentals of Biomedical Science	2
CEPT 261	Cardiac Electrophysiology Science I	3
CEPT 275	Cardiovascular Pharmacology	3
CEPT 321	Cardiac Electrophysiology Clinical Practicum I	0.5
Winter Quarter		
AHCJ 402	Pathology I	4
AHCJ 328	Wholeness Portfolio I	0
CEPT 252	Cardiac Electrophysiology and Rhythm Recognition II	2
CEPT 262	Cardiac Electrophysiology Science II	3
CEPT 271	Cardiology Diseases and Therapeutics I	2
CEPT 281	Cardiac Electrophysiology Procedures I	3
CEPT 322	Cardiac Electrophysiology Clinical Practicum II	1.5
Spring Quarter		
AHCJ 305	Infectious Disease and the Health-Care Provider	1
AHCJ 328	Wholeness Portfolio I	1
CEPT 253	Cardiac Electrophysiology and Rhythm Recognition III	3
CEPT 263	Cardiac Electrophysiology Science III	3
CEPT 272	Cardiology Diseases and Therapeutics II	2
CEPT 282	Cardiac Electrophysiology Procedures II	3
CEPT 285	Cardiology	3
CEPT 323	Cardiac Electrophysiology Clinical Practicum III	1.5
Summer Quarter		
CEPT 324	Cardiac Electrophysiology Clinical Practicum IV	2
CEPT 345	Case Studies in Cardiac Electrophysiology	2
CEPT 348	Cardiac Electrophysiology Seminar	3
RELE 457	Christian Ethics and Health Care	2
REL_ 4__ (Religion elective)		2
Total Units:		61.5

**Normal time to complete the program**

44 weeks (4 academic quarters) at LLU, based on full-time enrollment

**Cardiac Electrophysiology  
Technology – Certificate**

<b>Autumn Quarter</b>		<b>Units</b>
CEPT 245	Cardiovascular Anatomy and Physiology	3
CEPT 248	Cardiovascular Patient Assessment	2
CEPT 251	Cardiac Electrophysiology and Rhythm Recognition I	2
CEPT 258	Fundamentals of Biomedical Science	2
CEPT 261	Cardiac Electrophysiology Science I	3
CEPT 275	Cardiovascular Pharmacology	3
CEPT 321	Cardiac Electrophysiology Clinical Practicum I	0.5
<b>Winter Quarter</b>		
AHCJ 402	Pathology I	4
CEPT 252	Cardiac Electrophysiology and Rhythm Recognition II	2
CEPT 262	Cardiac Electrophysiology Science II	3
CEPT 271	Cardiology Diseases and Therapeutics I	2
CEPT 281	Cardiac Electrophysiology Procedures I	3
CEPT 322	Cardiac Electrophysiology Clinical Practicum II	1.5
<b>Spring Quarter</b>		
AHCJ 305	Infectious Disease and the Health-Care Provider	1
CEPT 253	Cardiac Electrophysiology and Rhythm Recognition III	3
CEPT 263	Cardiac Electrophysiology Science III	3
CEPT 272	Cardiology Diseases and Therapeutics II	2
CEPT 282	Cardiac Electrophysiology Procedures II	3
CEPT 285	Cardiology	3
CEPT 323	Cardiac Electrophysiology Clinical Practicum III	1.5
<b>Summer Quarter</b>		
CEPT 324	Cardiac Electrophysiology Clinical Practicum IV	2
CEPT 345	Case Studies in Cardiac Electrophysiology	2
CEPT 348	Cardiac Electrophysiology Seminar	3
REL_4 (religion elective)		2
Total Units:		56.5

**Normal time to complete the program**

44 weeks (4 academic quarters) based on full-time enrollment

## Cardiac Electrophysiology Technology – Certificate, A.S. Comparison

	Course Title	Certificate	AS
<b>Autumn Quarter</b>			
CEPT 245	Cardiovascular Anatomy and Physiology	3.0	3.0
CEPT 248	Cardiovascular Patient Assessment	2.0	2.0
CEPT 251	Cardiac Electrophysiology and Rhythm Recognition I	2.0	2.0
CEPT 258	Fundamentals of Biomedical Science	2.0	2.0
CEPT 261	Cardiac Electrophysiology Science I	3.0	3.0
CEPT 275	Cardiovascular Pharmacology	3.0	3.0
CEPT 321	Cardiac Electrophysiology Clinical Practicum I	0.5	0.5
AHCJ 326	Fundamentals of Health Care		2.0
AHCJ 328	Wholeness Portfolio I		0.0
Totals		15.5	17.5
	Course Title	Certificate	AS
<b>Winter Quarter</b>			
AHCJ 402	Pathology I	4.0	4.0
CEPT 252	Cardiac Electrophysiology and Rhythm Recognition II	2.0	2.0
CEPT 262	Cardiac Electrophysiology Science II	3.0	3.0
CEPT 271	Cardiology Diseases and Therapeutics I	2.0	2.0
CEPT 281	Cardiac Electrophysiology Procedures I	3.0	3.0
CEPT 322	Cardiac Electrophysiology Clinical Practicum II	1.5	1.5
AHCJ 328	Wholeness Portfolio I		0.0
Totals		15.5	15.5
	Course Title	Certificate	AS
<b>Spring Quarter</b>			
AHCJ 305	Infectious Disease and the Health-Care Provider	1.0	1.0
CEPT 253	Cardiac Electrophysiology and Rhythm Recognition III	3.0	3.0
CEPT 263	Cardiac Electrophysiology Science III	3.0	3.0
CEPT 272	Cardiology Diseases and Therapeutics II	2.0	2.0
CEPT 282	Cardiac Electrophysiology Procedures II	3.0	3.0
CEPT 285	Cardiology	3.0	3.0
CEPT 323	Cardiac Electrophysiology Clinical Practicum III	1.5	1.5
AHCJ 328	Wholeness Portfolio I		1.0
Totals		16.5	17.5
	Course Title	Certificate	AS
<b>Summer Quarter</b>			
CEPT 324	Cardiac Electrophysiology Clinical Practicum IV	2.0	2.0
CEPT 345	Case Studies in Cardiac Electrophysiology	2.0	2.0
CEPT 348	Cardiac Electrophysiology Seminar	3.0	3.0
REL_ 4__ Upper-division Religion		2.0	2.0
RELE 457	Christian Ethics and Health Care		2.0
Totals		9.0	11.0
Overall Totals		56.5	61.5

## Emergency Medical Care – B.S.

### Program director

Brendan Gongol

### Advisory committee

Carrie Cobos

William Diez

Mark Hartwig

Lisa Higuchi

Jim Holbrook

Ron Holk

Craig Jackson, ex officio

Tae Kim

David Lopez

Tom Lynch

Ehren Ngo

Chris Nollette

Michael Osur

Stacey Price

Lindsey Simpson

The two-year, upper division program leading to the Bachelor of Science degree is a sequence of professional course work intended to prepare emergency medical care (EMC) providers for leadership positions in education, management, or advanced clinical practice. Course work may be applied toward meeting entrance requirements for dentistry, medicine, and other graduate programs.

Those electing to study on a part-time basis must complete the junior and senior years within a four-year period. Students new to the profession should be employed a minimum of sixteen hours per week in an emergency medical care-related position in order to gain the most from the program.

## Program outcomes

In addition to the stated institutional learning outcomes, the emergency medical care student is expected to meet the following program learning outcomes:

1. Exhibit advanced leadership skills.
2. Demonstrate the ability to apply management concepts and theory to decision making, process management, and emergency medical-care administration.
3. Demonstrate understanding of and apply theory of knowledge acquisition and learning theory.
4. Employ understanding of the role and application of science and research in the practice of emergency medical care.
5. Demonstrate advanced knowledge of emergency medical care practice and delivery.

To be eligible for the junior year of the Emergency Medical Care (EMC) Program, the applicant must:

- Be an EMT or a paramedic, a registered nurse/MICN, or a respiratory therapist.
- Complete the subject requirements listed as prerequisites.
- Arrange for an interview at the University by appointment.

## Computer requirement

The Emergency Medical Care (EMC) Program faculty uses distance education technology to facilitate teaching of course work. This technology requires that all prospective students applying for admission to the program have access to a computer with Internet capabilities, by the time they actually begin the program. The program and its faculty will not be responsible for course work not completed due to inability to access a computer. Computer hardware specifications may be obtained from the Department of Cardiopulmonary Sciences administrative secretary.

## CPR certification

Students are required to have current health-care provider cardiopulmonary resuscitation (CPR) certification (adult, child, and infant) for all scheduled clinical experience. CPR certification must be completed at the American Heart Association health-care provider level. Certification may be completed prior to beginning the program of study or may be obtained at Loma Linda University. Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102.

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admissions requirements, the applicant must also complete the following requirements:

### Prerequisite/Corequisite (general program track)

Humanities. Choose a minimum of three areas from the following: \* 20

History	
Literature	
Philosophy	
Foreign language	
Art/music appreciation/history	
Human anatomy, with laboratory **	
Human physiology, with laboratory **	
Chemistry one quarter/semester, with laboratory **	
Introductory physics, one quarter/semester *****	
Microbiology with laboratory	
College algebra *****	
General psychology or General sociology **	
Cultural anthropology or an approved course dealing with cultural diversity **	
Select 4 more quarter units from the following:	4
Sociology	
Economics	
Geography	
Political science	
Psychology	
English composition, complete sequence **	
Personal health or nutrition	
Two physical activity courses	
Electives to meet 96 quarter units	

- \* Included in this minimum, 4 units of religion per year of attendance at a Seventh-day Adventist college or university
- \*\* Denotes EMC B.S. degree program prerequisites
- \*\*\* Requirement may be waived based on review of previous course work completed

### Prerequisite/Corequisite (pre-physician assistant track)

Humanities. Choose a minimum of three areas from the following: \* 20

History
Literature
Philosophy
Foreign language (Spanish language recommended)
Art/music appreciation/history
Human anatomy, with laboratory **
Human physiology, with laboratory **
Genetics course, recommended
Microbiology with laboratory
General chemistry with laboratory, complete sequence **
Introductory physics with laboratory or general physics **
College algebra **
General psychology or General Sociology **
Cultural anthropology or an approved course dealing with cultural diversity **
General or introductory sociology
Freshman English, complete sequence **
Personal health or nutrition
Two physical activity courses
Electives to meet 96 quarter units

- \* Included in this minimum, 4 units of religion per year of attendance at a Seventh-day Adventist college or university
- \*\* Denotes EMC B.S. degree program prerequisites

### Prerequisite/Corequisite (pre-medicine track)

Humanities. Choose a minimum of three areas from the following: \* 20

History
Literature
Philosophy
Foreign language (Spanish language recommended)
Art/music appreciation/history
General biology/zoology with laboratory, complete sequence **
General chemistry with laboratory, complete sequence **
General physics with laboratory, complete sequence **
Organic chemistry with laboratory, complete sequence
Biochemistry, recommended
Microbiology with laboratory
College algebra (calculus recommended) **
General psychology or General Sociology **
Cultural anthropology or an approved course dealing with cultural diversity **
Select 4 more quarter units from the following: 4
Sociology
Economics
Geography

Political science
Anthropology
Psychology
Freshman English, complete sequence **
Personal health or nutrition
Two physical activity courses
Electives to meet 96 quarter units

- \* Included in this minimum, 4 units of religion per year of attendance at a Seventh-day Adventist college or university

\*\* Denotes EMC B.S. degree program prerequisites

Note: A maximum of 105 quarter units or 70 semester units from a junior/community college may be transferred for credit.

Additionally, C- grades and below are not transferable for credit.

### General education requirements

For total unit requirements for graduation, see Division of General Studies (p. 28).

## Program requirements

#### Junior Year

	Units	
AHCJ 305	Infectious Disease and the Health-Care Provider	1
AHCJ 328	Wholeness Portfolio I	1
AHCJ 426	Introduction to Computer Applications	2
EMMC 301 or AHCJ 402	Pathophysiology in Emergency Care I	3
EMMC 302 or AHCJ 403	Pathophysiology in Emergency Care II	3
EMMC 303	Pathophysiology in Emergency Care III	2
EMMC 308	Pharmacology	3
EMMC 314	ECG Interpretation and Analysis	2
EMMC 315	Cardiology	3
EMMC 316	12-Lead ECG Interpretation	2
EMMC 325	Current Issues in Emergency Medical Care	2
EMMC 331	Theories of Emergency Medical Services I	3
EMMC 332	Theories of Emergency Medical Services II	3
EMMC 389	Junior Seminars	1
EMMC 425	Instruction and Curriculum Design in Emergency Services	3
EMMC 451	Health Care Management for Prehospital Providers	2
EMMC 484	Legal Issues in Health Care	2
RELT 423	Loma Linda Perspectives	2
RELT 440 or 416	World Religions	2

#### Senior Year

AHRM 471	Statistics and Research for Health Professionals I	3
AHRM 472	Statistics and Research for Health Professionals II	3
AHCJ 498	Wholeness Portfolio II	1
EMMC 429	Psychosocial Models and Interventions	3
EMMC 435	Disasters, WMD, and Terrorism	3
EMMC 436	Trauma and Surgical Care	3
EMMC 445	Perinatal and Pediatric Care	3

EMMC 446	Physical Diagnosis	3
EMMC 447	Geriatrics and Aging	3
EMMC 448	Advanced Physical Diagnosis and Critical Care	3
EMMC 452	Seminars in EMS Management I	2
EMMC 453	Seminars in EMS Management II	2
EMMC 464	Ethics and Leadership in Emergency Services	2
EMMC 471	Senior Project I	2
EMMC 472	Senior Project II	2
EMMC 489	Senior Seminars	1
RELE 457	Christian Ethics and Health Care	2
RSTH 411	Advanced Cardiac Life Support	2
RELR 427 <sup>1</sup>	Crisis Counseling	2
Total Units:		87

<sup>1</sup> May substitute for another REL\_ 4\_\_ religion course elective

## Normal time to complete the program

2 years [6 academic quarters] based on full-time enrollment; part time permitted

# Polysomnography – Certificate

### Program director

Abdullah Alismail

### Medical director

Ramiz Fargo

The expansion of polysomnography (sleep studies) in the health-care industry has created a marked increase in demand for polysomnography technicians. Many polysomnography clinics are inundated with referrals that may be deferred for months at a time due to inadequate staffing, resulting in delay of sleep disorder diagnoses and appropriate treatments. The certificate in polysomnography is designed for current clinical practitioners and students who are interested in specializing in sleep disorder studies. Both didactic theory and clinical application offered in the program will provide an avenue to gain knowledge, skills, and experience in the expanding discipline of polysomnography. Topics include sleep terminology, sleep structure and disorders, complete patient set-up and monitoring, data acquisition and scoring, and pharmacological and noninvasive interventions. The program is offered on campus and will include: laboratory/clinical rotations, online and classroom discussions, and a case study presentation. Graduates of this program are eligible to sit for the sleep disorder specialist (SDS) examination by the National Board of Respiratory Care (NBRC) and/or the RPSGT examination by the Board of Registered Polysomnography Technologists (BRPT) after completion of the required clinical hours/and requirement for each board examination. \* Please see professional examination section.

## Program objectives

1. Identify basic sleep terminology, sleep structure, and sleep disorders.
2. Comprehend the effect of sleep-related breathing disorders on patients' physiology.
3. Perform and translate the International 10-20 system data acquisition (or equivalent) as it relates to sleep disorders testing.
4. Recognize the technology behind the monitoring devices utilized in sleep disorders testing and identify the locations used for patient monitoring.

5. Recognize the components of a computerized sleep acquisition system and describe the adjustments necessary to produce a quality/valid study.
6. Recognize the components of a sleep report and demonstrate proper application of continuous positive airway pressure (CPAP), bilevel ventilation, and oxygen therapy to patients with sleep-related breathing disorders.
7. Demonstrate the process of a patient set-up, sleep stage, and event scoring.
8. Identify cardiac dysrhythmias and physiologic events and their clinical significance during the sleep evaluation.
9. Independently perform the patient set-up for a sleep study and begin the data acquisition process, data interpretation, and troubleshooting.
10. Demonstrate professional behavior towards patients and staff.
11. Illustrate professional behavior towards patients with home CPAP for sleep by educating them about its use and effect relevant to their sleep disorder.

## Program outcomes

After completion of the program, graduates will:

1. Be eligible to sit for the sleep disorder specialist (SDS) examination by the National Board of Respiratory Care (NBRC) and/or the RPSGT examination by the Board of Registered Polysomnography Technologists (BRPT).\* *Professional Examination and Certification Eligibility section.*
2. Possess skills to recognize and treat a variety of sleep disorders.
3. Be able to effectively perform and interpret a polysomnogram.
4. Be able to communicate with patients and staff members professionally.
5. Have the skills and knowledge to educate patients about diseases and treatments.
6. Have the skills and knowledge to suggest and implement appropriate sleep disturbance interventions.

## Professional examination and certification eligibility

Graduates of this program are eligible to take the sleep disorders specialist (SDS) examination by the National Board of Respiratory Care (NBRC) and/or the RPSGT examination by the Board of Registered Polysomnography Technologists (BRPT) after completion of the required clinical hours and meeting the requirements of each examination. This program is designated as a STAR-focused program under the BRPT. Graduates of this program will be eligible for the RPSGT (Pathway 4) and CPSGT (Pathway 3) after meeting the requirements of each pathway. NBRC inquiries can be made to 18000 West 105th Street, Olathe, KS 66061; telephone, 913/895-4900; fax, 913/895-4650; or Web site, <<http://www.nbrc.org/>>. BRPT inquiries can be made to 8400 Westpark Drive 2nd Floor McLean, VA 22102; telephone, 703/610-9020; fax, 703/610-0229; Web site, <<http://www.brpt.org/>>.

## Accreditation

Loma Linda University is regionally accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; Web site: <<http://www.wascsenior.org>> or <<http://www.wascsenior.org/contact>>.

## Sleep Technology Approved Resource (STAR)

The Polysomnography Certificate program is designated as a STAR provider under the Board of Polysomnographic Technologists (BRPT). Graduates are eligible to use this Focused Training for the RPSGT exam (Pathway 4) and the CPSGT exam (Pathway 3). Please visit the [www.brpt.org](http://www.brpt.org) (<http://www.brpt.org>) website for more details.

## Admissions

To be eligible for this program, in addition to the Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admission requirements, the following criteria must be met:

1. Current Basic Life Support certification from the American Heart Association.
2. Minimum of 2.5 G.P.A. of college credit (minimum of 36 Quarter units).
3. Complete an acceptable interview with Program Faculty.
4. Three positive personal and/or professional references.
5. For current students in the Loma Linda University Cardiopulmonary Sciences program, the following must be met:
  - An agreement and acceptance from both program directors to add the sleep track/units to the current student plan.

**Prerequisite** (*All prerequisite coursework must be completed at a regionally accredited institution*)

- Human anatomy and physiology or general biology with laboratory, complete sequence
- Introductory chemistry with laboratory; or general chemistry with laboratory (minimum of 1 quarter or semester)
- High school-level physics or introductory physics, one quarter/semester in college; or general physics, one quarter/semester in college
- Two years of mathematics selected from: algebra I (elementary), algebra II (intermediate), or geometry—Course work may be taken in high school or college
- English composition complete sequence.

### Co-requisite

- Medical Terminology

### Recommended course work

- Speech
- Sociology or Anthropology.
- Psychology
- Microbiology

## Basic Life Support

Since this program will have clinical rotations and patient contact, students are required to have a cardiopulmonary resuscitation (CPR)/BLS card certification. This certification has to be current and obtained from an authorized American Heart Association training center. BLS course is offered at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102.

## Program requirements

### Winter Quarter

RSPS 234	Polysomnography Patient Education and Safety	1
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RSPS 256	Polysomnography Monitoring and Scoring	2
RSPS 274	Polysomnography Diseases	3
RSPS 295	Polysomnography Practicum I	4

### Spring Quarter

RELR 475	Art of Integrative Care	2
RSPS 286	Polysomnography Case Study	2
RSPS 296	Polysomnography Practicum II	4

### Autumn Quarter

RSPS 210	Foundation of Polysomnography and Sleep Medicine	2
RSPS 216	3- and 12-Leads ECG Interpretation	2
RSPS 227	Neuroanatomy and Physiology of Sleep	3
RSPS 230	Polysomnography Science Methodology	2
Total Units:		27

## Clinical Rotations

The polysomnography program offers clinical practicum course at affiliated clinical sites. Thus, students will commute to a 12 hours clinical rotation on every assigned clinical day; this might include day and night shifts. Therefore, each student is responsible for their own transportation to each clinical site. The program will assign clinical instructors for each site to assess student learning and competency check-offs.

## Normal time to complete the program

34 weeks (3 academic quarters) based on full-time enrollment

## Respiratory Care – B.S., M.S.R.C.

Respiratory care is an allied health profession that promotes health and improvement in the cardiopulmonary function of people with heart and lung abnormalities and disease. Newborn, pediatric, adult, and elderly patients are treated for a wide range of problems—infant respiratory distress syndrome, trauma, cardiopulmonary arrest, conditions brought on by shock, and postoperative surgical complications; as well as respiratory diseases such as pneumonia, asthma, cystic fibrosis, chronic bronchitis, and emphysema.

The respiratory care practitioner is a member of the health-care team in medical centers, skilled nursing facilities, outpatient rehabilitation programs, physician offices, and in-home care. Many are involved in research and development of new and innovative care and equipment. They are effective communicators and compassionate caregivers, possessing an awareness of cultural sensitivity and diversity. They have leadership roles in patient education, wellness intervention, and development of respiratory care plans. Respiratory care professionals apply critical thinking skills in cardiopulmonary diagnostics and patient assessment to optimize decision making and delivery of patient care. In a time of high technology, increasing growth of the elderly population, and increasing numbers of patients with asthma and chronic lung disease, there is a greater demand for educated and skilled respiratory care practitioners.

Loma Linda University offers two Bachelor of Science degree curricula in respiratory care. The first curriculum is for students who have had no previous education in respiratory care and who have completed the program prerequisites. The second curriculum is for students who have an Associate in Science degree in respiratory care from a CoARC-accredited respiratory care program and who wish to earn a Bachelor of Science degree in respiratory care.



## Professional association

The American Association for Respiratory Care (AARC) encourages students and graduates to become members and participate in national meetings and local chapters. The AARC's aim is to foster professional growth, encourage research, and provide services and representation for its members. Further information may be obtained from the national office, 9425 North MacArthur Boulevard, Suite 100, Irving, TX 75063; telephone, 972/243-2272; or Web site, <<http://www.aarc.org>>.

The California Society for Respiratory Care (CSRC), an affiliate of the AARC, is a nonprofit professional organization whose mission is to represent and encourage excellence in the art and science of cardiopulmonary support.

The CSRC is committed to health, healing, and disease prevention in the California community. The society extends these concepts to its members, students, health-care professionals, and the public through education and clinical practice. Further information may be obtained from the CSRC at 1961 Main Street, Suite 246, Watsonville, CA 95076; telephone, 888/730-2772; fax, 831/763-2814; or Web site, <<http://www.csrc.org>>.

## Programs

- Respiratory Care – B.S. (Traditional) (p. 73), M.S.R.C. (p. 75)
- Advanced Practitioner Respiratory Care (Postprofessional) – B.S. (p. 71)

## Advanced Practitioner Respiratory Care (Postprofessional) – B.S.

### Program director

David Lopez

Loma Linda University offers two Bachelor of Science degree curricula in respiratory care. The advanced practitioner respiratory care curriculum is for students who have an Associate in Science degree in respiratory care from a CoARC-accredited respiratory care program and who wish to earn a Bachelor of Science degree in respiratory care. Pending approval by WSCUC, plans have been made to also offer this program online. The start date will be determined once all approvals have been obtained.

The one-year, upper division program leading to the Bachelor of Science degree is a sequence of professional course work intended to graduate individuals who have acquired advanced knowledge in the respiratory care profession, including assessment, therapeutic interventions, and management of patients with cardiopulmonary-related disorders; and who uphold the standards of the mission and goals of the School of Allied Health Professions. The program is offered in two modalities as face-to-face and online. \*See *online distance education section*

### Program goals

The goals of the curriculum are to:

1. Provide therapists to the respiratory care and medical communities who have advanced practice training in cardiopulmonary care and fundamental knowledge in the areas of leadership and education.
2. Provide an undergraduate program for two-year-level respiratory therapists that enhances and broadens their knowledge in cardiopulmonary health-care sciences and general studies, and allows progression into graduate programs.

## Program objectives

Upon completion of the curriculum, the graduate should:

1. Apply fundamental and advanced adult, pediatric, and neonatal respiratory care concepts and treatment plans in the areas of pathophysiology, diagnostics and advanced interventions, gas exchange therapy, medical gas therapy, airway care, and ventilatory support systems (invasive and noninvasive).
2. Apply problem-solving skills in the areas of advanced pulmonary physiology, related diagnostics, and comprehensive pulmonary rehabilitation programs.
3. Perform fundamental and advanced patient assessment and diagnostic skills for various cardiopulmonary diseases.
4. Develop fundamental skills to conduct and interpret research in the health-care arena.
5. Develop fundamental skills in leadership.
6. Develop fundamental skills in topic presentation to the health-care profession and patient-care community, using appropriate lecture and demonstration techniques.

## Program outcomes

In addition to the stated institutional learning outcomes, the postprofessional respiratory care student is expected to meet the following curriculum learning outcomes:

1. Demonstrate advanced knowledge in respiratory care.
2. Demonstrate advanced leadership skills.
3. Demonstrate critical thinking skills in respiratory care practice.

## Online distance education option

The applicant may choose an online option for the advanced practitioner B.S. degree in respiratory care. Please select the online option during the application process. For applicants from outside the state of California, please check the list of states (<http://home.llu.edu/distance-education>) that have authorized Loma Linda University online students to ensure that students from your state are eligible before proceeding with the application.

## Advanced practitioner respiratory care—B.S. (postprofessional/clinical track)

The clinical track of the Advanced Practitioner Respiratory Care Program is open only to students who completed the Loma Linda University entry-level Bachelor of Science degree program in respiratory care in Riyadh, Saudi Arabia. This program was designed to meet the requirements of the new Saudi Arabian regulations, as decreed by King Abdullah bin Abdulaziz.

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admissions requirements, the applicant must also complete the following requirements:

- Be a graduate of a CoARC-approved or provisionally approved, or CoARC-approved advanced practitioner associate degree (or the equivalent) program in respiratory care;
- Complete the subject requirements noted as prerequisites (students who have not completed these requirements may be accepted on a provisional basis); and,

- Arrange for an interview at the University by appointment (an off-campus interview can usually be arranged for the distant student).

## Prerequisite

**Humanities**—20 units minimum (choose minimum of three areas: history, literature, philosophy, foreign language, art/music appreciation, or art/music history)

Included in this minimum, 4 units of religion per year of attendance at a Seventh-day Adventist college or university

**Natural sciences**—Human anatomy and physiology with laboratory, complete sequence; or general biology with laboratory, complete sequence; or general zoology with laboratory, complete sequence

Microbiology with laboratory

Introductory chemistry with laboratory or general chemistry with laboratory

High school-level physics; or introductory physics, one quarter/semester in college; or general physics, one quarter/semester in college

Two years of high school mathematics with grades of C or above or intermediate algebra in college

**Social Science**—General psychology or sociology

Cultural anthropology or an approved course dealing with cultural diversity

Select 4 more quarter units from sociology, psychology, economics, geography, political science

**Communication**—English composition, complete sequence

Speech

**Health and Wellness**—Personal health or nutrition

Two physical activity courses

## Electives

To meet the bachelor of science degree requirement of 192 quarter units, students may select electives with the approval of the program director, from the following options:

For total unit requirements for graduation, LLU General Education Requirements (p. 28).

## Subspecialty: Polysomnography Certificate (Sleep Studies)

Students can take courses from the polysomnography certificate program to be counted as electives and earn a university certificate in polysomnography along the way. Total units offered/available by the polysomnography program are 27 units. Students can either choose selected courses or take the whole certificate as a subspecialty. To earn the certificate, student must apply to the polysomnography program and obtain approval from both program directors.

### Other option:

The senior project is a culminating body of work, developed by the student in consultation with the program director and presented to the department faculty. Work may be a research paper, clinical presentation,

management project, or other project approved by the program director. In addition, other cardiopulmonary courses within the department can be obtained as electives as well.

## Program requirements Postprofessional (on campus and online)

### Senior Year

#### Autumn Quarter

		Units
AHCJ 328	Wholeness Portfolio I	0
AHCJ 465	Seminars in Leadership	2
AHCJ 498	Wholeness Portfolio II	0
AHRM 471	Statistics and Research for Health Professionals I	3
RELT 406, 423, or 436	Adventist Beliefs and Life	2
RELE 4__	Upper-division religion	2
RSTH 301	Advanced Respiratory Therapy Science I	3
RSTH 434	Advanced Patient Assessment	2
RSTH 431	Senior Project I	4

#### Winter Quarter

AHCJ 328	Wholeness Portfolio I	0
AHCJ 402	Pathology I	4
AHCJ 498	Wholeness Portfolio II	0
AHRM 472	Statistics and Research for Health Professionals II	3
RSTH 401	Cardiopulmonary Intensive Care	2-4
RSTH 424	Exercise Physiology and Pulmonary Rehabilitation	3
RSTH 431	Senior Project I	4
RSTH 466	Advanced Diagnostic Techniques	2
RSTH 485	Evidenced-Based Medicine in Respiratory Care	4

#### Spring Quarter

AHCJ 328	Wholeness Portfolio I	1
AHCJ 403	Pathology II	3
AHCJ 498	Wholeness Portfolio II	1
EMMC 315	Cardiology	3
EMMC 316	12-Lead ECG Interpretation	2
RELE 4__	Upper-division ethics	2
RSTH 401	Cardiopulmonary Intensive Care	2
RSTH 432	Senior Project II	4
RSTH 486	Evidenced-Based Medicine in Respiratory Care II	4

#### Summer Quarter

RSTH 315 or 422	Pediatric Perinatal Respiratory Care	2
RSTH 433	Senior Project III	4
RSTH 451	Respiratory Care Affiliation I	2
RSTH 471	Instructional Techniques I	2
RSTH 487	Evidenced-Based Medicine in Respiratory Care III	4
RELE 4__	Upper-division religion	

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Total Units: 76

### Normal time to complete the program

1 year [4 academic quarters] at LLU based on full-time enrollment

## Postprofessional/Clinical track

### Senior Year

#### Autumn Quarter

RELE 4__ Upper-division ethics	2
REL_ 4__ Upper-division religion elective	
RSTH 301 Advanced Respiratory Therapy Science I	3
RSTH 451 Respiratory Care Affiliation I	2
RSTH 462 Management Practicum II	3
RSTH 491 Education Practicum I	3

#### Winter Quarter

RSTH 431 Senior Project I	4
RSTH 452 Respiratory Care Affiliation II	4
RSTH 463 Management Practicum III	3
RSTH 485 Evidenced-Based Medicine in Respiratory Care	4
RSTH 492 Education Practicum II	3

#### Spring Quarter

RSTH 401 Cardiopulmonary Intensive Care	2
RSTH 432 Senior Project II	4
RSTH 453 Respiratory Care Affiliation III	4
RSTH 486 Evidenced-Based Medicine in Respiratory Care II	4
RSTH 493 Education Practicum III	3

#### Summer Quarter

RELE 4__	2
RSTH 411 Advanced Cardiac Life Support	2
RSTH 433 Senior Project III	4
RSTH 454 Respiratory Care Affiliation IV	5
RSTH 487 Evidenced-Based Medicine in Respiratory Care III	4
<b>Total Units:</b>	<b>65</b>

### Normal time to complete the program

1 year [4 academic quarters] at LLU) based on full-time enrollment

## Respiratory Care (Traditional) – B.S.

### Program director

Richard D. Nelson

### Director of clinical education

Abdullah K. Alismail

### Medical director

N. Lennard Specht

Loma Linda University offers two Bachelor of Science degree curricula in respiratory care (respiratory care therapy). The traditional curriculum is for students who have had no previous education in respiratory care and who have completed the program prerequisites. The advanced practitioner postprofessional B.S. degree curriculum is for students who have an Associate in Science degree in respiratory care from a CoARC-accredited respiratory care program and who wish to earn a Bachelor of Science degree in respiratory care.

The two-year, upper division curriculum leading to the Bachelor of Science degree is a sequence of professional course work intended to prepare competent respiratory therapists with advanced abilities in clinical care. Course work may be designed toward meeting entrance

requirements for the Dentistry, Medicine, and Physician Assistant programs.

**Units** Those electing to study on a part-time basis must complete the junior and senior years within a four-year period.

## Program objectives

Upon completion of the curriculum, the graduate should:

1. Collect and review pertinent clinical information and suggest and implement diagnostic procedures, according to age-specific criteria.
2. Select, obtain, assemble, maintain, and correct malfunctions on all respiratory therapy equipment.
3. Administer medications via aerosol, subcutaneous, and other appropriate routes of delivery, according to age-specific criteria.
4. Apply current and advanced respiratory care concepts and treatment plans in the areas of ventilatory support systems (invasive and noninvasive), medical gas therapy, gas exchange therapy, airway care, and advanced resuscitation techniques, according to age-specific criteria.
5. Assist the physician in the performance of all diagnostic or therapeutic procedures related to cardiopulmonary function.
6. Function as an efficient member of the interdisciplinary team.
7. Demonstrate advanced knowledge and clinical skill in specialty areas selected from:
  - neonatal/pediatric critical care
  - adult critical care
  - cardiopulmonary diagnostics
  - hyperbaric medicine
  - sleep disorders medicine
  - cardiopulmonary rehabilitation
  - extended care

## Program outcomes

In addition to the stated institutional learning outcomes, the respiratory care student is expected to meet the following learning outcomes:

1. Demonstrate basic cardiopulmonary knowledge in respiratory care.
2. Demonstrate advanced knowledge and clinical skills in respiratory care practice.
3. Demonstrate critical thinking skills in respiratory care.
4. Pass the National Board for Respiratory Care (NBRC) Therapist Multiple-Choice Self-Assessment Examination (TMC-SAE) and NBRC Clinical Simulation Self-Assessment Examination (CSE-SAE), which are both required for on-time graduation.

## Professional licensure and credentialing

Graduates of CoARC-accredited respiratory care programs must apply to the state of California Department of Consumer Affairs Respiratory Care Board (RCB) for a license to practice in the state. The RCB requires that graduates of respiratory care programs complete general and respiratory care education courses with grades of C or above, resulting in a minimum of an Associate in Science degree in respiratory care. Graduates must successfully complete an examination for licensure, declare felony convictions, and undergo fingerprinting. License denial may occur due to prior criminal conviction(s). Inquiries regarding the RCB can be directed to 3750 Rosin Court, Suite 100, Sacramento, CA 95834; telephone:

916/999-2190; fax: 916/263-7311; or Web site: [www.rcb.ca.gov](http://www.rcb.ca.gov) (<http://www.rcb.ca.gov>) or via email: [RCBinfo@dca.ca.gov](mailto:RCBinfo@dca.ca.gov).

The National Board for Respiratory Care, Inc. (NBRC), provides nationally recognized credentialing examinations for graduates of accredited respiratory care programs. Those who successfully complete the therapist multiple choice examination and the advanced clinical simulation examination receive the registered respiratory therapist (RRT) credential. Additional advanced practitioner examinations are required for adult critical care specialist (ACCS) credential, neonatal-pediatric specialist certification (NPS), certified (CPFT) and registered (RPFT) pulmonary function technologist, and sleep disorders specialty (SDS) credential. The RRT credential is required by the state of California for licensure to practice respiratory care. NBRC inquiries can be made to 18000 West 105th Street, Olathe, KS 66061; telephone: 913/895-4900; fax: 913/895-4650; or Web site: [www.nbrc.org](http://www.nbrc.org) (<http://www.nbrc.org>).

## Accreditation

Respiratory Care Program accreditation is provided by the Commission on Accreditation for Respiratory Care (CoARC). Standards and guidelines published by CoARC must be met, relevant to general and respiratory care education and to ongoing program assessment and improvement. Inquiries regarding CoARC can be directed to 1248 Harwood Road, Bedford, TX 76021-4244; telephone, 817/283-2835; or Web site, <http://www.coarc.com/>. The Respiratory Care Program at Loma Linda University is CoARC-accredited.

## Admissions

Admission to the Bachelor of Science degree program in Respiratory Care is open autumn term of each year. In addition to Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admissions requirements, the applicant must also complete the following requirements:

- A minimum of 78 degree transferable quarter units (52 semester units) per program director approval or hold an AS degree.
- Complete the subject requirements noted as prerequisites.
- Arrange for an interview at the University by appointment (an off-campus or telephone interview can be arranged for the distant applicant).
- Complete a minimum four hour observation / interaction with a respiratory therapist. This may be scheduled following your interview.

## Prerequisites

A maximum of 105 quarter or 70 semester units (didactic only) from an accredited junior college will be accepted as transfer credit.

## Domain 1: Religion and humanities (28–32 quarter units)

The study of religion must include an average of 4 units of religion course work for every 48 quarter units earned while attending a Seventh-day Adventist college or university.

Humanities: Choose three areas totaling a minimum of 12 quarter units (8 semester units) from: civilization/history, fine arts, literature, modern language (non-conversational), performing/visual arts (not to exceed 4 quarter units), or philosophy.

## Domain 2: Scientific inquiry and analysis (24–32 quarter units)

Scientific inquiry and analysis encompass both the natural and social sciences. Choose a minimum of 12 units from:

- Human anatomy and physiology with laboratory, complete sequence or general biology with laboratory, complete sequence
- Microbiology with laboratory
- Introductory chemistry with laboratory, complete sequence; or general chemistry with laboratory, complete sequence
- High school-level physics or introductory physics, one quarter/semester in college; or general physics, one quarter/semester in college (High school courses do not count toward the 12 units required to fulfill GE requirements.)

Two years high school mathematics with grades of C or above, or intermediate algebra in college

The study of social sciences must include a minimum of 12 quarter/8 semester units.

- Introductory or general psychology course
- Cultural anthropology or an approved course dealing with cultural diversity
- Choose remaining social sciences from: economics, geography, political sciences, or sociology.

## Domain 3: Communication (9–13 quarter units)

English composition, complete sequence

Choose additional units from:

- Speech or interpersonal communication
- High school-level computers or introductory computers course (Only college-level courses, transferable to a four-year college count toward total unit requirement.)
- Other areas of study in communication may include courses in computer information systems, critical thinking, and public speaking.

## Domain 4: Health and wellness (2–6 quarter units)

To encourage the pursuit of lifelong leisure activities and wellness, the study of health and wellness must include at least two physical activity courses totaling a minimum of 1 quarter unit; and one course in personal health or nutrition. Additional units may include other areas of health, nutrition, and physical fitness.

## Domain 5: Electives:

*Electives to meet the minimum total requirements of 192 quarter units*

For total unit requirements for graduation, see LLU General Education Requirements (p. 28).

## Program requirements

### Junior Year

#### Summer Quarter 1

Alternate summer entry if non-block co-requisite courses are needed requires program director approval.

#### Autumn Quarter

AHCJ 326	Fundamentals of Health Care	2
AHCJ 328	Wholeness Portfolio I	0

HLCS 241	Medical Terminology	2	RELT 416 <sup>2</sup>	God and Human Suffering	2
RSTH 304	Cardiopulmonary Anatomy and Physiology	4	RSTH 464	Case Management in Respiratory Care	2
RSTH 331	Pharmacology I	2	RSTH 471	Instructional Techniques I	2
RSTH 334	Patient Assessment	2	RSTH 474	Cardiopulmonary Health Promotion and Disease Prevention	2
RSTH 341	Respiratory Therapy Science I	5	RSTH 496	Respiratory Care Practicum VI	3
<b>Winter Quarter</b>					
AHCJ 328	Wholeness Portfolio I	0	<b>Fifth Year</b>		
AHCJ 402	Pathology I	4	<b>Summer Quarter</b>		
RSTH 332	Pharmacology II	2	Summer term for completion of non-block co-requisites requires program director approval.		
RSTH 342	Respiratory Therapy Science II	5	<hr/>		
RSTH 366	Diagnostic Techniques	3	Total Units:		114
RSTH 381	Cardiopulmonary Diseases I	2	A minimum of 192 quarter units is required for the Bachelor of Science degree in respiratory care.		
RSTH 391	Respiratory Care Practicum I	2	<ol style="list-style-type: none"> <li>1 May substitute with another course of the same prefix and level.</li> <li>2 May substitute with any REL_ course of the same level</li> </ol>		
<b>Spring Quarter</b>					
AHCJ 305	Infectious Disease and the Health-Care Provider	1	<b>Normal time to complete the program</b>		
AHCJ 328	Wholeness Portfolio I	1	Two years (7 academic quarters) full time enrollment are required to complete all program block course requirements that comprise 114 units.		
AHCJ 403	Pathology II	3	The program starts from Fall Term with three quarters of study in the Junior Year and four quarters of study in the Senior Year.		
RELE 457 <sup>1</sup>	Christian Ethics and Health Care	2	<b>Alternate summer term entry to include all co-requisite course requirements</b>		
RSTH 323	Pulmonary Function Methodology	3	For students who need to complete co-requisite courses that are not included in the 7 academic quarter block course sequence, the program length is a maximum of two years plus an additional Summer term (9 academic quarters). The alternate entry for these students is Summer Term of each year preceding the Fall Term block sequence.		
RSTH 343	Respiratory Therapy Science III	4	On acceptance, an academic plan specifying the program length (8 or 9 academic quarters) and the courses selected during the alternate Summer terms is to be approved by the program director.		
RSTH 382	Cardiopulmonary Diseases II	2	<b>Respiratory Care – M.S.R.C.</b>		
RSTH 392	Respiratory Care Practicum II	2	<b>Program director</b>		
<b>Senior Year</b>					
Traci Marin					
<b>Summer Quarter 1</b>					
RSTH 393	Respiratory Care Practicum III	5	<b>Program description</b>		
RSTH 404	Critical Care	4	The faculty of the Loma Linda University Master of Science in Respiratory Care Program believes in the promotion and support of excellence in the profession of respiratory care and cardiopulmonary sciences through education, knowledge development, research, leadership, and public service. The mission of the program is to:		
EMMC 316	12-Lead ECG Interpretation	2	<ol style="list-style-type: none"> <li>1. Support the mission and goals of Loma Linda University and the School of Allied Health Professions.</li> <li>2. Facilitate student professional development, expansion of knowledge, and contribution to the field of respiratory care and cardiopulmonary sciences through guidance, resources, leadership, and example.</li> <li>3. Support the medical community's needs for qualified advanced respiratory care practitioners and cardiopulmonary researchers that will facilitate positive changes through patient advocacy, leadership, knowledge discovery, and implementation.</li> </ol>		
RELT 406, 423, 436, or 437	Adventist Beliefs and Life	2			
<b>Autumn Quarter</b>					
AHCJ 465	Seminars in Leadership	2			
AHCJ 498	Wholeness Portfolio II	0			
AHRM 471	Statistics and Research for Health Professionals I	3			
RSTH 354	Case Studies in Adult Respiratory Care	2			
RSTH 421	Perinatal and Pediatric Respiratory Care	2			
RSTH 434	Advanced Patient Assessment	2			
RSTH 441	Respiratory Therapy Science IV	3			
RSTH 494	Respiratory Care Practicum IV	3			
<b>Winter Quarter</b>					
AHCJ 498	Wholeness Portfolio II	0			
AHRM 472	Statistics and Research for Health Professionals II	3			
RELR 475 <sup>1</sup>	Art of Integrative Care	2			
RSTH 422	Advanced Perinatal and Pediatric Respiratory Care	2			
RSTH 424	Exercise Physiology and Pulmonary Rehabilitation	2			
RSTH 444	Case Studies in Neonatal/Pediatric Respiratory Care	2			
RSTH 466	Advanced Diagnostic Techniques	2			
RSTH 495	Respiratory Care Practicum V	2			
<b>Spring Quarter</b>					
AHCJ 498	Wholeness Portfolio II	1			
EMMC 315	Cardiology	3			

4. Encourage continuing professional and personal development within the community through volunteerism and community service geared toward disease prevention and intervention.

The four-quarter program is designed to allow customizable options for interactions with the program faculty both face-to-face and on-line offered through two tracks. Students receive and develop didactic and clinical knowledge to advance their expertise in areas of education, research, leadership, clinical performance, industry, and management in the cardiopulmonary sciences from an evidence-based perspective.

Courses combine discussion, projects, case studies, service activities, and Web-enhanced learning. The online program students will be required to schedule an online orientation one week prior to the beginning of their courses.

An optional two-quarter, advanced practice clinical practicum is also included that requires the consent of the program director, the department chair, and the medical director—along with the approval and acceptance of a physician preceptor agreement form on file.

## Program objectives

1. Graduate practitioners who will impact health-care delivery by representing leadership and excellence in the clinical setting.
2. Graduate professionals who maintain and improve upon recognized educational standards of the profession.
3. Graduate professionals who employ proper ethics within the profession.
4. Graduate individuals who are able to interpret basic and applied scientific knowledge and translate that information to the clinical arena.
5. Graduate innovative clinicians who are able to develop novel, important hypotheses and execute activities to explore such hypotheses.

## Program outcomes

In addition to the stated institutional learning outcomes, the professional Master of Science in Respiratory Care degree graduates are expected to meet the following program and curriculum learning outcomes:

1. Demonstrate evidence-based and advanced knowledge in respiratory care.
  - Apply evidence-based and advanced adult, pediatric, and neonatal respiratory care concepts and treatment plans in the areas of pathophysiology, diagnostics, advanced interventions, gas exchange therapy, medical gas therapy, airway care, and ventilatory support systems (invasive and noninvasive).
  - Perform evidence-based, advanced patient assessment; as well as diagnostic skills for the cardiopulmonary patient.
2. Demonstrate advanced leadership skills.
  - Develop fundamental skills in leadership.
  - Graduate leaders who engage in activities that advance the respiratory care profession.
  - Develop fundamental skills in topic presentation to health-care professionals and the patient-care community.
3. Apply research, statistical methods, and current technology to evaluate and better serve the medical community.

- Continue the development of skills to conduct and interpret research in the health-care arena.
- Apply research skills to clinical and theoretical situations.

4. Demonstrate advanced knowledge and clinical skills in respiratory care practice.
  - Apply advanced clinical skills to the cardiopulmonary patient.
  - Apply problem-solving skills in the areas of advanced pulmonary and cardiology physiology and related diagnostics to cardiopulmonary patients.

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admissions requirements, the applicant must also complete the following requirements:

- The applicant should have a minimum of a baccalaureate degree from an accredited or recognized institution of higher education by Loma Linda University.
- The applicant is encouraged to have earned the Registered Respiratory Therapist credential from the National Board for Respiratory Care, and licensed in their state of residence or eligible to practice by the government or equivalent.
- It is recommended that the applicant have 2 years of clinical experience

## Program requirements

### Core

AHCJ 519	Graduate Wholeness Portfolio	1
AHCJ 545	Legal and Ethical Issues in the Health Professions	3
AHCJ 566	Theoretical Foundations of Leadership	3
AHRM 571	Statistics and Research for Health Professionals I	3
AHRM 572	Statistics and Research for Health Professionals II	3
RELE 524	Bioethics and Society	3
RSTH 501	Advanced Cardiopulmonary Anatomy and Physiology I	3
RSTH 502	Advanced Cardiopulmonary Anatomy and Physiology II	3
RSTH 571	Advanced Pathophysiology of Cardiopulmonary Diseases I	3
RSTH 572	Advanced Pathophysiology of Cardiopulmonary Diseases II	3
RSTH 580	Research Concept in Respiratory Care Sciences	3
RSTH 585	Current Issues in Respiratory and Health Care Policy	3

### Focus

Choose one focus area. All courses in chosen focus are required. 12

Professional		
RSTH 541	Advanced Concepts in Critical Care I	
RSTH 542	Advanced Concepts Critical Care II	
RSTH 550	Advanced Procedures in Cardiopulmonary Science	
RSTH 560	Advanced Cardiopulmonary Assessment, Diagnostics, and Monitoring	
RSTH 596	Advanced Clinical Practice in Respiratory Care I	
RSTH 597	Advanced Clinical Practice in Respiratory Care II	

**Polysomnography**

RSPS 510	Sleep Neurophysiology and Pathologies	
RSPS 511	Methodologies in Sleep Disorder Assessment and Intervention	
RSPS 512	Advanced Polysomnography Practicum	

**Capstone**

RSTH 591	Capstone Project in Respiratory Care I	3
RSTH 592	Capstone Project in Respiratory Care II	3
RSTH 593	Capstone Project in Respiratory Care III	3
RSTH 594	Capstone Project in Respiratory Care IV	3
Total Units		58

**Normal time to complete the program**

1 year (4 academic quarters) – full-time enrollment required

**Capstone requirement**

Capstone project must be completed as a written document and presented orally as a seminar. It must be publishable quality and be pushed toward publication. Note that capstone courses may be completed prior to capstone project as they are set in place to generate the foundation for the project. However, capstone projects must be completed at the level of publishable standards to meet graduation requirements.

# Department of Clinical Laboratory Science

The Clinical Laboratory Science Department is home to the programs associated with laboratory medicine: clinical laboratory science (a.k.a. medical technology or medical laboratory science), cytotechnology (a.k.a. cytology), and phlebotomy (a.k.a. venipuncture). Whether testing blood or body fluids, analyzing cells and cell patterns, or collecting patient samples, the laboratory professional is integral to the health-care team and patient care.

The goals of the Clinical Laboratory Science Department are as follows:

1. To provide opportunities, instruction, and guided experiences enabling the student to acquire the basic knowledge and attain technical ability essential to the practice of his/her chosen profession.
2. To help the student accept responsibility for integrity, ethical relationships, and empathic attitudes that contribute to the welfare and well-being of patients.
3. To help the student develop a background of information and attitudes conducive to interprofessional understanding and cooperation.
4. To encourage the student to cultivate habits of self-education that will foster lifelong professional growth.
5. To engender and nurture in the student the desire to serve mankind and, in particular, to serve as needed, in the medical centers sponsored by the Seventh-day Adventist Church both in the United States and abroad.

## Chair

Rodney M. Roath

## Primary faculty

Craig E. Austin

Grace T. Baker

James A. Brandt

Linda S. Buckert

Shalini Carter

Monique K. Gilbert

Scott Gordon

Gayle Haider

Susie M. Johnson

Brad D. Koontz

Claro Y. Masangcay

Thuan H. Nguyen

Nove Oliver

Marlene M. Ota

Elde M. B. Paladar

Desiree L. Palafox

Rodney M. Roath

Teri H. Ross

Linda J. Shain

Margaret A. Tavares

Alicia M. Triplett

Jane N. Zappia

## Secondary faculty

Katherine G. Davis

Paul C. Herrmann

Darryl G. Heustis

Edward H. Rowsell

Pamela J. Wat

## Programs

- Clinical Laboratory Science – B.S. (p. 78)
- Cytotechnology – B.S. (p. 81)
- Phlebotomy – Certificate (p. 83)

## Clinical Laboratory Science – B.S.

### Program director

Alicia M. Triplett

### Clinical coordinator

Alicia M. Triplett

### Medical director

Paul C. Herrmann

A student who has an interest in science, an investigative mind that enjoys the challenge of solving problems quickly and accurately, and a desire to help others should consider a career as a clinical laboratory scientist.

Clinical laboratory scientists examine and analyze body fluids, tissues, and cells. They look for bacteria, parasites, or other microorganisms; analyze the chemical content of fluids; match blood for transfusions; and test for drug levels in the blood to show how a patient is responding to treatment.

Clinical laboratory scientists perform complex chemical, biological, hematological, immunologic, microscopic, and bacteriologic tests. They use, maintain, and troubleshoot sophisticated laboratory equipment that is used to perform diagnostic tests. The clinical laboratory scientist possesses the scientific and diagnostic skills required for DNA and biomolecular technology and genetic engineering applications, analyzes these test results, and discusses them with the medical staff.

## Opportunities

Employment of clinical laboratory workers is expected to parallel the growth of other health-care occupations through the year 2018, particularly as the volume of laboratory tests increases with population growth and with the development of new technology. Employment



opportunities are excellent, with current vacancy rates of 14 percent. The twenty-first century is offering clinical laboratory scientists new avenues for test development, experimental design, administration, and education. Clinical laboratory scientists work in hospitals or similar medical facilities, clinical and reference laboratories, home health diagnostics, transfusion services, physicians' offices, and private medical clinics. Employment is also available in pharmaceutical and biotechnology companies, health information systems, DNA technology and genetic engineering corporations, research laboratories, federal government agencies, forensics and crime investigation, veterinary hospitals, U.S. Public Health Service facilities, areas of medical product development, and customer and patient education.

## The program

The two-year Clinical Laboratory Science Program includes clinical training and culminates in a Bachelor of Science degree. Prerequisite courses may be taken at any regionally accredited college or university and are completed during the freshman and sophomore years. Accepted students transfer into the program at the junior year level, which begins in August. After satisfactory completion of the program, the student is awarded a Bachelor of Science degree and is eligible to take the national board examination and become a licensed clinical laboratory scientist in California.

The ten-month junior year includes lecture and laboratory. Emphasis is on the basic clinical science courses, including theory and correlations.

The ten-month senior year comprises a clinical practicum that provides professional clinical experience in the hospital laboratory environment. Emphasis is on technical proficiency, application of theory to patient care, laboratory organization, and managerial skills.

Senior students must coordinate their time with the operation of Loma Linda University Medical Center's clinical laboratory and with supplemental affiliate training laboratories in the community.

## Program objectives

The Clinical Laboratory Science Program endeavors to present a complete educational experience that culminates in the Bachelor of Science degree. The education and clinical experience obtained in this program will give the student the eligibility to take the clinical laboratory scientist examination offered by the ASCP Board of Certification and other entities approved by the state of California. The bachelor's degree in clinical laboratory science is granted independently of any external certification or licensing examinations. The graduate will demonstrate professional entry-level competencies in chemistry, hematology, immunohematology, immunology, and microbiology; as well as their respective subsections.

## Program learning outcomes

1. Demonstrate basic knowledge and technical ability essential to the practice of clinical laboratory science.
2. Practice professionalism through ethical behavior and attitudes.
3. Demonstrate leadership and administrative skills in laboratory practice and the community consistent with the mission of the School of Allied Health Professions.
4. Adhere to rules and regulations promoting workplace and patient safety and continuous quality improvement (CQI).
5. Exhibit analytical and critical-thinking skills necessary to succeed in laboratory medicine.

## Clinical affiliations

Multiple clinical affiliations enrich the student's clinical training by providing exposure to procedures in different types of medical facilities. During the forty-week clinical practicum, supplemental training may be scheduled at any of the following clinical sites:

### Primary affiliation

Loma Linda University Medical Center  
Loma Linda, California

Loma Linda University Medical Center  
Murrieta, California

### Supplemental affiliations

LifeStream  
San Bernardino, California

Community Hospital of San Bernardino  
San Bernardino, California

Jerry L. Pettis Memorial Veterans Medical Center  
Loma Linda, California

Kaiser Permanente Medical Center  
Fontana, California

Redlands Community Hospital  
Redlands, California

## Transportation to scheduled assignments

Transportation to training laboratories is the responsibility of the student. Depending on the clinical assignment, commuting times may be up to two hours one way. Senior students must coordinate their time with the operational schedules of the Loma Linda University Medical Center Clinical Laboratory and affiliate laboratories in the community. The senior schedule is a full-time week (forty hours) arranged on a Monday-through-Friday schedule. A special calendar schedule different from the University academic calendar is followed.

## Professional certification and licensure

Completion of the required sequence of academic course work and directed professional experience prepares the graduate to take the certifying examination of the ASCP Board of Certification and obtain licensure by the state of California. Information regarding the examination can be obtained from the Web site: <<http://ascp.org/boc>>.

## Academic progression

A minimum grade of C (2.0) is required for all courses in the program. C- grades are not acceptable. A student who receives a grade of less than C in any academic course that is part of the professional curriculum is automatically placed on probation. A student who receives an Unsatisfactory (U) in any segment of a clinical practicum is automatically placed on clinical probation. Continued enrollment for the next quarter, term, or rotation segment of a student on probation or clinical probation is subject to the recommendation of the department.

If continued enrollment is not recommended, the department will notify the student in writing. If continued enrollment is recommended, the student will be required to institute a learning assistance program contract and meet regularly scheduled appointments with the academic advisor. A student on probation is automatically dismissed from the

program if a second grade of less than C is received in any academic course that is part of the professional curriculum; or if a second Unsatisfactory is received during any subsequent rotation segment. A student on clinical probation is automatically dismissed from the program if a second Unsatisfactory is received during any subsequent rotation segment. Readmission to the program will require reapplication.

## CPR certification

Students are required to have current health-care provider cardiopulmonary resuscitation (CPR) certification (adult, child, and infant) for all scheduled clinical experiences. This certification must be completed at the American Heart Association health-care provider level. Certification may be completed prior to beginning the program of study or may be obtained at Loma Linda University. Classes are available on campus at Life Support Education, University Arts Building, 24887 Taylor Street, Suite 102.

## Accreditation

The program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 5600 North River Road, Suite 720, Rosemont, IL 60018; telephone: 773/714-8800; fax: 773/714-8886; e-mail: <naacslinfo@naacsl.org>; Web site: <<http://www.naacsl.org>>.

The program also satisfies the requirements in medical laboratory science of the American Society of Clinical Pathology Board of Certification for Medical Laboratory Science, P.O. Box 12277, Chicago, IL 60612-0277. The program is approved by the California Department of Public Health (CDPH), Laboratory Field Services (LFS), 850 Marina Bay Parkway, Richmond, CA 94804-6403; telephone: 510/873-6327; Web site: <<http://www.cdph.ca.gov/programs/lfs>>.

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- A minimum G.P.A. of 2.75 for science is required.
- A minimum of 96 quarter units or 64 semester units at an accredited college or university. Note: A minimum grade of C (2.0) is required for all transfer courses; C- grades are not acceptable for transfer. Prerequisites and transfer patterns may be viewed at <[llu.edu/allied-health/sahp/transfer](http://llu.edu/allied-health/sahp/transfer)>.
- Projected course work that will be completed before beginning the program will be considered in the application process.

## Application deadlines

Applications to the Clinical Laboratory Science Program are accepted beginning January 1. Early submission of application is recommended. Preference will be given to applicants whose completed applications and transcripts are received by March 1.

## Prerequisites

Humanities and religion, 20 quarter or 14 semester units total, selected from at least three of the humanities and religion areas:

- Art/Music (performing arts limited to 2 quarter units)
- Civilization/History, foreign language, literature, philosophy, religion:
  - a maximum of 8 quarter units of religion may be applied to the above 20 quarter/14 semester units; for students who attended or

are enrolled in an Adventist college, 4 quarter units of religion are required per year attended

College mathematics (algebra or higher level)

General chemistry with laboratory, complete sequence

Organic chemistry with laboratory, complete sequence

\* Introductory physics with laboratory, complete sequence (must include principles of light and electricity)

\* General biology with laboratory, one course

Cultural diversity or cultural anthropology (one course); (select remainder of social sciences units to total 10 quarter units from these areas: anthropology, economics, geography, political science, psychology, sociology)

English composition, complete sequence; select remainder of communication units to total 9 quarter units from these courses: computers, public speaking, critical thinking

Health education, personal health, or nutrition (one course)

Two physical education courses

Electives, as necessary, to meet the minimum total requirement of 96 quarter units; recommended: anatomy and physiology, biochemistry, cellular or molecular biology, genetics, speech, computer applications, critical thinking

For total unit requirements for graduation, see LLU General Education Requirements (p. 28).

\*Students planning to apply to advanced degree programs should verify current admission requirements.

## Program requirements

### Junior Year

		Units
AHCJ 328	Wholeness Portfolio I	1
AHCJ 418	Physiology I	4
CLSM 105	Procedures in Phlebotomy	4
CLSM 303	Urine and Body Fluid Analysis I	2
CLSM 307	Medical Parasitology	3
CLSM 309	Quantitative Analysis (Chemical)	4
CLSM 321	Hematology I	4
CLSM 322	Hematology II	4
CLSM 325	Clinical Immunology	3
CLSM 327	Clinical and Pathogenic Microbiology I	5
CLSM 328	Clinical and Pathogenic Microbiology II	5
CLSM 331	Biochemistry	5
CLSM 332	Clinical Chemistry I	4
CLSM 333	Clinical Chemistry II	4
CLSM 341	Immunohematology I	3
CLSM 342	Immunohematology II	3
CLSM 396	CLS Junior Seminar	1
RELE 457	Christian Ethics and Health Care	2
RELT 423	Loma Linda Perspectives	2

**Senior Year**

AHCJ 498	Wholeness Portfolio II	1
CLSM 411	Urine and Body Fluid Analysis II	1
CLSM 413	Diagnostic Microbiology	6
CLSM 414	Clinical Parasitology	2
CLSM 422	Hematology III	6
CLSM 434	Clinical Chemistry III	5
CLSM 435	Immunoassay and Molecular Diagnostic Techniques	3
CLSM 442	Immunohematology III	3
CLSM 451	Clinical Laboratory Management I	2
CLSM 452	Clinical Laboratory Management II	2
CLSM 453	Clinical Laboratory Management III	2
CLSM 455	Special Procedures	4
CLSM 471	Clinical Practicum I	5
CLSM 472	Clinical Practicum II	5
CLSM 473	Clinical Practicum III	5
CLSM 474A	Clinical Correlations	1
CLSM 474B	Clinical Correlations	1
CLSM 474C	Clinical Correlations	1
CLSM 496	Clinical Laboratory Science Seminar I	1
CLSM 497	Clinical Laboratory Science Seminar II	1
CLSM 498	Clinical Laboratory Science Seminar III	2
RELR 415	Christian Theology and Popular Culture	2
RELT 416	God and Human Suffering	2
<b>Total Units:</b>		<b>126</b>

**Normal time to complete the program**

2 years (20 months) at LLU – full-time enrollment required

**Cytotechnology – B.S.****Program director**

Margaret A. Tavares

**Medical director**

Pamela J. Wat

Cytotechnology is a specialty within the broad field of clinical laboratory sciences. The cytotechnologist, working under the direction of a pathologist, detects cell changes caused by different disease processes and is able to differentiate between normal, atypical, and malignant cell changes. In recognizing microscopic abnormalities of cells and cellular patterns from various body sites, the cytotechnologist assists the pathologist in detecting cancer at its earliest and potentially most curable stage. As a result, physicians are able to diagnose and treat cancer long before discovering its existence by alternate methods.

**Opportunities**

Cytotechnologists work in hospitals, clinics, and independent pathology laboratories. The employment outlook for cytotechnologists is favorable, with the demand for trained technologists exceeding the supply. Cytotechnologists can advance to supervisory positions, participate in research activities, or become teachers in the field. Advancement is based on experience, skill, and advanced education.

**The program**

The two-year Cytotechnology Program leads to a Bachelor of Science degree. The Bachelor of Science degree program requires completion of two years of prerequisites at an accredited college or university. Accepted students transfer to the program at the junior year level. The program of study begins in the Fall Quarter. Upon satisfactory completion of the program, the student is awarded a Bachelor of Science degree and is eligible to take the national board of certification examination and become a registered cytotechnologist.

The junior year includes lecture and laboratory, with an emphasis on basic cytology courses. The senior year includes an eleven-week clinical practicum and advanced courses in histology, pathology, and laboratory management.

**Program objectives**

The primary objectives of cytologic education are to prepare individuals to perform with competency in the following areas:

1. Use the microscope to identify, evaluate, and diagnose with a high level of accuracy the cytologic nature of any existing pathological process.
2. Recognize the significance of symptoms, treatments, and/or pertinent clinical data that can be used in the evaluation of cellular morphology and the development of the differential diagnosis.
3. Follow laboratory procedures for preparation, acceptance and rejection of specimens, problem solving, and implementation of new procedures.
4. Read, evaluate, prepare, and present scientific research.
5. Implement measures that contribute to quality control of specimens, laboratory safety and regulation, and the practical aspects of laboratory organization and management.
6. Understand the responsibilities and ethical role of the profession.

**Program learning outcomes**

1. Evaluate cellular abnormalities with a level of accuracy by applying differential diagnoses in the framework of patient outcome management.
2. Demonstrate knowledge of the ethical role and responsibilities of the cytotechnologist.
3. Assess the results of quality assurance measures and institute proper procedures to maintain test accuracy.
4. Comprehend and apply sound principles of scientific research.
5. Advocate rules and regulations, with emphasis on patient and workplace safety.

**Clinical affiliations**

Multiple clinical affiliations enrich the student's clinical training by providing exposure to different specimen types in the clinical environments. During the eleven-week clinical practicum, supplemental training may be scheduled at any of the following clinical sites:

**Primary affiliation**

Loma Linda University Medical Center  
Loma Linda, California

**Supplementary affiliations**

Loma Linda Pathology Group  
Faculty Medical Offices

Loma Linda, California

Jerry L. Pettis Memorial Veterans Medical Center  
Loma Linda, California

Physicians Automated Laboratory  
Bakersfield, California

Quest Diagnostics  
West Hills, California

## Transportation to scheduled assignments

Transportation to scheduled clinical rotations is the responsibility of the student. Depending upon assignment, commute times may be up to two hours one way. During the clinical practicum, the senior-year schedule is a full-time week (40 hours/week; 8 hours/day).

## Professional registration

Upon completion of the baccalaureate degree, the student is eligible to take the certifying examination given by the Board of Certification of the American Society for Clinical Pathology (ASCP), 33 West Monroe, Suite 1600, Chicago, IL 60603; telephone: 312/541-4999; fax: 312/541-4998. Information about qualifying examinations can be obtained from the program director.

## Academic progression

A minimum grade of C (2.0) is required for all courses in the program. C- grades are not acceptable. A student who receives a grade less than C in any academic course or receives an unsatisfactory rating in clinical performance will be disqualified from the program for the remaining academic year. Readmission to the program will require reapplication.

## Accreditation

The program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP)—1361 Park Street, Clearwater, FL 33756; telephone: 727/210-2350; fax: 727/210-2354—in collaboration with the Cytotechnology Programs Review Committee, which is sponsored by the American Society of Cytopathology (ASC); the American Society for Clinical Pathology (ASCP); the American Society for Cytotechnology (ASCT), and the College of American Pathologists (CAP). Information regarding cytotechnology accreditation status can be obtained from the CPRC at the American Society for Cytopathology, 100 West 10th Street, Suite 605, Wilmington, DE 19801; telephone: 302/543-6583, fax: 302/543-6597; Email: dmacintyre@cytopathology.org.

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admissions requirements, the applicant must also complete the following requirements:

- prerequisite course work at any accredited college before being admitted to the School of Allied Health Professions; projected course work that will be completed before beginning the program will be considered in the application process. Please note: Grades of C- are not transferable for credit.

## Application deadlines

Applications to the Cytotechnology Program are accepted beginning January 1. Early submission of application is recommended. Applications continue to be reviewed and accepted until July 1 or until

program is filled. Preference will be given to applicants whose completed application and transcripts are received by March 1. Complete an online application at <llu.edu/apply>. The B.S. degree program begins in September with the start of fall quarter.

Applicants must complete prerequisite course work at any accredited college or university admitted to the School of Allied Health Professions; projected course work that will be completed before beginning the program will be considered in the application process.

Prerequisite for Cytotechnology, B.S.

Humanities—20 units minimum (choose minimum of two areas from: history, literature, philosophy, foreign language, art / music appreciation / history)

- Included in the 20-unit minimum, 4 units of religion per year of attendance at a Seventh-day Adventist college or university

General biology with laboratory, complete sequence

Human anatomy and physiology with laboratory, complete sequence

Microbiology with laboratory

General chemistry with laboratory, complete sequence

Organic chemistry with laboratory, complete sequence

College mathematics (algebra or higher level)

Cultural anthropology or cultural diversity (one course)

Select 8 units from a minimum of two areas:

Sociology, economics, geography, political science, psychology, anthropology

English composition, complete sequence (minimum of 9 quarter units)

Personal health or nutrition

Two physical activity courses

Electives to meet the minimum total requirement of 98 quarter units

For total unit requirements for graduation, see LLU General Education Requirements (p. 28).

## Program requirements

### Junior Year

#### Autumn Quarter

CLSC 341	Gynecologic Cytology	11
CLSM 331	Biochemistry	5
AHCJ 328	Wholeness Portfolio I	1
RELT 423	Loma Linda Perspectives	2

#### Winter Quarter

CLSC 351	Respiratory Cytology	8
CLSC 353	Urinary Tract and Prostate Cytology	3
AHCJ 402	Pathology I	4
RELE 457	Christian Ethics and Health Care	2

#### Spring Quarter

CLSC 357	Gastrointestinal Tract Cytology	2
CLSC 364	Body Fluid Cytology	5

CLSC 371	Cytopreparation Techniques	3
CLSC 373	Histotechnology Techniques	1
CLSC 381	Fine Needle Aspiration Cytology I	4
AHCJ 403	Pathology II	4
<b>Senior Year</b>		
<b>Summer Quarter 1</b>		
CLSC 301	Introduction to Radiographic Procedures I	2
CLSC 382	Fine Needle Aspiration Cytology II	6
CLSC 481	Supervised Cytology Research Project I	2
CLSM 435	Immunoassay and Molecular Diagnostic Techniques	3
<b>Autumn Quarter</b>		
AHCJ 498	Wholeness Portfolio II	1
CLSC 302	Introduction to Radiographic Procedures II	2
CLSC 411	Histopathology I	4
CLSC 424	Hematology	3
CLSC 482	Supervised Cytology Research Project II	2
CLSM 451	Clinical Laboratory Management I	2
RELR 415	Christian Theology and Popular Culture	2
<b>Winter Quarter</b>		
CLSC 406	Pathophysiology	3
CLSC 412	Histopathology II	4
CLSC 432	Current Research Techniques	3
CLSC 471	Advanced Cytology Practices I	2
CLSM 452	Clinical Laboratory Management II	2
RELT 416	God and Human Suffering	2
<b>Spring Quarter</b>		
CLSC 472	Advanced Cytology Practices II	2
CLSC 494	Cytology Practicum	11
Total Units:		113

Microscope rental fees and usage-and-replacement fees are required throughout the program.

## Normal time to complete the program

4 years (2 years prior to LLU plus 2 years [22 months] at LLU) – full-time only

## Phlebotomy – Certificate

### Program director

Teri H. Ross

### Medical director

Paul C. Herrmann

Procedures in phlebotomy are designed to train individuals to collect blood for laboratory analysis, which is necessary for the diagnosis and care of the patient. Ideal for health professionals seeking to expand their current skills, or for those interested in a profession in laboratory medicine, this training program is approved by the California Department of Public Health, Laboratory Field Services.

## The program

The program trains the modern phlebotomist to perform venipuncture and capillary punctures. Topics include medical terminology, laboratory safety, basic anatomy and physiology, infectious diseases, and

medicolegal issues of phlebotomy. A minimum of forty hours of supervised clinical experience is provided at Loma Linda University Medical Center and other medical affiliates, allowing participants to achieve proficiency in the health-care setting.

## School certificate

Students registering in this certificate program register through the Office of University Records for the courses; but the certificate is issued by the Department of Clinical Laboratory Science in the School of Allied Health Professions. The University Records Office maintains a record of registration but not the certificate; record of the certificate and its awarding are maintained by the Department of Clinical Laboratory Science in the School of Allied Health Professions.

Financial aid is NOT available to students registered in school certificate programs. These programs do not meet necessary requirements established by the U.S. Department of Education for aid eligibility.

## Professional registration

Upon successful completion of the certificate program, participants receive a certificate of completion in phlebotomy and are eligible to take examinations such as the national certifying examination offered by the Board of Certification, American Society of Clinical Pathologists (ASCP), 33 West Monroe, Suite 1600, Chicago, IL 60603; telephone, 800/267-2727; Web site: <<http://www.ascp.org>> or others recognized by the state of California.

## Approval

The program is approved by the California Department of Public Health (CDPH), Laboratory Field Services (LFS), 850 Marina Bay Parkway, Building P, 1st Floor, Richmond, CA 94804-6403; telephone: 510/620-3792; Web site: <<http://www.cdph.ca.gov/programs/lfs>>.

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- be 18 years of age or older
- a high school diploma or GED.

All registrants must have current immunizations (measles, mumps, rubella, tetanus) PPD skin test, proof of hepatitis B vaccine, CPR (American Heart Association) Basic Life Support Certificate; and must pass a background check.

## Program Requirements

### Required

AHCJ 105	Procedures in Phlebotomy	5
Total Units		5

## Department of Communication Sciences and Disorders

The Communication Sciences and Disorders Program prepares students for careers in the profession of speech-language pathology or audiology. Speech-language pathologists (SLPs) evaluate and treat children and adults who have communication, swallowing, and/or cognitive communication disorders. Difficulties in the areas of speech, language, fluency, swallowing, and voice are associated with a variety of disorders, including developmental delay, hearing impairment, cleft palate, cerebral palsy, stroke, and head injury. Audiologists are involved in prevention, identification, assessment, and rehabilitation of hearing disorders. Students who choose these professions should be interested in working with people.

### Opportunities

The entry level for speech-language pathology is the master's degree. The entry level for audiology is the doctoral degree. Employment opportunities for speech-language pathologists and audiologists are found in speech and hearing clinics, public schools, hospitals, universities, health departments, skilled nursing facilities, home health agencies, rehabilitation centers, industry, research institutes, and private practice. These environments allow for considerable flexibility. There is ample opportunity for employment as a speech-language pathologist.

Employment opportunities for speech-language pathology assistants (SLPAs) include working under the supervision of a speech-language pathologist. Although SLPAs work primarily in schools, there are also employment opportunities in hospitals and private clinics. Students pursuing the Bachelor of Science degree may work towards meeting eligibility requirements for registration in the state of California as a speech-language pathology assistant.

### Student professional association

Students are eligible for membership in the National Student Speech-Language-Hearing Association (NSSLHA). Students are also encouraged to become members, to read the journals, and participate in the many activities sponsored by the local chapter. Information about NSSLHA can be found at <http://www.nsslha.org>. Further, students are encouraged to become members of the California Speech-Language-Hearing Association (CSHA). Information about membership and participation in CSHA events can be found at <http://www.csha.org>.

#### Chair

Terry D. Douglas

#### Primary faculty

Aieshea Banks

Janine G. Benner

Terry D. Douglas

Julia E. Hollister

Karen J. Mainess

Christina V. Nobriga

Eric Reid

Brian D. Sharp

Jennifer St. Clair

Keith Wolgemuth

#### Emeritus faculty

Jean B. Lowry

### Programs

- Communication Sciences and Disorders – B.S. (p. 84), M.S. (traditional and transitional) (p. 86), Comparison (p. 90)
- Speech-Language Pathology – S.L.P.D. (p. 91)

## Communication Sciences and Disorders – B.S.

#### Program director

Terry Douglas

The curriculum leading to the Bachelor of Science degree in communication sciences and disorders begins with the Autumn Quarter of the junior year. The freshman and sophomore years, which are taken at an accredited college or university prior to coming to Loma Linda University, provide the fundamentals of a liberal arts education. The emphasis in the junior and senior years is on preprofessional courses and may include practical experience.

Full-time enrollment in the graduate program is required; therefore, one of the considerations for acceptance into the bachelor's degree program is the student's ability to manage a full load of course work. There is no option to enter the program on a part-time basis; neither will a student be allowed to change from full-time to part-time status at any time during program progression. Courses are completed sequentially—with prerequisite courses offered in a given quarter, followed by subsequent courses in a later quarter.

Upon completion of the Bachelor of Science degree, students are prepared to seek admission to a graduate program in speech-language pathology or related disciplines. Students are encouraged to take CMSD 267 Speech-Language Pathology Assistant Fieldwork during their senior year in order to qualify for the speech-language pathology assistant license, issued by the California Speech-Language Pathology and Audiology Board.

### Program learning outcomes

Students who graduate with a Bachelor of Science degree in communication sciences and disorders will meet the University outcomes (p. 19).

Students will also meet the following program-specific outcomes:

1. Demonstrate knowledge of basic human communication processes.
2. Demonstrate introductory knowledge of the major types of human communication and swallowing disorders.
3. Demonstrate introductory knowledge of assessment procedures for the major types of human communication and swallowing disorders.
4. Demonstrate a commitment to ethical and compassionate service.
5. Demonstrate introductory knowledge of processes used in discipline-related research.

## Minimum grade required for graduation

A minimum grade of C (2.0) is required for a course to count towards graduation.

## Clinical experience

Supervised clinical practicum is recommended but not required in the curriculum leading to the Bachelor of Science degree. Completion of specific courses precedes placement for practicum. Clinical practicum is available for students who have a G.P.A. of 3.0 or above in the major courses.

## Wholeness portfolio

Undergraduate students in the School of Allied Health Professions develop a portfolio during the junior and senior years. Students register for AHCJ 328 Wholeness Portfolio I during the junior year and AHCJ 498 Wholeness Portfolio II during the senior year. The purpose of the portfolio is to allow students to demonstrate their work towards achieving the outcomes set forth by the University. These outcomes were developed to aid the student in achieving personal and professional balance in the spiritual, intellectual, social/emotional, and physical domains.

## CLEP

CLEP tests must be taken within one quarter of receiving the degree compliance report; otherwise, the course must be repeated.

## Student progress review

Students must maintain a G.P.A. of 3.0 to ensure regular standing in the program. If the student's G.P.A. drops below 3.0 by the end of an academic quarter, s/he will be placed on academic probation for the following quarter. If the student's G.P.A. does not improve to at least 3.0 by the end of that quarter, s/he will be dismissed from the program. Each student's progress in the bachelor's degree curriculum is reviewed quarterly. Students are provided written feedback with recommendations for remediation if there are concerns about academic or clinical performance.

## Speech-language pathology assistant

Students pursuing the Bachelor of Science degree may work towards meeting eligibility requirements for registration in the state of California as a speech-language pathology assistant (SLPA).

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admissions requirements, the applicant must also complete the following requirements:

### Application deadline

Applications for the Bachelor of Science degree close June 1.

### Prerequisites

#### Domain I: Humanities and religion (28-32 quarter units)

A minimum of 12 quarter units if the student is required to take 16 units of religion from a Seventh-day Adventist university before graduation\*

A minimum of 20 quarter units if the student is required to take 8 units of religion from Loma Linda University before graduation\*

Humanities—selected from at least three of the following content areas: civilization/history, fine arts, literature, modern language, performing/visual arts (not to exceed 4 quarter credits), or philosophy

- \* Specific religion courses offered at Loma Linda University are required for graduation. The student's academic advisor will assist him/her in determining how many religion courses will be needed, which religion courses should be taken, and which academic quarters it would be advisable to take these courses.

#### Domain II: Scientific inquiry and analysis (24-32 quarter units) Natural Sciences (minimum of 12 quarter units):

Required course work is as follows:

Mathematics requirement: Four semesters of high school advanced mathematics or intermediate algebra taken in college will meet the University's mathematics requirement; however, the student will not receive academic credit for the course work. College algebra will meet the University's mathematics requirement. In addition, the student will receive academic credit for the course.

Statistics: One course in introductory or basic statistics is required

One physical science required ( physics or chemistry recommended)

One biological science required (human anatomy and/or physiology, general biology, microbiology, and life science are examples of biological sciences)

#### Social Sciences (minimum of 12 quarter units)

Choose from anthropology, economics, geography, political science, psychology, or sociology

General psychology required

Human growth and development, developmental psychology, or child development required

Elective units to complete 12 quarter units minimum: Choose from anthropology, economics, geography, political science, psychology, and sociology

#### Domain III: Communication (9-13 quarter units)

English: Course work must include a complete sequence in English composition that meets the baccalaureate degree requirements of a four-year college or university (e.g., English 101 and 102)

Speech: One speech or interpersonal communication course required

Computer courses: Not required, but course work taken in this category would be counted in this domain

#### Domain IV: Health and wellness (2-6 quarter units)

Personal health or nutrition: One course required

Physical activity: Must include at least two separate physical activity courses totaling a minimum of 1 quarter unit

### Electives

At Loma Linda University, the student begins the bachelor's degree curriculum in communication sciences and disorders with 96 quarter units (64 semester units). Students who transfer from a community college may transfer a maximum of 105 quarter units (70 semester units). All other credits must come from a senior college. Acceptance into the program to complete the bachelor's degree does not guarantee students all the academic credits needed to graduate. Some students may need

to complete additional academic course work in general education to bring their overall course unit total to a minimum of 96 quarter units while enrolled at this University in order to meet graduation requirements.

For total unit requirements for graduation, see LLU General Education Requirements (p. 28).

## Program requirements

Although SLPAs typically receive an associate degree with a specialty in speech-language pathology, students who have completed a bachelor's degree in speech-language pathology or communication sciences and disorders may qualify for the California state-issued SLPA registration after achieving a grade of "P" (Pass) in CMSD 267 Speech-Language Pathology Assistant Fieldwork (2 units), offered at Loma Linda University.

Students generally make arrangements to register for CMSD 267 Speech-Language Pathology Assistant Fieldwork in their last year of undergraduate study (senior year). Further information about SLPA registration can be obtained on the web at <<http://www.speechandhearing.ca.gov>>. Select "Applicants," then "SLP Assistants."

### Junior Year

AHCJ 305 <sup>1</sup>	Infectious Disease and the Health-Care Provider	1
CMSD 217	Beginning Sign Language	3
CMSD 284	Introduction to Speech-Language Pathology and Audiology	3
CMSD 314	Language Science	4
CMSD 318	Transcription Phonetics	3
CMSD 324	Language Disorders of Children	4
CMSD 334	Speech Sound Disorders in Children	4
CMSD 376	Anatomy of Speech-Hearing Mechanism	4
CMSD 388	Communication across the Lifespan	4
CMSD 445	Techniques for ESL and Accent Modification	2
CMSD 454	Introduction to Audiology	4
CMSD 485	Clinical Methods in Speech-Language Pathology	4
CMSD 486	Diagnostic Methods in Speech-Language Pathology	4
PSYC 460	The Exceptional Individual	3
Cognates		
AHCJ 328 <sup>2</sup>	Wholeness Portfolio I	1
RELE 457	Christian Ethics and Health Care	2
Choose one course		
RELT 406, 423, 436, or 437	Adventist Beliefs and Life	2

### Senior Year

AHCJ 498 <sup>2</sup>	Wholeness Portfolio II	1
CMSD 304	Hearing Science	4
CMSD 417	Speech Science	4
CMSD 424	Adult Language Pathology	4
CMSD 426	Behavior Management Applications with Special Populations	4
CMSD 434	Disorders of Fluency	2
CMSD 435	Voice Disorders	2

CMSD 444	Organic Speech Disorders	4
CMSD 464	Introduction to Aural Rehabilitation	4
CMSD 477	Bilingualism and Biculturalism	2
CMSD 488	Autism Spectrum Disorders	4
Cognates		
AHRM 471	Statistics and Research for Health Professionals I	3
AHRM 472	Statistics and Research for Health Professionals II	3
REL 4__	Religion elective, relational	2
REL_ 4__	Religion elective	2
Total Units:		97

### Optional<sup>3</sup>

CMSD 467	Speech-Language Pathology and Audiology Practicum	
1	Can be taken junior or senior year	
2	Course must be registered each quarter:	
	• 0 units in autumn	
	• 0 units in winter	
	• 1 unit in spring	
3	Available for students who have a G.P.A. of 3.0 or above in the major courses.	

### Normal time to complete the program

2 years (6 academic quarters) at LLU – full-time enrollment required

## Communication Sciences and Disorders – M.S.

### Program director

Karen Mainess

The Master of Science degree in communication sciences and disorders offers preparation for careers in the professional practice of speech-language pathology. It provides a basis for graduate study and research at a more advanced level and encourages growth towards independence. The clinical services of the department, Loma Linda University Medical Center, and affiliated practicum sites provide opportunity for supervised clinical experiences that represent the breadth and depth of the profession in a variety of settings.

Upon completion of the Master of Science degree, graduates are eligible to:

- receive the preliminary speech-language pathology services credential (California Commission on Teacher Credentialing);
- receive the temporary license in speech-language pathology (California Department of Consumer Affairs); and
- seek employment as clinical fellows, working towards the certificate of clinical competence (through the Council for Clinical Certification of the American Speech-Language-Hearing Association).

Two tracks lead to the Master of Science degree:

- Individuals who have completed a bachelor's degree in speech-language pathology or in communicative disorders may apply for admission to the two-year master's degree program. Postbaccalaureate foundational course work completed at an institution other than Loma Linda University by applicants who have



a bachelor's degree in a field other than speech-language pathology or communication disorders is considered on an individual basis. In general, foundational course work completed at California state schools where undergraduate courses in communication sciences and disorders are required is acknowledged. Prior to admission or within the first quarter of study (see Program of Study below), CBEST scores are required.

- Individuals who have a bachelor's degree from an accredited college or university, with a major in a field other than speech-language pathology or communication disorders and who meet minimum requirements may apply for admission to the transitional three-year Master of Science degree curriculum.

## The program

The curriculum consists of completing required graduate-level courses, supervised clinical practice, capstone research, and clinical presentations. The traditional Master of Science degree curriculum is two years in length. Full-time students will complete the curriculum in seven quarters, including the summer between the first and the second years. Students begin the curriculum in the Autumn Quarter and go through the program as a cohort. Classes are scheduled in the late afternoon or early evening, and on one Friday per month. During the Winter Quarter and Spring Quarter of the second year, students take the full-time public school and medical fieldwork. \*Note: Students may be required to go out of state for their full-time fieldwork and, therefore, should be prepared financially.

Students enrolled in the three-year transitional master's degree curriculum will begin their program in the Autumn Quarter and go through as a cohort. During the first year, students complete course work that provides the necessary foundation for the second- and third-year disorders courses and clinical practice. In the summer following the first year, all students may be required to take the clinical practicum. Beginning with the second year, the transitional master's degree students join the cohort of new students in the two-year master's degree program; the two groups complete the remaining two years simultaneously.

## University student learning outcomes

Students who graduate with a Master of Science degree in communication sciences and disorders will meet the University outcomes (p. 19).

## Program learning outcomes

Students will also meet the following program-specific outcomes:

1. Demonstrate knowledge of human communication disorders and differences and swallowing disorders.
2. Demonstrate skill in assessment and intervention for human communication disorders and differences and swallowing disorders.
3. Demonstrate knowledge of the role of the school-based speech-language pathologist.
4. Demonstrate knowledge of processes used in discipline-related research.
5. Demonstrate knowledge of counseling principles and practices applied to the practice of speech-language pathology with diverse populations and across the lifespan.

## California Basic Educational Skills Test (CBEST)

The California Commission on Teacher Credentialing requires that all students pursuing a credential pass the California Basic Education Skills Test (CBEST). The CBEST must be passed before beginning the graduate curriculum, or within the first quarter. The CBEST is a measure of reading, writing, and mathematics proficiency; and is required by law for anyone applying for a credential in the public schools of California and Oregon. This test is given by National Evaluation Systems, Inc., Box 340880, Sacramento, CA 95834-0880, 916/928-4001. Additional information may be found at <http://www.cbest.nesinc.com/>.

## Praxis examination

The Praxis (administered by a national testing service) is a multiple choice examination designed to evaluate students' broad-based knowledge across the disorders and is required for ASHA certification, for the California license, and for the California school credential. It is a nationally standardized and publicly administered test. A passing score of 600 must be achieved, and the test may be taken multiple times. Information about the Praxis may be obtained by going to <http://www.ets.org/praxis>. Students in the Master of Science degree curriculum in communication sciences and disorders are required to take the Praxis at the end of their first year. The department provides a preparation workbook, which all students are required to review prior to taking the examination.

## Remediation

Alumni and graduate students who do not achieve a passing score on the Praxis may take any course and/or seminar offered by the department free of charge in order to refresh knowledge or remediate areas of concern.

Graduate students who demonstrate unsatisfactory performance in the clinical courses CMSD 567 Clinical Practice in Speech-Language Pathology and Audiology, Advanced, CMSD 586 Educational Fieldwork I, CMSD 588 Educational Fieldwork II, CMSD 596 Medical Fieldwork I, or CMSD 597 Medical Fieldwork II will be required to repeat the clinical experience and to register for CMSD 589 Remediation/Advanced Directed Teaching and/or CMSD 599 Remediation/Externship, respectively.

## Student progress review

Each student's progress in the Master of Science degree curriculum in communication sciences and disorders is reviewed quarterly. Written feedback is provided, along with recommendations for remediation, if needed. In addition, each cohort meets with the graduate advisor: as a group, twice yearly; individually, at least once a year; and on an as-needed basis.

## Accreditation

The Master of Science degree curriculum in communication sciences and disorders is accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA) of the American Speech-Language-Hearing Association (ASHA).

Any concerns about the program's compliance with accreditation standards may be submitted to: The Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA), 2200 Research

Boulevard, Rockville, MD 20850; telephone: 301/897-5700 or 800/498-2071; TTY: 301/571-0481.

The curriculum is also accredited by the California Commission on Teacher Credentialing (CTC) and is approved by the California Department of Consumer Affairs' Speech-Language Pathology and Audiology and Hearing Aid Dispenser's Board (SLPAHADB).

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admissions requirements, the applicant must also complete the following requirements:

Acceptable undergraduate preparation includes a bachelor's degree in speech-language pathology or in communicative disorders. Postbaccalaureate foundational course work completed at an institution other than Loma Linda University by applicants who have a bachelor's degree in a field other than speech-language pathology or communication disorders is considered on an individual basis. In general, foundational course work completed at California state schools where undergraduate courses in communication sciences and disorders are required is acknowledged. Prior to admission or within the first quarter of study (see Program of Study below), CBEST scores are required.

The admissions committee considers the following qualifications in making admission decisions: personal statement, overall G.P.A., G.P.A. for last 96 quarter units, professional potential, personal interview, on-site writing sample, and letters of recommendation.

*Regular admission* may be granted to applicants who (1) submit a literate personal statement that addresses professional motivation and reasons for selecting Loma Linda University; (2) complete a writing sample that demonstrates appropriate grammar, style, and critical thinking; (3) submit three letters of recommendation (preferably academic); (4) demonstrate professional potential and present well during the interview; (5) have no undergraduate deficiencies; and (6) meet the scholarship requirements for admission—minimum cumulative G.P.A. of 3.0 with a minimum G.P.A. of 3.3 for the last 96 quarter units or 64 semester units (last two undergraduate years). \*Note: The required minimum G.P.A. for consideration is not a guarantee of admission.

*Alternate status* may be granted to qualified applicants who are not accepted in the first round of selection.

*Denial of admission* indicates that the applicant did not meet one or more of the admission requirements, that the application was incomplete, or that the application deadline was not met.

## Application deadlines

Online applications open October 1. Applications close January 1 for the two-year master's and on March 1 for the three-year transitional master's.

Applications and all supporting information (transcripts, letters of recommendation, etc.) must be submitted by January 1 to be included in the first round of selection for the two-year master's program and March 1 for the three-year transitional master's program.

## Programs

- Communication Sciences - M.S. (p. 88)
- Communication Sciences - M.S. (Transitional) (p. 89)
- Communication Sciences - Comparison (p. 90)

## Communication Sciences – M.S.

Students who have been accepted into the Master of Science degree curriculum in communication sciences and disorders are already recognized as academic achievers.

Expectations for these students are high. Candidates for the master's degree are expected to:

1. Meet academic and professional standards of excellence.
2. Exhibit the highest quality of work in the classroom and the clinic and as a graduate assistant.
3. Demonstrate excellence in follow through, completing all assignments and commitments in the agreed-upon time frame.
4. Show initiative and support for volunteer and extracurricular professional/student organizations.
5. Exhibit interaction and personal qualities consistent with professionalism.

In addition to courses, degree requirements include:

1. Minimum of one quarter in residence as a graduate student.
2. Minimum G.P.A. of B (3.0), with no course grade below C (2.0).
3. Religion (3 units minimum).
4. Completion of the California Basic Education Skills Test (CBEST).

### First Year

		Units
CMSD 511	Graduate Portfolio I	2
CMSD 523	Seminar in Early Childhood Language Disorders	3
CMSD 525	Seminar in School-Aged Child Language Disorders	3
CMSD 554	Swallowing Disorders	3
CMSD 567	Clinical Practice in Speech-Language Pathology and Audiology, Advanced	1
CMSD 575	Instrumentation in Speech and Hearing	1
CMSD 586	Educational Fieldwork I	1
CMSD 596	Medical Fieldwork I	1
CMSD 598	Research Methods and Professional Literature in Communication Sciences and Disorders	3
CMSD 679	Seminar: Motor Speech Disorders/Augmentative Communication	3
CMSD 682	Seminar: Traumatic Brain Injury	3
CMSD 684	Seminar: Adult Language Disorders	3
CMSD 685	Seminar: Stuttering	3
CMSD 688	Seminar: Speech Sound Disorders - Advanced	3

### Second Year

CMSD 567, 586, or 596 <sup>1</sup>	Clinical Practice in Speech-Language Pathology and Audiology, Advanced	1
CMSD 512	Graduate Portfolio II	1
CMSD 535	Voice Disorders	3
CMSD 545	Issues in School Speech-Language Pathology	3
CMSD 564	Seminar: Aural Rehabilitation and Cochlear Implants/Hearing Aids	3
CMSD 576	Instrumentation II	1
CMSD 587	Counseling in Communication Disorders	3
CMSD 588	Educational Fieldwork II	8
CMSD 597	Medical Fieldwork II	8

CMSD 687 <sup>2</sup>	Seminar: Open Seminar	4
CMSD 697	Research	1
REL_ 5__		3
Total Units:		72

<sup>1</sup> Choose one course

<sup>2</sup> One unit each time seminar is taken

### Normal time to complete the program

2 years (7 academic quarters) – full-time enrollment required

## Communication Sciences – M.S. (Transitional)

Students who have been accepted into the transitional Master of Science degree curriculum are already recognized as academic achievers.

Expectations for these students are high. Candidates for the master's degree are expected to:

1. Meet academic and professional standards of excellence.
2. Exhibit the highest quality of work in the classroom and the clinic and as a graduate assistant.
3. Demonstrate excellence in follow through, completing all assignments and commitments in the agreed-upon time frame.
4. Show initiative and support for volunteer and extracurricular professional/student organizations.
5. Exhibit interaction and personal qualities consistent with professionalism.

In addition to courses, degree requirements include:

1. Minimum of one quarter in residence as a graduate student.
2. Minimum G.P.A. of 3.3 for foundational course work during the first year.
3. Minimum G.P.A. of B (3.0), with no course grade below C (2.0), for years 2 and 3 of the master's degree program; a minimum of 45 quarter units of foundational courses, including the following completed during the first year.
4. Religion (3 units minimum).
5. Completion of the California Basic Education Skills Test (CBEST).

### Transitional Year

	Units	
CMSD 514	Anatomy of Speech-Hearing Mechanism	4
CMSD 515	Transcription Phonetics	3
CMSD 520	Communication across the Lifespan	4
CMSD 521	Language Disorders of Children	4
CMSD 522	Organic Speech Disorders	4
CMSD 529	Adult Language Pathology	4
CMSD 533	Language Science	4
CMSD 534	Speech Sound Disorders in Children	4
CMSD 537	Clinical Methods in Speech-Language Pathology	4
CMSD 538	Diagnostic Methods in Speech-Language Pathology	4
CMSD 539	Introduction to Audiology	4
CMSD 577	Bilingualism and Biculturalism	2

First Year		
CMSD 511	Graduate Portfolio I	2
CMSD 516	Speech and Hearing Science	3
CMSD 523	Seminar in Early Childhood Language Disorders	3
CMSD 525	Seminar in School-Aged Child Language Disorders	3
CMSD 554	Swallowing Disorders	3
CMSD 567	Clinical Practice in Speech-Language Pathology and Audiology, Advanced	2
CMSD 575	Instrumentation in Speech and Hearing	1
CMSD 586	Educational Fieldwork I	1
CMSD 596	Medical Fieldwork I	1
CMSD 598	Research Methods and Professional Literature in Communication Sciences and Disorders	3
CMSD 679	Seminar: Motor Speech Disorders/Augmentative Communication	3
CMSD 682	Seminar: Traumatic Brain Injury	3
CMSD 684	Seminar: Adult Language Disorders	3
CMSD 685	Seminar: Stuttering	3
CMSD 688	Seminar: Speech Sound Disorders - Advanced	3
Second Year		
CMSD 567, 586, or 596 <sup>1</sup>	Clinical Practice in Speech-Language Pathology and Audiology, Advanced	1
CMSD 512	Graduate Portfolio II	1
CMSD 535	Voice Disorders	3
CMSD 545	Issues in School Speech-Language Pathology	3
CMSD 564	Seminar: Aural Rehabilitation and Cochlear Implants/Hearing Aids	3
CMSD 576	Instrumentation II	1
CMSD 587	Counseling in Communication Disorders	3
CMSD 588	Educational Fieldwork II	8
CMSD 597	Medical Fieldwork II	8
CMSD 687 <sup>2</sup>	Seminar: Open Seminar	4
CMSD 697	Research	1
REL_ 5__ (Graduate-level religion elective)		3
Total Units:		121

<sup>1</sup> Choose one course

<sup>2</sup> One unit each time seminar is taken

### Normal time to complete the program

3 years (11 academic quarters) – full-time enrollment required

## Communication Sciences – M.S., M.S. (Transitional) Comparison

	Course Title	MS (Transitional)	MS
<b>Transitional Year</b>			
CMSD 514	Anatomy of Speech-Hearing Mechanism	4.0	
CMSD 515	Transcription Phonetics	3.0	
CMSD 520	Communication across the Lifespan	4.0	
CMSD 521	Language Disorders of Children	4.0	
CMSD 522	Organic Speech Disorders	4.0	
CMSD 529	Adult Language Pathology	4.0	
CMSD 533	Language Science	4.0	
CMSD 534	Speech Sound Disorders in Children	4.0	
CMSD 537	Clinical Methods in Speech-Language Pathology	4.0	
CMSD 538	Diagnostic Methods in Speech-Language Pathology	4.0	
CMSD 539	Introduction to Audiology	4.0	
CMSD 577	Bilingualism and Biculturalism	2.0	
Totals		45.0	
	Course Title	MS (Transitional)	MS
<b>Master's First Year</b>			
CMSD 516	Speech and Hearing Science	3.0	
CMSD 567	Clinical Practice in Speech-Language Pathology and Audiology, Advanced	2.0	1.0
CMSD 511	Graduate Portfolio I	2.0	2.0
CMSD 523	Seminar in Early Childhood Language Disorders	3.0	3.0
CMSD 525	Seminar in School-Aged Child Language Disorders	3.0	3.0
CMSD 554	Swallowing Disorders	3.0	3.0
CMSD 575	Instrumentation in Speech and Hearing	1.0	1.0
CMSD 586	Educational Fieldwork I	1.0	1.0
CMSD 596	Medical Fieldwork I	1.0	1.0
CMSD 598	Research Methods and Professional Literature in Communication Sciences and Disorders	3.0	3.0
CMSD 679	Seminar: Motor Speech Disorders/Augmentative Communication	3.0	3.0
CMSD 682	Seminar: Traumatic Brain Injury	3.0	3.0
CMSD 684	Seminar: Adult Language Disorders	3.0	3.0
CMSD 685	Seminar: Stuttering	3.0	3.0
CMSD 688	Seminar: Speech Sound Disorders - Advanced	3.0	3.0
Totals		37.0	33.0
	Course Title	MS (Transitional)	MS
<b>Master's Second Year</b>			
Select of the following:		1.0	1.0
CMSD 567	Clinical Practice in Speech-Language Pathology and Audiology, Advanced		
CMSD 586	Educational Fieldwork I		
CMSD 596	Medical Fieldwork I		
CMSD 512	Graduate Portfolio II	1.0	1.0
CMSD 535	Voice Disorders	3.0	3.0
CMSD 545	Issues in School Speech-Language Pathology	3.0	3.0
CMSD 564	Seminar: Aural Rehabilitation and Cochlear Implants/Hearing Aids	3.0	3.0
CMSD 576	Instrumentation II	1.0	1.0
CMSD 587	Counseling in Communication Disorders	3.0	3.0
CMSD 588	Educational Fieldwork II	8.0	8.0
CMSD 597	Medical Fieldwork II	8.0	8.0
CMSD 687	Seminar: Open Seminar (One unit each time seminar is taken)	4.0	4.0
CMSD 697	Research	1.0	1.0

REL_ 5__	3.0	3.0
Totals	39.0	39.0
Overall Totals	121.0	72.0

## Speech-Language Pathology – S.L.P.D.

The Doctor of Speech-Language Pathology (S.L.P.D.) is a postprofessional clinical degree for individuals who want to increase depth of knowledge in the field of speech-language pathology while also acquiring clinical research experience. Graduates of the program will be trained to take positions as master clinicians, clinical researchers, and university clinical faculty.

The clinical doctorate program at Loma Linda University is one of a handful of such programs in the country and is currently the only such program in California. Current practitioners will gain advanced knowledge in the field of speech-language pathology, with specialized training in evidence-based practice, critical thinking, leadership, legal and ethical issues, and problem solving. Doctoral students will become adept at analyzing and synthesizing the existing research literature as they design and conduct their own clinical study in their area of interest.

### Student learning outcomes

In addition to the institutional learning outcomes (p. 19) (ILOs) described elsewhere, the S.L.P.D. degree student is expected to meet the following student learning outcomes (SLO):

1. Discovery: Independently conduct clinically-based research.
2. Discovery: Disseminate information from their novel research findings.
3. Applied knowledge: Demonstrate specialized knowledge in speech-language pathology
4. Applied knowledge: Demonstrate knowledge in disciplines outside the field of speech-language pathology
5. Applied knowledge: Identify evidence-based best practice and incorporate it into clinical practice.

## Admissions

*Note: If you live in a state that has regulatory requirements for online education, please check if Loma Linda University is able to accept residents of your state for online education. Contact the Admissions office for School of Allied Health Professions, 800-422-4558.*

In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- Be speech-language pathologists with a Master's degree (M.A./M.S.) in speech-language pathology or equivalent
- Have a current Certificate of Clinical Competence (CCC), and current licensure in one of the 50 United States.

In the admissions screening process, the applicant's recommendations, interview, personal statement, and work experience are all considered. The most qualified applicants will be selected to be interviewed. The strength of the interview and an on-site writing sample will be evaluated along with the stated research goals/plans of the applicant. Admission

will be decided based on the perceived potential of the applicant to succeed in this clinical research program as well as availability of a faculty mentor suited to the applicant's research plan.

## Program requirements

Courses in the program fall into two broad domains: research and content. Students will be required to take all courses in each domain

### Major

SLPD 550	Advanced Seminar in Neuroanatomy and Neuroscience	3
SLPD 560	Advanced Seminar in Motor, Speech, and Voice	3
SLPD 570	Special Topics in Speech-Language Pathology	3
SLPD 580	Clinical Issues in Speech-Language Pathology	3
SLPD 590	Dissemination of Research	2
SLPD 610	Capstone IRB Proposal	4
SLPD 621	Capstone Planning	3
SLPD 622	Capstone Proposal	2
SLPD 623	Capstone II	3
SLPD 624	Capstone III	4
SLPD 625	Capstone IV	4

### Cognates

AHRM 595	Research and Statistics Concepts and Methods: Intermediate	3
AHRM 605	Critical Analysis of Scientific Literature	3
HPRO 509	Principles of Health Behavior	3
Religion (Choose from two of the following areas)		6
RELE_ 5__	Religion elective ethics	
RELR_ 5__	Religion elective relational	
RELT_ 5__	Religion elective theological	

<b>Electives</b> <sup>1</sup>		3
<b>Total Units</b>		<b>52</b>

<sup>1</sup> Choose from another department in consultation with advisor

## non-course requirements

### Capstone project

Courses in the program fall into two broad domains: research and content.

## Normal time to complete the program

9 quarters (2.25 years)

## Department of Health Informatics and Information Management

Health informatics and information management (HIIM) professionals provide the leadership necessary to provide quality information that supports clinical and nonclinical decision making in real time to the health-care industry. Transforming data into health intelligence while governing and respecting the privacy rights of patients and providers is a challenge all health-care delivery systems face. The profession aims to improve patients' experiences with respect to quality and satisfaction, to improve the health of populations, and to improve the per capita costs of health care. Professionals trained in HIIM possess the necessary leadership; as well as the technological, administrative, legislative, analytical, and decision-making skill sets to ensure a competent workforce to the health-care industry.

### Chair

Debra L. Hamada

### Primary faculty

Pauline J. Calla

Jennifer L. Guerrero

Debra L. Hamada

Diana S. Medal

Braden Tabisula

Linda M. Palmer

Terri L. Rouse

### Clinical faculty

Kimberly A. Caraig

Jere E. Chrispens

Marilyn H. Davidian

Audrey J. Shaffer

Brenda Muniz Taylor

Douglas F. Welebir

Mark E. Zirkelbach

### Associated faculty

Noha S. Daher

Intithar S. Elias

Rodney Roath

## Programs

- Coding Specialist – Certificate (p. 92)
- Health Informatics – M.S. (p. 93)
- Health Information Administration – B.S. (p. 94), Certificate (p. 94)

## Coding Specialist – Certificate

### Program director

Braden Tabisula

### Advisory committee

Barbara Pinkowitz, Chair

Susan Armstrong

Angela Barker

Debra

Hamada

Deanna Klure

Tanya McCandish

Diana McWaid-Harrah

Diana Medal

Beverly Miller

Evelia

Munoz

Carel Randolph

Patricia Small

Guadalupe Valdepena

## Medical coding professionals

Health-care facilities need coders who accurately select ICD-10-CM/PCS codes, CPT codes, and HCPCS codes; and identify appropriate DRG or APC assignments for diagnostic and surgical information recorded in health records. In most instances, financial reimbursement is directly tied to these numeric codes. The statistical information generated from these codes is also used in research, quality improvement in patient care, education, and administrative decision making.

## Opportunities

Coding specialists are in demand in acute care and ambulatory care facilities, physicians' office practices, and long-term care facilities. A variety of government agencies require coding expertise as well. The need for accurate, skilled coders is acute in California and throughout the nation. Information about job opportunities is provided to alumni as it becomes available.

## The program

The Coding Specialist Program is nine quarters in length. Classes meet one night a week. The last two quarters of the program consist of an internship-like laboratory experience: HLCS 961 Coding Practicum I and HLCS 962 Coding Practicum II. These practicums meet one-to-two times per week. Prior to beginning coding courses, the student is introduced to health-care records, confidentiality, ethics, and pharmacology.

### Program objectives

Upon completion of the program, the graduate should be qualified to:

1. Use with understanding the instructions in format, organization, and mechanics of the ICD-10-CM/PCS, CPT, E & M, and HCPCS coding systems.
2. Code records with accuracy and consistency.
3. Analyze medical records to identify significant medical conditions and surgical procedures; correctly select the principal diagnosis and procedure; and appropriately sequence other diagnoses, complications, and procedures.
4. Supervise health data collection and processing through coding, indexing, and maintaining disease and operation statistics.

5. Develop policies and procedures for coding, including a plan for coding quality.
6. Follow federal, state, and professional association guidelines for coding in the health-care environment.
7. Understand the concepts of the prospective payment system and perform diagnostic-related group and ambulatory patient-classification assignments using decision trees and computerized patient-data groupers.
8. Delineate the difference between optimization of coding in compliance with governmental regulations and fraudulent coding.

HLCS 257	Coding Special Topics	3
HLCS 291	Computer Applications in Health Care I	1
HLCS 292	Computer Applications in Health Care II	1
HLCS 961	Coding Practicum I	2
HLCS 962	Coding Practicum II	2
RELE 257	Health Care Ethics	2
Total Units		32

A minimum grade of C (2.0) is required for all courses in the program.

### Normal time to complete the program

2.5 years based on less than half-time enrollment

## Health Informatics – M.S.

### Program director

Debra L. Hamada

### Advisory committee

Chris Albini, chair

Pauline Calla

Kirk Campbell

Kent Chow

Jere Chrispens

Elisa Cortez

Debra L. Hamada

David P. Harris

Joyce Hopp

Craig Jackson

Art Kroetz

Jennifer Miller

Rodney Roath

Terri Rouse

Braden Tabisula

Brenda Taylor

David Wren

Mark Zirkelbach

The dynamics within the health-care industry are creating an information-intensive environment that professionals must navigate as they deliver health care to patients. Clinical and nonclinical professions in this industry will be required to be knowledgeable and proficient in the development and use of information technology. The future success or failure of health-care organizations will be predicated on their abilities to effectively and efficiently manage the valuable asset of information. This curriculum blends the topics of leadership, system theory and management, technology, data management, and regulatory constraints in order to prepare graduates for critical leadership roles in health-care organizations. As informatics leaders, graduates will assist in developing information systems in health care that positively impact patient care at individual, local, and national levels.

## Opportunities

As the health-care industry develops under vastly expanding regulatory mandates, there is a need for information systems that will meet the needs of all stakeholders. The demand for informatics professionals is steadily increasing as health-care organizations look for greater numbers of skilled workers. There is a projected need for more than 50,000 new information technology workers in the coming years. Health informatics professionals are employed in a wide variety of health settings, including acute care, outpatient care, long-term care, research facilities, software

## Professional certification

Upon successful completion of the program, the student is eligible to take the national entry-level certification examination of the American Health Information Management Association.

## Special course work/credit

Credit for life experience may be offered through waiver or equivalency examination.

## Approval

The Loma Linda University Coding Specialist Certificate Program is approved by the AHIMA Foundation's Professional Certificate Approval Program. This designation acknowledges the coding program as having been evaluated by a peer-review process against a national minimum set of standards for entry-level coding professionals. This process allows academic institutions, health-care organizations, and private companies to be acknowledged as offering an approved coding certificate program.

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirement:

- High School Diploma or GED

## Program requirements

### Corequisite

The following prerequisites/courses must be completed at a regionally accredited college or university:

- Human anatomy and physiology (must be completed before Summer Quarter of first year)
- Medical terminology
- Introduction to computer applications (must be completed before HLCS 961 Coding Practicum I)
- Essentials of human diseases/pathophysiology (must be completed before Fall Quarter of second year)

### Required

HLCS 236	Pharmacology	3
HLCS 239	Introduction to Health Records Science	3
HLCS 242	Coding I	4
HLCS 243	Coding II	4
HLCS 245	Coding III	4
HLCS 254	Evaluation and Management Coding for Billing and Reimbursement	3

development companies, government agencies, rehabilitation facilities, consulting firms, and others.

## Student learning outcomes

Outcome 1	Students will demonstrate competence in information systems, specifically information system analysis, design, implementation, and management.
Outcome 2	Students will demonstrate a keen understanding of informatics with respect to structure, function, and transfer of information; socio-technical aspects of health computing, and human computer interaction.
Outcome 3	Students will demonstrate a thorough understanding of information technology, including but not limited to computer networks, databases and system administration, security, and programming.
Outcome 4	Students will demonstrate the ability to effectively communicate verbally and in writing.
Outcome 5	Students will demonstrate the ability to facilitate successful project management.
Outcome 6	Students will demonstrate the ability to perform data analytics.

## Accreditation

Loma Linda University is regionally accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; Web site: <<http://www.wascsenior.org>> or <<http://www.wascsenior.org/contact>>.

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admissions requirements, the applicant must also complete the following requirements:

### Admission requirements

- Provide evidence of completion of a bachelor's degree from an accredited U.S. college or university or the foreign equivalent
- Provide three letters of recommendation that indicate a strong academic background and professional readiness
- Interview, if deemed necessary
- Minimum G.P.A. of 3.0. The Graduate Record Examination (GRE) may be requested and considered for G.P.A.s less than 3.0.

Note: Because this program is designed as a part-time program for working individuals, it does not meet the criteria for an F1 or J1 visa. For this reason, admissions is not open to international students who need these types of visas.

## Program requirements

### Year 1

AHCJ 555	Writing for Health-Care Professionals	3
AHRM 514	Biostatistics	3
HLIF 510	Health-Care Information Systems	4
HLIF 515	The U.S. Health-Care System	3
HLIF 525	Management of Healthcare Data and Information	2
HLIF 548	Human Computer Interactions	2
HLIF 565	Technical Structures in Health Informatics	3

### Year 2

HLIF 520	Data Management: Modeling and Development	3
HLIF 530	Data Analytics and Decision Support	3
HLIF 532	Financial Management in Health Care	2
HLIF 540	Leadership Perspectives and Practice	3
HLIF 545	System Design, Implementation, and Management	3
HLIF 555	Health-care Vendor and Project Management	2
HLIF 560	Policy Development for Privacy and Security in Health-Care Systems	3
HLIF 570	Professional Portfolio	1
Choose one:		2
HLIF 575	Capstone: Project and Special Topics in Health Informatics	
HLIF 584	Professional Practicum and Seminar for Health Informatics	
RELT 563	Health Care, Humanity, and God	3
Total Units		45

## Non-course requirements

An LLU G.P.A. of 3.0 must be maintained throughout the program.

A minimum grade of C (2.0) is required for all courses in the program.

## Normal time to complete the program

2 years (7 academic quarters) based on three-quarter-time enrollment

# Health Information Administration – B.S., Certificate

### Program director

Pauline Calla

### Clinical coordinator

Ryan Stephan

### Recruitment coordinator

Pauline Calla

### Advisory committee

Pauline Calla  
 Felicia Chao, Chair  
 Deborah Critchfield  
 Cynthia Doyon  
 Debra Hamada  
 Craig Jackson, ex officio  
 Raymond Mikaelian  
 Jennifer Miller  
 Eric Morales  
 Terri Rouse  
 Braden Tabisula  
 Brenda Taylor  
 Marvin Torres

## Program overview

The health information administrator (HIA) manages health information systems that serve the needs of patients, the health-care team, and the administration staff. Health information administrators have opportunities to assist in the development and implementation of health information systems for quality patient care, financial reimbursement,



medical research, health-care planning, and health-care quality evaluation. Other responsibilities include privacy, security, and data governance.

Health information management has assumed increased importance with the advent of prospective payment, health-care privacy legislation, corporate compliance, and the electronic health record. It is an excellent career choice for the person who would like to have a profession in health care that combines interests in computer science, business, management, informatics, law, data analytics, and medicine. This unique mixture provides the HIA with great opportunities in a variety of different settings and job titles along with substantial income.

One of the many career options chosen by HIAs is the management of a health information department. In this position, managers evaluate and motivate employees, provide leadership in department planning and organizing, determine department policies, and budget department resources. Managers are also involved in decision making and health-care committees.

The health information administrator designs, develops, and maintains systems for storage, retrieval, and dissemination of information in accordance with federal, state, and local statutes and regulations. This person works with the medical staff and other health professionals in research, administrative studies, functions relative to health information, and patient-care evaluation. The health information administrator in a health-care facility provides management leadership in planning and organizing the department, motivating and evaluating employees, and providing in-service programs for departmental employees or other personnel in the facility. In addition, strategic planning involvement for health information systems is an important function.

The health information administration curriculum is offered in two pathways:

1. Bachelor's degree completion program.
2. Post-baccalaureate degree certificate program (for applicants already holding a bachelor's degree).

The Health Information Administration Program, leading to the Bachelor of Science degree, begins with the Autumn Quarter. The freshman and sophomore years, which are taken at an accredited college or university, afford the fundamentals of a liberal arts education and provide background in science, humanities, social studies, and business. Concentration on health information administration subject matter begins at Loma Linda University in the junior year and continues through the senior year.

Students are advised to complete the curriculum in two years as scheduled. Those electing to study on a part-time basis because of a heavy work load or other reasons must complete all course work within a four-year period.

## Opportunities

Health information administration provides job flexibility for the person seeking work in a variety of settings. Many are employed by hospitals and medical centers in large urban areas. Others work in small community hospitals in rural settings.

The job market is rapidly expanding outside of hospitals. New openings are available in home-health agencies, long-term care facilities, outpatient care, mental health facilities, private medical practices and clinics, insurance companies, health management organizations, commercial

and industrial firms, government agencies, legal offices, software vendors, and education.

Job positions include, but are not limited to: director of HIM, privacy officer, security officer, chief compliance officer, EHR implementation specialist, data application or system analyst, data integrity analyst, consultant, cancer registrar, medical office administrator, HIM revenue cycle auditor, revenue cycle manager, REC/HIE exchange director, meaningful use specialist, data quality manager, documentation and coding specialist, and coding manager.

## Student learning outcomes

Upon completion of the program, the graduate will be qualified to:

1. Advocate effectively for health-care privacy and confidentiality.
2. Sit for the registered health information administration (RHIA) credentialing examination based on mastery of the health information management curriculum.
3. Perform assessment and management of the information needs for a variety of health-care settings.
4. Design, select, and implement health-care information systems.
5. Understand the principles of effective personnel management.
6. Understand financial management requirements for institutions and their relationship to clinical data.

## Professional practice experience

Three complementary types of clinical experience are offered. The first is a variety of assignments in large and small hospitals and other facilities that will acquaint the student with managing information in all aspects of the health-care environment. The majority of these assignments are either at Loma Linda University Medical Center or at hospitals located in Southern California.

The second type of clinical experience is a weekly internship during the Spring Quarter of the junior year. The internship is not required of graduates of an accredited health information technology program. The third assignment is a three-week affiliation during the Spring Quarter of the senior year. Arrangements for the internship and affiliation sites are made through the program director and the clinical coordinator. Students are responsible for their own transportation to facilities not within walking distance of the University, as well as for food and lodging during assignments at distant sites.

## Professional registration

Upon completion of either the B.S. degree or the certificate, and upon recommendation of the faculty, graduates are eligible to write the qualifying examination of the American Health Information Management Association (AHIMA), 233 North Michigan Avenue, Suite 2150, Chicago, IL 60611-5519, for the designation of RHIA (registered health information administrator).

## Professional association

Students and graduates are eligible to become members of the American Health Information Management Association and the California Health Information Association. The purpose of these associations is to promote the art and science of health information management. They grant student membership at a nominal cost to undergraduates of approved schools. The student is expected to become a member of

these associations, pay the nominal dues, read the journals, and become familiar with the professional activities.

## Credit by examination or evaluation

Applicants who have comparable education or experience may be able to gain credit toward the certificate by equivalency examination or evaluation of credit on an individual basis.

## Accreditation

The Health Information Administration Program is accredited by the Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM), 233 North Michigan Avenue, Suite 2150, Chicago, IL 60601-5519.

## Admission

In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

### Health Information Administration—Certificate

To be eligible for admission, the applicant must have a bachelor's degree from an accredited college or university.

#### Prerequisites

Human anatomy and physiology with laboratory, complete sequence—concurrent with first quarter

Medical terminology

College algebra (intermediate algebra acceptable) or two years of high school algebra

Psychology elective

Accounting

Introduction to computer applications (must include word processing)

Personnel management

Business communications

Statistics

### Health Information Administration—B.S.

To be eligible for admission to the B.S. degree curriculum in health information administration, the applicant must have completed a minimum of 96 quarter units at an accredited college or university.

#### Domain 1: Religion and humanities (20 quarter units)

Humanities—Choose minimum of three areas from: history, literature, modern language, philosophy, and art/music appreciation

Included in this minimum, 4 units of religion per year of attendance at a Seventh-day Adventist college or university

#### Domain 2: Scientific inquiry and analysis (24-32 quarter units)

Natural sciences (12 units minimum)

Human anatomy and physiology with laboratory, complete sequence

Choose remaining units from: chemistry, geology, mathematics, astronomy, physics, statistics

Social sciences (12 units minimum)

Cultural anthropology or an approved course dealing with cultural diversity

Psychology elective (one course minimum)

Intermediate algebra (or two years of high school equivalent)

Choose one additional course from: sociology, economics, geography, political science

#### Domain 3: Communication (9-13 quarter units)

English composition, complete sequence

Introduction to computers (must include word processing)

Business communications

#### Domain 4: Health and wellness (2-6 quarter units)

Personal health or nutrition

Two physical activity courses

#### Other

Introductory accounting (one quarter or semester)

Medical terminology

Electives to meet the minimum total requirement of 96 quarter units

For total unit requirements for graduation, see LLU General Education Requirements (p. 28).

## Programs

- Health Information Administration – B.S. (p. 96), Certificate (p. 97)

## Health Information Administration – B.S.

### Junior Year

		Units
AHCJ 325	U. S. Health-Care Delivery System	2
AHCJ 328 <sup>1</sup>	Wholeness Portfolio I	1
AHCJ 331	Human Resource Management	3
AHCJ 402	Pathology I	4
AHCJ 403	Pathology II	3
AHRM 354	Statistics for the Health Professions	3
HLIN 301	Introduction to Health Data Management	4
HLIN 303	Basic Coding Principles and Techniques I	3
HLIN 304	Basic Coding Principles and Techniques II	3
HLIN 325	Pharmacology for Health Information Administration	2
HLIN 361	Professional Practice Experience I	1
HLIN 362	Professional Practice Experience II	1
HLIN 365	Professional Practice Experience III	1
HLIN 441	Legal Aspects of Health Information Administration I	2
HLIN 442	Legal Aspects of Health Information Administration II	3
HLIN 483	Alternative Delivery Systems in Health Care	4
HLIN 493	Health Information Management I	4
HLIN 496	Project Management	2
RELE 457	Christian Ethics and Health Care	2
RELRL 4__	Upper-division religion elective	2

REL_ 4__ Upper-division religion elective	2	HLIN 362	Professional Practice Experience II	1
<b>Senior Year</b>		HLIN 365	Professional Practice Experience III	1
AHCJ 498 <sup>1</sup> Wholeness Portfolio II	1	HLIN 441	Legal Aspects of Health Information Administration I	2
HLIN 308 Introduction to Data Analytics	4	HLIN 442	Legal Aspects of Health Information Administration II	3
HLIN 401 Survey of Health Systems Management	4	HLIN 483	Alternative Delivery Systems in Health Care	4
HLIN 404 Clinical Terminologies and Vocabularies	2	HLIN 493	Health Information Management I	4
HLIN 407 Financial Management for Health Information Management	2	HLIN 496	Project Management	2
HLIN 408 Reimbursement for Health Care	2	RELE 457	Christian Ethics and Health Care	2
HLIN 421 Survey of Health Systems Management–Applied	5	<b>Senior Year</b>		
HLIN 432 Database Management	3	HLIN 308	Introduction to Data Analytics	4
HLIN 444 Corporate Compliance in Health Care	3	HLIN 401	Survey of Health Systems Management	4
HLIN 445 Coding Seminar	2	HLIN 404	Clinical Terminologies and Vocabularies	2
HLIN 451 Quality Improvement in Health Care	3	HLIN 407	Financial Management for Health Information Management	2
HLIN 462 Professional Practice Experience IV	1	HLIN 421	Survey of Health Systems Management–Applied	5
HLIN 463 Professional Practice Experience V	1	HLIN 432	Database Management	3
HLIN 475 Research Methods in Health Information Management	3	HLIN 444	Corporate Compliance in Health Care	3
HLIN 484 Current Topics in Health Information Administration	3	HLIN 445	Coding Seminar	2
HLIN 494 Health Information Management II	4	HLIN 451	Quality Improvement in Health Care	3
HLIN 495 Professional Practice Experience Senior Affiliation	3	HLIN 462	Professional Practice Experience IV	1
RELT 423, Loma Linda Perspectives	2	HLIN 463	Professional Practice Experience V	1
406, 436, or 437 (Choose one course)		HLIN 475	Research Methods in Health Information Management	3
		HLIN 484	Current Topics in Health Information Administration	3
<b>Total Units:</b>	<b>100</b>	HLIN 494	Health Information Management II	4
		HLIN 495	Professional Practice Experience Senior Affiliation	3
		HLIN 408	Reimbursement for Health Care	2
		<b>Total Units:</b>		<b>86</b>

- <sup>1</sup> Course must be registered each quarter:
- 0 units in autumn
  - 0 units in winter
  - 1 unit in spring

A minimum grade of C (2.0) is required for all courses in the program.

An LLU G.P.A. of 2.5 must be maintained throughout the program. A minimum of 50 units is required for completion.

### Normal time to complete the program

Two (2) years (6 academic quarters) at LLU

## Health Information Administration – Certificate

### Junior Year

	<b>Units</b>
AHCJ 325 U. S. Health-Care Delivery System	2
AHCJ 402 Pathology I	4
AHCJ 403 Pathology II	3
HLIN 301 Introduction to Health Data Management	4
HLIN 303 Basic Coding Principles and Techniques I	3
HLIN 304 Basic Coding Principles and Techniques II	3
HLIN 325 Pharmacology for Health Information Administration	2
HLIN 361 Professional Practice Experience I	1

A minimum grade of C (2.0) is required for all courses in the program.

An LLU G.P.A. of 2.5 must be maintained throughout the program. A minimum of 50 units is required for completion.

### Normal time to complete the program

2 years (6 academic quarters) at LLU

## Department of Nutrition and Dietetics

The Department of Nutrition and Dietetics offers degree programs that lead to professional careers. Graduates are prepared to be registration eligible, and upon passing boards, to be employed as clinical dietitians in hospitals and as directors of health-care and school food service facilities. Some own private practices, offering consulting services to long-term care facilities, sports teams, etc. The classroom-based Coordinated Programs (B.S. and M.S.) that lead to RD/RDN (registered dietitian/registered dietitian nutritionist) eligibility are accredited by the Academy of Nutrition and Dietetics' Accreditation Council for Education in Nutrition and Dietetics. As a coordinated program, both didactic course work and 1200 hours of supervised practice are included in the curriculum. In addition to the ACEND-accredited Coordinated Programs, two master's-level degrees (online and classroom based) are offered for dietitians with bachelor's degrees who want to further their education.

### Chair

Cindy Kosch

### Associate chair

Georgia Hodgkin

### Primary faculty

James Carter

Cory Gheen

Georgia W. Hodgkin

Cindy Kosch

JeJe Noval

Louise E. Schneider

Kyndra J. Woosley

### Clinical faculty

Adleit F. Asi

Margie I. Carson

Vivien Choi

Barbara Dickinson

Ruby Hayasaka

Inherla H. Hernando-Rivera

Susan Lewis

Marijane McTalley

Leann Onasch

M. Elizabeth Quigley

Maryellen Westerberg

Linda Whiting

Pamela Yong

### Associated faculty

Bertrum Connell

Ella Haddad

Cindy Hoang

David Penner

Sujatha Rajaram

Ronald Rea

Debbie Wilhite

## Programs

- Nutrition and Dietetics – M.S. (Prior RD) (p. 98)
- Nutrition and Dietetics (Coordinated Programs) – B.S. (p. 101), B.S. and M.S. (p. 102), M.S. (Prior B.S.) (p. 101), M.S. (DPD) (p. 100), Comparison (p. 104)
- Nutrition Care Management – M.S. (p. 105)

## Nutrition and Dietetics (Prior RD) – MS

This is a one-year (4 quarters) program and begins every Summer Quarter. A research project requirement is included in the curriculum.

Opportunities for a registered dietitian who has completed a master's degree are enhanced by the additional education at the graduate level. By 2024, a master's degree will be required for entry-level employment.

The curriculum is identical to that of the third year of the Nutrition and Dietetics—Coordinated Program in Dietetics, B.S. and M.S.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- Be a registered dietitian
- Have a 3.0 or above G.P.A.
- Complete an interview (by phone or in person)

## Program requirements

### Graduate Year

		<b>Units</b>
AHCJ 548	Human Resource Management in the Health-Care Environment	3
AHRM 604	Research-Proposal Writing	3
DTCS 526	Pharmacology in Medical Nutrition Therapy	2
DTCS 584	Contemporary Issues in the Dietetic Profession	4
DTCS 589	Capstone Course in Nutrition and Dietetics	3
DTCS 694	Research	4
EPDM 509	Principles of Epidemiology	3
NUTR 504	Nutritional Metabolism	5
NUTR 510	Advanced Public Health Nutrition	3
NUTR 517	Advanced Nutrition I: Carbohydrates and Lipids	4
NUTR 518	Advanced Nutrition II: Proteins, Vitamins, and Minerals	4
NUTR 519	Phytochemicals	2

NUTR 564	Contemporary Issues of Vegetarian Diets	2
REL_ 5__		3
____	Graduate-level elective	3
Total Units:		48

## Normal time to complete the program

1 year (4 academic quarters) at LLU based on full-time enrollment

# Nutrition and Dietetics – Coordinated Programs

### Advisory committee

Adleit Asi  
Betsy Cline  
Bertrum Connell  
Georgia Hodgkin  
Craig Jackson, ex officio  
Adrine Kaloshian  
Cindy Kosch  
Takkin Lo  
James Lumsden, chair  
Arthur Marshak  
Merijane McTalley  
JeJe Noal  
Jerome Rafoth  
Paula de Silva  
Michael Walters  
Patty Watts  
Ralph Watts  
Maryellen Westerberg  
Grenith Zimmerman

The registered dietitian (RD) is a vital member of the health-care team in the field of health promotion and medical nutrition therapy. This profession focuses on the field of health promotion; and medical nutrition therapy focuses on the science of nutrition, the art of food presentation, and management in providing nutrition care—as well as instruction in proper food choices throughout life. Individuals and groups benefit from the work of the registered dietitian, which leads potentially to better health and longer life. Dietetic practice is the application of principles derived from integrating knowledge of food, nutrition, biochemistry, physiology, business and management, journalism, and behavioral and social sciences; as well as the artistic presentation of food to achieve and maintain health, prevent disease, and facilitate recovery from illness.

The coordinated program—a joint effort of the School of Allied Health Professions and the School of Public Health—offers students the option to pursue one of three degrees:

- B.S. degree in nutrition and dietetics
- M.S. degree in nutrition and dietetics
- M.P.H. degree in public health nutrition (described in the Nutrition Program of the School of Public Health section of the CATALOG)

Each of these degrees culminates in eligibility to take the registration examination for dietitians. The student obtains the credential in dietetics upon successful completion of the registration examination offered by the Commission on Dietetic Registration of the Academy of Nutrition and Dietetics. The coordinated program in dietetics combines didactic and supervised professional practice experiences to develop professional competencies concurrently with cognitive and technical

skills that enable the graduate to establish eligibility to become a registered dietitian.

The M.S. degree prepares entry-level dietitians to join the profession in areas of advanced practice and in specialty areas that will allow them to contribute to the wholeness of humankind. The graduate is awarded an M.S. degree in nutrition and dietetics. The curriculum comprises didactic and supervised professional practice experiences in a health-sciences, liberal arts environment to prepare an educated graduate.

This curriculum includes theory, laboratory, research, and clinical experiences. Twelve hundred hours of supervised professional practice experiences are scheduled in medical nutrition therapy, community, and administrative nutrition. Students participate as active members of the nutrition care team in clinical settings.

Four choices are available to earn a Master of Science degree in nutrition and dietetics at Loma Linda University.

## Opportunities

Members of the dietetics profession practice in a variety of environments—including hospitals and other health-care facilities, schools and universities, government and community agencies, business, and industry. A growing number of dietitians are employed in physicians' offices, clinics, home health-care agencies, mass communications, and many other entrepreneurial roles.

By successfully passing the registration examination for dietitians, practice opportunities as a specialist in medical nutrition therapy, administrative dietetics, nutrition education, community nutrition, or research are available. There is increased recognition of the importance of nutrition in the fields of medicine, dentistry, and health promotion—with emphasis on fitness and optimal well-being. This indicates that the dietitian's scope of practice is steadily broadening.

The registered dietitian in medical nutrition therapy applies the science of nutrition to the care of people through health promotion and disease prevention, and uses medical nutrition therapy in the treatment of disease. As a member of the patient-care team, the registered dietitian (RD) is responsible for assessing, implementing, and monitoring the nutritional care of patients. In addition, the RD may serve professionally as a nutrition practitioner in health care; a teacher in an educational institution; a research dietitian; or a nutrition consultant-educator in municipal, state, or federal departments of health.

The dietitian in administration is accountable for the food service system. In a health-care institution, s/he is responsible for the effective functioning of food service from the standpoint of patients, administration, medical staff, and personnel. The administrative RD may also teach; manage food systems in educational, public, or commercial facilities; serve as a consultant to health-care or educational institutions; or enter the field of research.

Community registered dietitians practice in diverse settings, translating nutrition science into improved health status. Opportunities may include forming partnerships with various organizations, mastering technology, enacting regulations and policies that protect and improve the public's health, and creatively managing scarce resources. Dietitians working in the community exhibit high-quality leadership and planning skills.

## Professional registration

Upon satisfactory completion of the program and upon recommendation of the faculty, the graduate will receive a verification statement and be

eligible to take the registration examination for dietitians in order to become a registered dietitian.

## Professional association

Students and graduates are eligible for membership in the Academy of Nutrition and Dietetics. The association grants student membership at a nominal rate to students in accredited programs.

The national office of the Academy of Nutrition and Dietetics is at 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995. Along with membership in the Academy of Nutrition and Dietetics, students become members of the California Dietetic Association. Students are encouraged to join the California Dietetic Association-Inland District and, where possible, the Seventh-day Adventist Dietetic Association.

## Goals of the coordinated program

### SAHP Program Goal 1

The program will prepare students to be competent graduates who are eligible to write the registration examination for dietitians to become entry-level practitioners.

#### SAHP Program Objectives for Goal 1

1. Eighty percent (80%) of graduates who write the registration examination for dietitians will pass within the first year.
2. Eighty percent (80%) of students who enter the B.S., M.P.H. or M.S. degree program will complete program/degree requirements within 150% of the program length.

### SAHP Program Goal 2

Provide professionally trained registered dietitians with either an emphasis in medical nutrition therapy or public health nutrition who may be employed by or contribute to the health care and educational systems of the Seventh-day Adventist Church; or local, national, or international entities.

#### SAHP Program Objectives for Goal 2

1. Seventy percent (70%) or more of coordinated program graduates who seek employment in dietetics will be employed within twelve months of program completion.\*
2. Sixty percent (60%) of coordinated program graduates will contribute to the community and/or provide professional leadership in the field of dietetics within five years of graduation.

Students admitted into the B.S. + M.S. degree in nutrition and dietetics program satisfy CP requirements when the B.S. degree is completed. They continue their graduate education and do not typically seek employment until conclusion of the M.S. degree.

## Accreditation

The coordinated program in dietetics is currently granted continuing accreditation by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics, 120 South Riverside Plaza, Suite 2000, Chicago, IL 60606-6995; telephone, 312/899-5400; Web site: <<http://www.eatright.org/cade>>; fax: 312/899-4817.

## Programs

- Nutrition and Dietetics – B.S. (p. 101), B.S. and M.S. (p. 102), M.S. (Prior B.S.) (p. 101), M.S. (D.P.D.) (p. 100), Comparison (p. 104)

## Nutrition and Dietetics (DPD) – M.S.

The M.S. degree for graduates of didactic programs in dietetics (DPD) is specifically designed for those who choose not to pursue a standard dietetic internship but who wish to complete a coordinated master's degree and supervised practice experience in order to establish eligibility for writing the registration examination for dietitians to become a registered dietitian. This curriculum builds upon didactic course work in nutrition and dietetics and culminates with an M.S. degree and a verification statement covering both didactic and supervised practice requirements.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- have a 3.0 G.P.A. or above (science and nonscience)
- complete an interview (by telephone or in person)
- complete program prerequisites
- provide a DPD verification statement (or equivalent if international)

## Prerequisites

- College algebra or higher
- Anatomy and physiology with laboratory, complete sequence (two terms)
- General chemistry with laboratory, 2 semester/3 quarters
- Microbiology with laboratory

## Program requirements

Junior Year		Units
AHCJ 305	Infectious Disease and the Health-Care Provider	1
Graduate Year		
AHCJ 548	Human Resource Management in the Health-Care Environment	3
AHRM 571	Statistics and Research for Health Professionals I	3
AHRM 572	Statistics and Research for Health Professionals II	3
AHRM 604	Research-Proposal Writing	3
DTCS 506	Professional Seminar in Nutrition and Dietetics	1
DTCS 526	Pharmacology in Medical Nutrition Therapy	2
DTCS 545	Nutrition Care Management	4
DTCS 554	Advanced Medical Nutrition Therapy	3
DTCS 574	Advanced Food Systems Management	3
DTCS 576	Exercise Physiology in Medical Nutrition Therapy	3
DTCS 589	Capstone Course in Nutrition and Dietetics	3
DTCS 694	Research	4
EPDM 509	Principles of Epidemiology	3
NUTR 504	Nutritional Metabolism	5
NUTR 510	Advanced Public Health Nutrition	3
NUTR 517	Advanced Nutrition I: Carbohydrates and Lipids	4
NUTR 518	Advanced Nutrition II: Proteins, Vitamins, and Minerals	4
NUTR 519	Phytochemicals	2

NUTR 564	Contemporary Issues of Vegetarian Diets	2
RELE 5__	Graduate-level ethics course	3
Total Units:		62

Affiliation and practicum units are required in addition to the didactic units listed above.

#### Affiliation and practicum

DTCS 778	Clinical Nutrition Affiliation	24
DTCS 795	Nutrition and Dietetics Graduate Practicum	12
Total Units		36

### Normal time to complete the program

2.0 years (8 academic quarters) at LLU – based on full-time enrollment; part time permitted

## Nutrition and Dietetics (Prior B.S.) – M.S.

Students desiring an M.S. degree in nutrition and dietetics who have a bachelor's degree in a field other than nutrition take one year of basic undergraduate foundation courses in the nutrition field. The second and third years consist of nutrition and dietetics courses offered at the master's degree level, including both the didactic course work and the supervised professional practice. Program completion establishes eligibility for writing the registration examination for dietitians and become a registered dietitian. Listed below are the required admission and prerequisite requirements to obtain a master's degree from Loma Linda University.

### Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- have a 3.0 G.P.A. or above (science and non-science)
- complete an interview (by telephone or in person)
- complete program prerequisites

#### Prerequisites

- College algebra or higher
- Anatomy and physiology with laboratory, complete sequence (2 terms)
- General chemistry with laboratory, 2 semesters/3 quarters
- Microbiology with laboratory
- Human nutrition

## Program requirements

#### Junior Year

AHCJ 305	Infectious Disease and the Health-Care Provider	1
AHCJ 329	Organic Chemistry with Laboratory	5
AHCJ 334	Biochemistry	4
DTCS 302	Food Selection and Presentation	5
DTCS 304	Community Nutrition	4
DTCS 305	Professional Issues in Nutrition and Dietetics	1

DTCS 321	Nutrition and Human Metabolism	4
DTCS 341	Introduction to Clinical Nutrition	5
DTCS 342	Medical Nutrition Therapy I	5
DTCS 343	Medical Nutrition Therapy II	5
DTCS 371	Quantity Food Purchasing, Production, and Service	5
DTCS 372	Food Systems Organization and Management	4

#### Graduate Year

AHCJ 548	Human Resource Management in the Health-Care Environment	3
AHRM 571	Statistics and Research for Health Professionals I	3
AHRM 572	Statistics and Research for Health Professionals II	3
AHRM 604	Research-Proposal Writing	3
DTCS 506	Professional Seminar in Nutrition and Dietetics	1
DTCS 526	Pharmacology in Medical Nutrition Therapy	2
DTCS 545	Nutrition Care Management	4
DTCS 554	Advanced Medical Nutrition Therapy	3
DTCS 566	Food Chemistry and Experimental Foods	4
DTCS 574	Advanced Food Systems Management	3
DTCS 576	Exercise Physiology in Medical Nutrition Therapy	3
DTCS 589	Capstone Course in Nutrition and Dietetics	3
DTCS 694	Research	4
EPDM 509	Principles of Epidemiology	3
NUTR 504	Nutritional Metabolism	5
NUTR 510	Advanced Public Health Nutrition	3
NUTR 517	Advanced Nutrition I: Carbohydrates and Lipids	4
NUTR 518	Advanced Nutrition II: Proteins, Vitamins, and Minerals	4
NUTR 519	Phytochemicals	2
NUTR 526	Nutrition Counseling and Education	2
NUTR 564	Contemporary Issues of Vegetarian Diets	2
RELE 5__	Graduate-level Ethics	3
Total Units:		115

Affiliation and practicum units are required in addition to the didactic units listed above.

#### Affiliation and practicum

DTCS 778	Clinical Nutrition Affiliation	12
DTCS 795	Nutrition and Dietetics Graduate Practicum	12
Total Units		24

### Normal time to complete the program

1 year (3 academic quarters) of undergraduate preparatory work plus 2 years (8 academic quarters) of graduate course work at LLU – based on full-time enrollment; part time permitted

## Nutrition and Dietetics – B.S.

The B.S. degree prepares entry-level dietitians to join the profession and contribute to the wholeness of humankind. The graduate is awarded the Bachelor of Science degree and is eligible to write the registration examination of the Commission on Dietetic Registration of the Academy of Nutrition and Dietetics. The B.S. degree curriculum comprises didactic and supervised professional practice experiences in a health-science and liberal-arts environment to prepare an educated graduate. Admission at this University begins with the junior year of college. The applicant will

present records of at least two years of education from an accredited college or university to meet specific subject requirements.

The seven-quarter professional curriculum includes theory, laboratory, and clinical experiences. Ten weeks of clinical experiences are scheduled at the end of the junior year and again during the senior year. Students participate as active members of the nutrition-care team in clinical and community settings. Administrative affiliation experiences involve decision-making assignments in volume feeding operations in school food service or health care.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admissions requirements, the applicant must also complete the following requirements:

- have a G.P.A. of 3.0 or above (science and nonscience)
- complete an interview (by phone or in person)
- complete program prerequisites

Listed below are the required admission and prerequisite requirements to obtain a bachelor's degree from Loma Linda University.

### Prerequisites

#### Humanities

20 quarter credits or 14 semester units 20

Select a minimum of three areas from the following: history, literature, philosophy, foreign language, art/music appreciation, or art/music history

Must include 4 units of religion per year, if attending a Seventh-day Adventist college or university (1 unit for every 12 units of course work taken at a Seventh-day Adventist institution).

#### Natural Sciences

12 quarter units minimum 12

College algebra or higher

Anatomy and physiology with laboratory, complete sequence (two terms)

General chemistry with laboratory, 2 semesters/3 quarters required.

Microbiology with laboratory

#### Social Sciences

12 quarter units minimum 12

Psychology elective (one course minimum)

Sociology elective (one course minimum)

Social Science elective: Anthropology, Economics, Geography, Political Science, Psychology or Sociology

#### Communication

9 quarter units minimum 9

English composition, complete sequence

Speech

#### Health and Wellness

2 quarter units minimum 2

Two physical activity courses

Human nutrition

Total Units 55

### Total minimum units required: 96 quarter units (64 semester units)

For total unit requirements for graduation, see LLU General Education Requirements (p. 28).

## Program requirements

### Junior Year

	<b>Units</b>
AHCJ 305	Infectious Disease and the Health-Care Provider 1
AHCJ 329	Organic Chemistry with Laboratory 5
AHCJ 334	Biochemistry 4
DTCS 302	Food Selection and Presentation 5
DTCS 304	Community Nutrition 4
DTCS 305	Professional Issues in Nutrition and Dietetics 1
DTCS 321	Nutrition and Human Metabolism 4
DTCS 341	Introduction to Clinical Nutrition 5
DTCS 342	Medical Nutrition Therapy I 5
DTCS 343	Medical Nutrition Therapy II 5
DTCS 371	Quantity Food Purchasing, Production, and Service 5
DTCS 372	Food Systems Organization and Management 4
RELE 457	Christian Ethics and Health Care 2
REL_ 4_	Upper-division religion 2

### Senior Year

AHCJ 407	Financial Management 2
AHRM 471	Statistics and Research for Health Professionals I 3
AHRM 472	Statistics and Research for Health Professionals II 3
DTCS 395	Nutrition and Dietetics Practicum 12
DTCS 405	Senior Seminar 1
DTCS 442	Nutrition Counseling 3
DTCS 445	Nutrition Care Management 4
DTCS 452	Advanced Nutrition 4
DTCS 453	Advanced Medical Nutrition Therapy 3
DTCS 461	Food Science 4
DTCS 473	Medical Nutrition-Therapy Affiliation 12
DTCS 476	Exercise Physiology in Medical-Nutrition Therapy 3
REL_ 4_	Upper-division religion 2
RELT 436	Adventist Heritage and Health 2

Total Units: 110

### Normal time to complete the program

2 years [7 academic quarters] at LLU – based on full-time enrollment; part time permitted

## Nutrition and Dietetics – B.S. and M.S.

Students desiring an M.S. degree in nutrition and dietetics who do not have a bachelor's degree may take this three-year course of study at Loma Linda University. The first two years of the curriculum offer the opportunity to complete a bachelor's degree and take the registration examination at the end of this time period in order to become an RD (registered dietitian). The student completes the master's degree during the third year, having enhanced his or her skills by completing additional graduate didactic courses.



## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admissions requirements, the applicant must also complete the following requirements:

- have a 3.0 G.P.A. or above (science and non-science)
- complete an interview (by telephone or in person)
- complete program prerequisites

See course listing for B.S. degree prerequisites (p. 102). Total minimum units required upon entrance: 96 quarter units (64 semester units).

## Program requirements

For total unit requirements for graduation for the B.S. degree, see Division of General Studies, LLU General Education Requirements (p. 28) (Section II).

### Junior Year

	<b>Units</b>
AHCJ 305 Infectious Disease and the Health-Care Provider	1
AHCJ 329 Organic Chemistry with Laboratory	5
AHCJ 334 Biochemistry	4
DTCS 302 Food Selection and Presentation	5
DTCS 304 Community Nutrition	4
DTCS 305 Professional Issues in Nutrition and Dietetics	1
DTCS 321 Nutrition and Human Metabolism	4
DTCS 341 Introduction to Clinical Nutrition	5
DTCS 342 Medical Nutrition Therapy I	5
DTCS 343 Medical Nutrition Therapy II	5
DTCS 371 Quantity Food Purchasing, Production, and Service	5
DTCS 372 Food Systems Organization and Management	4
RELE 457 Christian Ethics and Health Care	2
REL_ 4__ Upper-division religion	2

### Senior Year

AHCJ 407 Financial Management	2
AHRM 471 Statistics and Research for Health Professionals I	3
AHRM 472 Statistics and Research for Health Professionals II	3
DTCS 395 Nutrition and Dietetics Practicum	12
DTCS 405 Senior Seminar	1
DTCS 442 Nutrition Counseling	3
DTCS 445 Nutrition Care Management	4
DTCS 452 Advanced Nutrition	4
DTCS 453 Advanced Medical Nutrition Therapy	3
DTCS 461 Food Science	4
DTCS 473 Medical Nutrition-Therapy Affiliation	12
DTCS 476 Exercise Physiology in Medical-Nutrition Therapy	3
REL_ 4__ Upper-division religion	2
RELT 436 Adventist Heritage and Health	2

### Graduate Year

AHCJ 548 Human Resource Management in the Health-Care Environment	3
AHRM 604 Research-Proposal Writing	3

DTCS 526 Pharmacology in Medical Nutrition Therapy	2
DTCS 584 Contemporary Issues in the Dietetic Profession	4
DTCS 589 Capstone Course in Nutrition and Dietetics	3
DTCS 694 Research	4
EPDM 509 Principles of Epidemiology	3
NUTR 504 Nutritional Metabolism	5
NUTR 510 Advanced Public Health Nutrition	3
NUTR 517 Advanced Nutrition I: Carbohydrates and Lipids	4
NUTR 518 Advanced Nutrition II: Proteins, Vitamins, and Minerals	4
NUTR 519 Phytochemicals	2
NUTR 564 Contemporary Issues of Vegetarian Diets	2
REL_ 5__ Graduate-level religion	3
Elective	3
<b>Total Units:</b>	<b>158</b>

## Normal time to complete the program

5 years – 2 years (7 academic quarters) of undergraduate work for the B.S. plus 1 year ( academic quarters) of graduate-level courses at LLU – based on full-time enrollment; part time permitted

## Nutrition and Dietetics – B.S., B.S. and M.S., M.S. (Prior B.S.), M.S. DPD, M.S. for RDs Comparison

	Course Title	BS	BS and MS	MS (Prior BS)	MS DPD	MS for RDs
<b>Junior Year</b>						
AHCJ 305	Infectious Disease and the Health-Care Provider	1.0	1.0	1.0	1.0	
AHCJ 329	Organic Chemistry with Laboratory	5.0	5.0	5.0		
AHCJ 334	Biochemistry	4.0	4.0	4.0		
DTCS 302	Food Selection and Presentation	5.0	5.0	5.0		
DTCS 304	Community Nutrition	4.0	4.0	4.0		
DTCS 305	Professional Issues in Nutrition and Dietetics	1.0	1.0	1.0		
DTCS 321	Nutrition and Human Metabolism	4.0	4.0	4.0		
DTCS 341	Introduction to Clinical Nutrition	5.0	5.0	5.0		
DTCS 342	Medical Nutrition Therapy I	5.0	5.0	5.0		
DTCS 343	Medical Nutrition Therapy II	5.0	5.0	5.0		
DTCS 371	Quantity Food Purchasing, Production, and Service	5.0	5.0	5.0		
DTCS 372	Food Systems Organization and Management	4.0	4.0	4.0		
RELE 457	Christian Ethics and Health Care	2.0	2.0			
Totals		50.0	50.0	48.0	1.0	
	Course Title	BS	BS and MS	MS (Prior BS)	MS DPD	MS for RDs
<b>Senior Year</b>						
AHCJ 407	Financial Management	2.0	2.0			
AHRM 471	Statistics and Research for Health Professionals I	3.0	3.0			
AHRM 472	Statistics and Research for Health Professionals II	3.0	3.0			
DTCS 395	Nutrition and Dietetics Practicum	12.0	12.0			
DTCS 405	Senior Seminar	1.0	1.0			
DTCS 442	Nutrition Counseling	3.0	3.0			
DTCS 445	Nutrition Care Management	4.0	4.0			
DTCS 452	Advanced Nutrition	4.0	4.0			
DTCS 453	Advanced Medical Nutrition Therapy	3.0	3.0			
DTCS 461	Food Science	4.0	4.0			
DTCS 473	Medical Nutrition-Therapy Affiliation	12.0	12.0			
DTCS 476	Exercise Physiology in Medical-Nutrition Therapy	3.0	3.0			
RELT 436	Adventist Heritage and Health	2.0	2.0			
REL_ 4__ Upper-division Religion		4.0				
REL_ 4__ Upper-division Religion				4.0		
Totals		60.0	60.0			
	Course Title	BS	BS and MS	MS (Prior BS)	MS DPD	MS for RDs
<b>Graduate Program</b>						
	Elective (Graduate-level required)		3.0			
AHCJ 548	Human Resource Management in the Health-Care Environment		3.0	3.0	3.0	3.0
AHRM 604	Research-Proposal Writing		3.0	3.0	3.0	3.0
DTCS 526	Pharmacology in Medical Nutrition Therapy		2.0	2.0	2.0	2.0
DTCS 584	Contemporary Issues in the Dietetic Profession		4.0			4.0

DTCS 589	Capstone Course in Nutrition and Dietetics	3.0	3.0	3.0	3.0	
DTCS 694	Research	4.0	4.0	4.0	4.0	
EPDM 509	Principles of Epidemiology	3.0	3.0	3.0	3.0	
NUTR 504	Nutritional Metabolism	5.0	5.0	5.0	5.0	
NUTR 510	Advanced Public Health Nutrition	3.0	3.0	3.0	3.0	
NUTR 517	Advanced Nutrition I: Carbohydrates and Lipids	4.0	4.0	4.0	4.0	
NUTR 518	Advanced Nutrition II: Proteins, Vitamins, and Minerals	4.0	4.0	4.0	4.0	
NUTR 519	Phytochemicals	2.0	2.0	2.0	2.0	
NUTR 564	Contemporary Issues of Vegetarian Diets	2.0	2.0	2.0	2.0	
REL_ 5__ Graduate-level Religion		3.0				
AHRM 571	Statistics and Research for Health Professionals I		3.0	3.0		
AHRM 572	Statistics and Research for Health Professionals II		3.0	3.0		
DTCS 506	Professional Seminar in Nutrition and Dietetics		1.0	1.0		
DTCS 545	Nutrition Care Management		4.0	4.0		
DTCS 554	Advanced Medical Nutrition Therapy		3.0	3.0		
DTCS 566	Food Chemistry and Experimental Foods		4.0			
DTCS 574	Advanced Food Systems Management		3.0	3.0		
DTCS 576	Exercise Physiology in Medical Nutrition Therapy		3.0	3.0		
NUTR 526	Nutrition Counseling and Education		2.0			
RELE 5__ Graduate-level Ethics			3.0			
RELE 5__ Graduate-level Ethics				3.0		
Elective (Graduate-level required)					3.0	
REL_ 5__ Graduate-level Religion					3.0	
Totals		48.0	67.0	61.0	48.0	
Overall Totals		110.0	158.0	115.0	62.0	48.0

	Course Title	BS	BS and MS	MS (Prior BS)	MS PDP	MS for RDs
<b>Affiliation and practicum</b>						
DTCS 778	Clinical Nutrition Affiliation			12.0	24.0	
DTCS 795	Nutrition and Dietetics Graduate Practicum			12.0	12.0	
Totals				24.0	36.0	

<sup>1</sup> Affiliation and practicum units do not count toward minimum didactic units required for the degree.

## Nutrition Care Management – M.S.

Closed to admission for the 2016-2017 & 2017-2018 academic years.

The M.S. degree in nutrition care management is a postprofessional degree for registered dietitians who seek advancement into administrative roles in their current position or in another institution. Nutrition care management refers to the administration and management of the delivery of nutrition care in a broad sense. It includes the management of nutrition care dietitians as they provide medical nutrition therapy to a patient. It also includes preparation to become an assistant director in a food and nutrition service in either medical nutrition therapy or food service management. Finally, it also means preparation for becoming director of the food and nutrition department in medical centers or in school food service. The emphasis of the curriculum in

management is to effectively use the resources available to achieve the mission of the employing organization.

This degree is a web-based, online curriculum with courses offered via the Internet. No more than two classes are offered each quarter. Although the student is able to individually customize the curriculum to some degree, s/he is expected to keep up to date with the discussion and projects assigned in each class. Courses must be completed by the end of the specified quarter.

### Mission of the online degree

The mission of the Master of Science degree in nutrition care management is to prepare leadership personnel in nutrition care and multidepartmental management. Graduates will exhibit a Christian managerial style in their approach to achieving objectives and dealing

with customers and employees; as well as in applying ethical principles to all aspects of life. Graduates will be proactive scholars who strive to meet the needs of the current dynamic society by becoming creative thinkers who apply and use research to advance the practice of nutrition and dietetics, and by developing and implementing public policy.

The Master of Science degree in nutrition care management will be offered via distance education using Canvas, an Internet-based learning system. Students will not be required to take any courses on campus during the two years of the online program. The 48-unit degree includes courses offered by the Department of Nutrition and Dietetics in the School of Allied Health Professions, by the M.B.A. degree program in the School of Public Health, and by the School of Religion.

## Goals of the online degree

The goals of the Master of Science degree in nutrition care management are to:

- Further the education and training of registered dietitians who are advanced-level practitioners and/or managers, as well as potential leaders in the profession; and who are willing to serve not only the Seventh-day Adventist health-care community, but also the greater community by promoting optimum health and nutrition.
- Graduate trained professionals who are effective managers, competent servant leaders, educators, and researchers thoroughly prepared to contribute to the profession's body of knowledge through publications, professional presentations, and advocacy.

## Student learning outcomes

The learning outcomes for the Master of Science degree in nutrition care management include preparing the registered dietitian to:

1. Demonstrate in-depth knowledge of nutrition and dietetics, and to serve the needs of the global community at advanced practice levels.
2. Apply a Christian approach to all aspects of ethics, management, and leadership within his/her area of responsibility and in his/her personal life.
3. Exhibit an investigative spirit, and continue to attain knowledge and develop professional competency for advanced-level practice.
4. Use current issues and environmental information from his/her system's external and internal environment to influence and/or adapt to changes that will impact the organization and/or public policy.
5. Apply research, statistical methods, and current technology to evaluate and improve in his/her areas of responsibility.
6. Engage in program development to serve the needs of the global community.
7. Contribute to the profession's body of knowledge by publishing or giving oral presentations of cogent research results.
8. Develop executive management and leadership skills to achieve personal and corporate goals.

## Teaching methodology

The Master of Science degree in nutrition care management will be offered via an online format utilizing Canvas by Instructure. The nutrition and dietetics faculty have approved an online syllabus template and Canvas set-up template to ensure that certain course management strategies are in place and consistent throughout the course of study. Prior to beginning the degree, students will complete an online course that teaches the skills necessary to operate effectively in this online

learning environment. Students will be expected to attend a one-day, on-campus orientation prior to beginning their course work.

## Admissions

The online degree is open to registered dietitians who have had at least two years of experience in the profession and who are passionate about their role as a potential manager in the profession

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- Evidence of RDN certification is required
- A G.P.A. of 3.0 or above
- A letter of recommendation from his/her supervisor and/or department head
- It is also suggested that the student submit the name of a mentor who will be a member of the team supporting the student through the educational experience. Other members of the team include the individual student, the academic faculty, and the student's faculty advisor.

## Program requirements

### First Year

		<b>Units</b>
AHCJ 548	Human Resource Management in the Health-Care Environment	3
AHCJ 550	Organizational Theory	3
AHCJ 566	Theoretical Foundations of Leadership	3
AHRM 595	Research and Statistics Concepts and Methods: Intermediate	3
DTCS 554	Advanced Medical Nutrition Therapy	3
RELT 563	Health Care, Humanity, and God	3

### Second Year

AHCJ 549	Professional Responsibility in Allied Health Professions	3
AHCJ 586	Curricula Planning in Health Sciences	3
DTCS 525	Nutrition Care Marketing	3
DTCS 536	Health Care Financial Management	3
DTCS 585	Operations Management in Food and Nutrition Services	4
DTCS 696	Nutrition Care-Management Project	6
HADM 604	Health Systems Strategic Planning	3

### Third Year

DTCS 505	Graduate Seminar—Portfolio	2
DTCS 579	Capstone Course in Nutrition Care Management	3

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Total Units: 48

## Normal time to complete the program

2.33 years (8 academic quarters) – half-time enrollment only

## Department of Occupational Therapy

*Transforming lives through occupation, service, and advocacy.*

Through the therapeutic use of everyday activities or occupations, occupational therapists help people across the lifespan—from infancy through older adults—to participate in the things they want and need to do. Common occupational therapy interventions include helping children with disabilities to participate fully in school and social situations, helping people recovering from injury to regain skills, and providing support for older adults experiencing physical and cognitive changes. Our practice settings are diverse—ranging from hospital settings, to school systems, to behavioral health clinics, to outpatient clinics, to community sites with at-risk youth and survivors of domestic violence.

Occupational therapy services may include comprehensive evaluations of the client's home and other environments (e.g., workplace, school), recommendations for adaptive equipment and training in its use, and guidance and education for family members and caregivers. Occupational therapy practitioners have a wholistic perspective focusing on adapting the environment to fit the person, and the person is an integral part of the therapy team.

Following the mission of this University, students immerse themselves in community, exploring emerging areas of practice in some of the following areas: aging, at-risk youth, domestic violence settings, lifestyle medicine, obesity, and trauma-exposed children.

### Opportunities

Occupational therapy is an exciting field with its broad population areas and diverse settings. The American Occupational Therapy Association has identified eight areas of focus: children and youth; evidence-based practice; health and wellness; mental health; productive aging; rehabilitation, disability, and participation; work and industry.

Occupational therapy fosters entrepreneurship that promotes health and wellness and meaningful occupational participation. Occupational therapists are moving into areas such as health promotion, obesity, telehealth, and domestic violence.

### Professional associations

Students are eligible for membership in the American Occupational Therapy Association and Occupational Therapy Association of California, two organizations that foster development and improvement of service and education. Students are encouraged to become members, read the journal, and attend local professional meetings. The national association address is: American Occupational Therapy Association, 4720 Montgomery Lane, Bethesda, MD 20814-3449. Web site: <<http://www.aota.org>>; telephone: 800/729-2682. The state association address is: Occupational Therapy Association of California, P.O. Box 276567, Sacramento, CA 95827-6567. Web site: <<http://www.otaconline.org>>; telephone: 888/686-3225.

#### Chair

Liane H. Hewitt

#### Primary faculty

Stacey B. Cunningham

Jessica N. De Brun

Liane H. Hewitt

Heather A. Javaherian-Dysinger

Dragana Krpalek

Julie D. Kugel

Yvette M. Paquin

Sharon L. Pavlovich

Karen S. Pendleton

Douglas R. Rakoski

Heather A. Roese

Arezou Salamat

#### Clinical faculty

Beth Aune

Luella M. Grangaard

Danielle J. Meglio

Harold T. Neuendorff

Diana Su-Erickson

Christine M. Wietlisbach

#### Associated faculty

Noha Salim Daher

Bonnie J. Forrester

Eric G. Johnson

Bradford D. Martin

Grenith J. Zimmerman

### Programs

- Master of Occupational Therapy (M.O.T.) (p. 107)
- Doctor of Occupational Therapy (O.T.D.) (p. 109)

## Occupational Therapy (entry level) – M.O.T.

#### Program director

Heather A. Javaherian-Dysinger

#### Academic coordinators fieldwork education

Aaron Moesser and Heather A. Roese

*Transforming lives through occupation, service, and advocacy.* Loma Linda University's Department of Occupational Therapy mission aims to graduate compassionate service-oriented leaders who demonstrate excellence and integrity to advance practice and facilitate occupational engagement among individuals, communities, and societies. Graduates will demonstrate critical thinking, leadership, and service to wholistically promote health and occupational justice. The engaged educational process will transform students into compassionate practitioners, advocates, and visionaries who utilize research and evidence-based practice to meet the needs of our changing society.

Curricular threads: transformative nature of occupation; evidence-based practice and research; health, lifestyle, and wellness; service-learning; advocacy, justice, and civic responsibility.

## Clinical experience

Aligning with the unique mission of Loma Linda University, our students have the opportunity to experience fieldwork in community practices and emerging areas, as well as traditional sites. Students will participate in three Level I fieldwork experiences, exposing them to different areas of practice to observe and begin building an understanding of occupational therapy practice. Each student will then complete two Level II fieldwork experiences. The fieldwork coordinators work with the student to arrange the fieldwork sites. Students are responsible for their own transportation and must complete the fieldwork within 24 months of the didactic course work. Students must also complete a background check and any specific facility requirements prior to beginning fieldwork.

## CPR certification

Students are required to have current cardiopulmonary resuscitation (CPR) certification (adult and child) for all scheduled clinical experience. All CPR certifications must be completed at a health-care provider level and accredited through the American Heart Association. Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102.

## Immunizations

For all scheduled fieldwork experience, students are required to have immunizations for MMR, TDAP, hepatitis B series, varicella; and yearly tuberculosis test.

## Program goals

1. Graduate experts in the therapeutic use of occupation and theory to envision possibilities and transform lives and communities through service and advocacy.
2. Graduate critical thinkers who engage in evidence-based practice.
3. Graduate advocates whose personal and professional use of occupation promotes health, lifestyle, quality of life, and wellness.

## Program outcomes

Upon completion of the Master of Occupational Therapy degree, students will:

1. Articulate an understanding of the importance of the history and philosophical base of the profession of occupational therapy, using occupation as the therapeutic basis of transformation and meaning.
2. Describe the importance of balancing areas of occupation with the achievement of health and wellness for the clients in a wholistic perspective.
3. Demonstrate competency in design of occupation-based intervention plans and strategies (including goals and methods to achieve them) on the basis of the stated needs of the client as well as data gathered during the evaluation process in collaboration with the client and other health professionals.
4. Discuss and justify the varied roles of the occupational therapist as a practitioner, educator, researcher, consultant, and entrepreneur; and how these roles promote occupational justice by integrating principles of health, lifestyle, and wellness in collaboration with persons and communities.
5. Use scholarly literature to make evidence-based decisions.

## Professional registration and certification

Upon satisfactory completion of the occupational therapy entry-level M.O.T. degree, including completion of Level II fieldwork within 24 months of completion of academic preparation, and upon recommendation of the faculty, the graduate is eligible to take the national certification examination administered by the National Board for Certification in Occupational Therapy (NBCOT). The board offers computerized examinations on demand throughout the year. After successful completion of this examination, the individual will be a registered occupational therapist (OTR).

Many states require licensure in order to practice. The student should consult the Occupational Therapy Board for the state in which s/he plans to practice. The American Occupational Therapy Association provides recognition essential to the practice of occupational therapy in the United States and most foreign countries.

When the graduate applies to write the certification examination with NBCOT, s/he will be asked to answer questions related to the topic of felonies. Felony convictions may affect a candidate's ability to sit for the national certification examination or obtain state licensure. For further information on these limitations, contact NBCOT at 12 South Summit Avenue, Suite 100, Gaithersburg, MD 20877-4150; telephone: 301/990-7979; Web site: <nbcot.org (<http://www.nbcot.org>)>. Graduates practicing in the state of California must acquire licensure from the California Board of Occupational Therapy. For further information, contact CBOT at 916/263-2294; e-mail: <cbot@dca.ca.gov>. The office address is 2005 Evergreen Street, Suite 2050, Sacramento, CA 95815-3831.

## Accreditation

The Master of Occupational Therapy Program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE), 4720 Montgomery Lane, Bethesda, MD 20814-3449; telephone: 301/652-2682; Web, <[www.acoteonline.org](http://www.acoteonline.org) (<http://www.acoteonline.org>)>. The program is fully accredited.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- Earned a prior bachelor's degree in any major from an accredited college or university.
- A minimum science prerequisite G.P.A. of 3.20, and a minimum cumulative G.P.A. of 3.20.
- Complete program prerequisites no later than December of the year you submit your application.
- Complete observation experience—a minimum of forty hours of documented observation in occupational therapy settings is required before application will be considered for admission.

## Prerequisites

The applicant must complete the following subject requirements at an accredited college or university:

- Human anatomy\*
- Human physiology\*

Human lifespan development

Statistics\*

Medical terminology

\* These courses must have been taken within 5 years prior to application to our program.

## Program requirements

### First Year

#### Summer Quarter

AHCJ 510	Human Gross Anatomy	
OCTH 501	Professional Foundations I	
OCTH 505	Occupation-Based Activity Analysis	
OCTH 701	Service Learning Seminar	

#### Autumn Quarter

OCTH 502	Professional Foundations II: Human Occupation	3
OCTH 510	Functional Kinesiology	1
OCTH 514	Conditions in Occupational Therapy: Behavioral Health	4
OCTH 522	Analysis and Intervention: Behavioral Health	3
OCTH 570	Critical Inquiry and Evidence-Based Practice I	1
REL_ 5__	Select a religion elective	3

#### Winter Quarter

OCTH 506	Functional Neuroscience	3
OCTH 508	Splinting	1
OCTH 511	Conditions in Occupational Therapy: Orthopedic	4
OCTH 521	Analysis and Intervention I: Orthopedic	3
OCTH 711	Level I Fieldwork 1	2

#### Spring Quarter

OCTH 507	Trends in Neuroscience	2
OCTH 512	Conditions in Occupational Therapy: Neuroscience	4
OCTH 523	Analysis and Intervention: Neuroscience	3
OCTH 531	Sensorimotor I	2
OCTH 712	Level I Fieldwork 2	2

### Second Year

#### Summer Quarter

AHCJ 705	Infectious Disease and the Health Care Provider	1
OCTH 503	Professional Foundations III	1
OCTH 509	Design and Technology	2
OCTH 574	Critical Inquiry and Evidence-Based Practice II	3

#### Autumn Quarter

OCTH 515	Conditions in Occupational Therapy: Infants, Children, Youth	4
OCTH 524	Analysis and Intervention: Infants, Children, Youth	3
OCTH 532	Sensorimotor II	2
OCTH 545	Current Trends in Occupational Therapy Practice	3
AHCJ 524	Pharmacology	2

#### Winter Quarter

OCTH 516	Conditions in Occupational Therapy: General Medicine	4
OCTH 527	Analysis and Intervention: General Medicine	3
OCTH 551	Occupation and Wellness	2

OCTH 575	Critical Inquiry and Evidence-based Practice III	2
OCTH 713	Level I Fieldwork 3	2

#### Spring Quarter

OCTH 560	Occupational Therapy Advocacy and Leadership	3
OCTH 576	Critical Inquiry and Evidence-based Practice IV	2
OCTH 702	Service Learning I	3
RELR 536	Spirituality and Everyday Life	3

### Third Year

#### Summer Quarter

<b>Units</b>	OCTH 517	Introduction to Physical Agent Modalities	1
9	OCTH 552	Professional Transition	3
3	OCTH 703	Service Learning II	3

#### Autumn Quarter

OCTH 721	Level II Fieldwork Experience 1	8
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#### Winter Quarter

OCTH 722	Level II Fieldwork Experience 2	8
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Total Units:	125
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A minimum G.P.A. of 3.00 is required quarterly as well as cumulatively throughout the program.

### Normal time to complete the program

3 years (11 academic quarters) – full-time enrollment required

## Occupational Therapy – O.T.D.

### Program director

Julie D. Kugel

The Doctor of Occupational Therapy degree curriculum provides occupational therapists an opportunity to further their education through its flexible online format. The online community fosters learning and professional growth through creative learning experiences, critical reflections, and discussions.

The course work includes emphasis on spirituality, diversity, critical reasoning, advocacy, participation, education, and research. The capstone project is individually designed by the student, allowing him or /her to creatively explore new areas of practice and to engage in innovative research and programming.

## Program outcomes

Upon completion of the doctoral degree curriculum, students will:

1. Articulate and serve the community by promoting health and the integration of mind, body, and spirit.
2. Contribute to the profession's body of knowledge through written dissemination of research and oral presentations.
3. Advocate for the profession, client, and those in need through participation in community and professional organizations.
4. Commit to lifelong learning through disciplined advancement of knowledge and participation in professional activities.

## Admissions

If you live in a state that has regulatory requirements for online education, please check if Loma Linda University is able to accept residents of your state for online education. You may check online at <http://www.llu.edu/>

central/assessment/distance-education.page? or contact the Admissions office for School of Allied Health Professions, 800/422-4558.

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admissions requirements, the applicant must also complete the following requirements:

- Must have earned a master in occupational therapy degree or another related field. Applicants may have a bachelor's degree in occupational therapy and a master's degree in occupational therapy or another related field, or they may have a bachelor's degree in a related field and a master's degree in occupational therapy.
- Minimum graduate G.P.A. of 3.0.
- Six months of professional practice.
- Applicants from the United States must be certified by the National Board of Certification in Occupational Therapy (NBCOT).
- Applicants from other countries must submit verification of licensure and certification in occupational therapy.

The applicant's recommendations, interview, personal statement, and work experience are also considered in the admissions screening process.

## Program requirements

### Major

OCTH 600	Occupational Science and Health Promotion	3
OCTH 601	Spirit of Diverse Abilities I	3
OCTH 602	Spirit of Diverse Abilities II	3
OCTH 604	Health, Society, and Participation	3
OCTH 605	Education for Health Professionals	3
OCTH 606	Leadership for Health Professionals	3

### Cognates

OCTH 631	Capstone Planning	2
OCTH 632	Capstone I: Introduction to Theory & Research	2
OCTH 633	Capstone Proposal: IRB or Program Development	4
OCTH 634	Capstone II	3
OCTH 635	Capstone III	4
OCTH 636	Capstone IV	4
OCTH 637	Professional Publication and Dissemination	4
AHRM 605	Critical Analysis of Scientific Literature	3
RELR 535	Spirituality and Mental Health	3
___ ___	Elective	3
RELE 524	Bioethics and Society	3

Total Units		53
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### Normal time to complete the program

2.67 years (9 academic quarters) – based on less than full-time enrollment



# Department of Orthotics and Prosthetics

## Chair

Johannes Schaepper

## Primary faculty

Heather Appling

Michael Davidson

Aileen Kingsley

Michael Moor

Johannes Schaepper

## Program

- Orthotics and Prosthetics – M.S.O.P. (Entry Level) (p. 111)

## Orthotics and Prosthetics – M.S.O.P. (Entry Level)

### Program director

Johannes Schaepper

The entry-level Master of Science in Orthotics and Prosthetics (M.S.O.P.) degree is for individuals who wish to enter the profession of orthotics and prosthetics at the 2012 NCOPE-mandated level. The professional course work at this University is ten quarters, which includes a quarter of 500 hours of clinical affiliation supervised by the professional development committee.

The professional curriculum for the entry-level Master of Science in Orthotics and Prosthetics degree is designed to provide the student with the knowledge, behaviors, and skills required for entry into the clinical practice of orthotics and prosthetics residency according to NCOPE's published 2010 standards of the profession.

Individuals who enter with a previous bachelor's degree will be granted the Master of Science in Orthotics and Prosthetics degree upon completion of the curriculum. Individuals who enter the program without a previous bachelor's degree will be granted a Bachelor of Science degree and a Master of Science in Orthotics and Prosthetics degree upon completion of the curriculum.

## Professional association

Students and graduates are eligible for membership in the American Academy of Orthotics and Prosthetics (AAOP). The objective of the association is to foster development and improvement of service and education. This organization grants student membership at a nominal cost to students of approved schools. The student is required to become a member of this association while in the program and is encouraged to read the *Journal of Orthotics and Prosthetics* (JPO) and attend AAOP-sponsored or AAOP-approved local or national meetings.

## Professional practice requirements

Satisfactory completion of the entry-level MSOP curriculum requirements qualifies the student to enter an NCOPE-accredited residency site of his/her choice. After completing a twelve-month prosthetic and a twelve-month orthotic residency, or an eighteen-month combined

ortho-prosthetic residency, the resident then is eligible to sit for the certification examination offered by the American Board of Certification in Orthotics and Prosthetics (ABC). Passing the ABC examination will earn a certification in orthotics (CO), a certification in prosthetics (CP), or a dual certification as a prosthetist-orthotist (CPO). In addition to the certification, depending on the state where the certified practitioner intends to practice, it may be necessary to pass a state licensure examination in order to practice his or her profession.

## Clinical experience

Supervised clinical experience is obtained in a variety of settings during the program through clinical rotations and weekly grand rounds. These ongoing, weekly clinical rotations are an essential part of a student's academic and professional requirements and prepare the student for the tenth quarter clinical affiliations required for the completion of the entry-level MSOP curriculum.

All clinical assignments will be made by the academic coordinator for clinical education. Because of the limited number of local facilities available, assignments cannot be made on the basis of the student's family/marital status or personal preferences. Although the department makes an effort to accommodate the student's preference, the student agrees to accept the clinical assignments made by the department at any of the affiliated facilities.

## Program learning outcomes

In addition to the institutional learning outcomes (p. 19), the program has selected the following program learning outcomes:

1. Discernment: Students exercise keen insight, progressive care, and critical judgement through careful evaluation in clinical care, skills application, and thinking throughout the profession.
2. Ethics: Students demonstrate adherence to guiding principles and recognized ethics of the profession.
3. Research: Students value and apply new technology, investigations, and knowledge to patient care and the profession through a commitment to discovery and education.
4. Diversity: Students examine the importance of embracing and serving the unmet and ever-changing needs of a diverse world.
5. Collaboration: Students participate in teamwork within and across disciplines in all aspects of the profession.

## Accreditation

Accreditation for the entry-level Master of Science in Orthotics and Prosthetics degree was granted on September 23, 2013, by the National Commission on Orthotic and Prosthetic Education (NCOPE), 330 John Carlyle Street, Suite 200, Alexandria, VA 22314; telephone: 703/836-7114.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- must have completed a minimum of 64 semester or 96 quarter credit units at a regionally accredited college or university
- a minimum G.P.A. of 3.0 in both science and nonscience courses.
- It is also advisable for the student to complete eighty hours of volunteer field experience at an orthotics and prosthetics facility of

his or her choice, and to obtain a letter of attestation from the facility owner or clinical supervisor.

The following prerequisites and general education courses will provide the knowledge, behavior, and skills required of students in a professional curriculum in the orthotics and prosthetics program. Individuals who already have an earned bachelor's degree in any field from a regionally accredited institution need to complete only the prerequisites denoted with an asterisk (\*).

The minimum subject admission requirements are listed below.

Note: Grades of C- and below are not transferable for credit.

### **Domain 1: Religion and Humanities (20 quarter/14 semester units, minimum)**

#### **Humanities (14 quarter/10 semester units minimum)**

Humanities to include one history class, one philosophy class, and one class from a third area.

Choose from:

Civilization/History  
Fine arts  
Literature  
Modern language  
Philosophy  
Performing/Visual arts (not to exceed 4 quarter units)

Additional humanities courses in the M.S.O.P. curriculum can meet the humanities requirement.

#### **Religion**

Religion is required only if a student attended a Seventh-day Adventist college or university for a portion of his/her prerequisites—four quarter units of religion per year. A maximum of 8 quarter units may apply toward Domain 1.

### **Domain 2: Scientific Inquiry and Analysis**

Encompasses both the natural and social sciences.

#### **Natural Sciences—All courses are required, credits may vary**

\*Human anatomy with laboratory

\*Physiology

\*Chemistry with laboratory

\*Physics with laboratory

\*Statistics

Additional courses in the M.S.O.P. curriculum can fulfill Domain 2: Natural Sciences requirements.

#### **Social Sciences—Required (12 quarter/8 semester units, minimum)**

General psychology

\*Growth and developmental or abnormal psychology

Additional courses in the M.S.O.P. curriculum can fulfill Domain 2: Social Sciences requirements.

### **Domain 3: Communication (9 quarter/6 semester units, minimum)**

#### **English**

Complete sequence in English composition that meets the baccalaureate degree requirements

One course in basic communication skills (speech)

### **Domain 4: Health and Wellness (3 quarter/2 semester units, minimum)**

Two activity courses in physical education

Additional courses in the M.S.O.P. curriculum can fulfill Domain 4: Health and Wellness requirements.

### **Domain 5: Electives**

Courses in Domain 5: Electives can be used to meet the minimum number of units (96 quarter/64semester units) required for admission.

\* Individuals who have received a bachelor's degree from a regionally accredited college or university need to complete only the prerequisites denoted with an asterisk (\*).

For total unit requirements for graduation, see LLU General Education Requirements (p. 28).

## **Program requirements**

### **Junior Year**

#### **Autumn Quarter**

AHCJ 362	Anatomy	3
AHCJ 375	Physiology	3
ORPR 301	Orthotics and Prosthetics Laboratory and Technical Skills	3
ORPR 305	Orthotic Fitting Techniques	3
ORPR 310	Patient Management, Assessment, and Documentation	3
ORPR 410	Orthotic and Prosthetic Clinical Rotation	1
RELR 427	Crisis Counseling	2

#### **Winter Quarter**

AHRM 471	Statistics and Research for Health Professionals I	3
ORPR 315	Pedorthics	3
ORPR 320	Biomechanical Evaluation	3
ORPR 325	Medical Terminology	3
ORPR 405	Gait Analysis	3
ORPR 410	Orthotic and Prosthetic Clinical Rotation	1
RELE 455	Christian Understanding of Sexuality	2

#### **Spring Quarter**

AHCJ 320	ADL and Assistive Devices	3
AHRM 472	Statistics and Research for Health Professionals II	3
ORPR 330	Lower Extremity Orthotics I	3
ORPR 340	Lower Extremity Prosthetics I	3
ORPR 402	Pathology I	3
ORPR 410	Orthotic and Prosthetic Clinical Rotation	1
RELT 423	Loma Linda Perspectives	2

### **Senior Year**

#### **Summer Quarter**

AHCJ 422	History of Disability	3
DTCS 301	Human Nutrition	3
ORPR 410	Orthotic and Prosthetic Clinical Rotation	1
ORPR 415	Lower Extremity Orthotics II	3

ORPR 420	Lower Extremity Prosthetics II	3
ORPR 425	CAD/CAM Technologies	3
<b>Autumn Quarter</b>		
ORPR 323	Economics, Business Management, and Entrepreneurship	3
ORPR 345	Spinal Orthotics	3
ORPR 404	Materials Science in Orthotics and Prosthetics	3
ORPR 410	Orthotic and Prosthetic Clinical Rotation	1
ORPR 414	Kinesiology I	3
ORPR 439	Computers and Electronics for O&P Clinicians	3
ORPR 491	Research I	1.5
<b>Winter Quarter</b>		
AHCJ 315	Psychosocial Aspects of Health Care	3
ORPR 410	Orthotic and Prosthetic Clinical Rotation	1
ORPR 430	Upper Extremity Orthotics	3
ORPR 435	Upper Extremity Prosthetics	3
ORPR 440	Bionics and Cyborg Technology	3
RELE 457	Christian Ethics and Health Care	2
<b>Graduate Year</b>		
<b>Summer Quarter</b>		
AHCJ 507		3
ORPR 510	Advanced Clinical Rotations	1
ORPR 518	Kinesiology II	3
ORPR 522	Self-Care Portfolio and Community Outreach	0.5
ORPR 538	Biomechanics	3
ORPR 592	Research II	1.5
RELE 524	Bioethics and Society	3
<b>Autumn Quarter</b>		
AHCJ 545	Legal and Ethical Issues in the Health Professions	3
ORPR 510	Advanced Clinical Rotations	1
ORPR 522	Self-Care Portfolio and Community Outreach	0.5
ORPR 527	Orthotics III	3
ORPR 540	Rehabilitative Care in Developing Nations	3
ORPR 575	Couples, Families, and Disabilities	3
<b>Winter Quarter</b>		
ORPR 514	Clinical Affiliation	8
ORPR 522	Self-Care Portfolio and Community Outreach	0.5
<b>Spring Quarter</b>		
AHCJ 516	Clinical Imaging	3
ORPR 506	Advanced Specialty Tracks in Orthotics and Prosthetics	3
ORPR 510	Advanced Clinical Rotations	1
ORPR 522	Self-Care Portfolio and Community Outreach	0.5
ORPR 526	Prosthetics III	3
ORPR 544	Applied Functional Neuroanatomy	3
ORPR 593	Research III	3
Total Units:		156

### Normal time to complete the program

2 years (6 academic quarters) at LLU at the undergraduate level and 1 year [4 academic quarters] at the graduate level – full-time enrollment required

## Department of Physical Therapy

The full spectrum of entry-level and postprofessional physical therapy degree programs is provided, including: the physical therapist assistant (A.S.) and the entry-level Doctor of Physical Therapy, (D.P.T.); the postprofessional Master of Science in Rehabilitation (M.S.R.) and Doctor of Physical Therapy (D.P.T.); and the Doctor of Science (D.Sc.) and Doctor of Philosophy (Ph.D.).

### Chair

Lawrence E. Chinnock

### Associate chair

Howard W. Sulzle

### Primary faculty

Carol J. Appleton

Skulpan Asavasopon

Bruce D. Bradley

Lawrence E. Chinnock

Meagan Clark

Timothy K. Cordett

Nicceta Davis

Bonnie J. Forrester

Henry Garcia

Susan M. Huffaker

Eric G. Johnson

Theresa M. Joseph

Everett B. Lohmann III

Bradford D. Martin

Jeannine Stuart Mendes

Pablo Mleziva

Todd Nelson

Ronald M. Rea

Howard W. Sulzle

R. Wesley Swen

James M. Syms

Donna G. Thorpe

Antonio Valenzuela

Christine Wilson

### Adjunct faculty

Robert F. Landel

### Clinical faculty

Lauren M. Beeler

Michael Davidson

Christine Eddow

Steven D. Newton

Desmyrna R. Taylor

William E. Walthall

Lily L. Young

Kristel J. Zuppan

### Associated faculty

Lee S. Berk

Murray Brandstater

Clyde Cassimy

Noha Daher

Heather Javaherian-Dysinger

Ehren Ngo

Pam Perez

Gail T. Rice

Louise Schneider

Ernest R. Schwab

Soraj Sorajjakool

Ardis E. Wazdatskey

Grenith J. Zimmerman

## Programs

- Physical Therapist Assistant – A.S. (p. 114)
- Physical Therapy – M.S.R. (p. 117), D.P.T. (Entry Level) (p. 117), D.P.T. (Postprofessional) (45-unit track) (p. 117), D.P.T. (Postprofessional) (65-unit track) (p. 117), D.Sc. (Postprofessional) (p. 117) Comparison (p. 124), Ph.D. (p. 125)

## Physical Therapist Assistant – A.S.

### Program director

Jeannine Stuart Mendes

### Assistant program director; director of clinical education

Carol J. Appleton

### Advisory committee

Brandi Bolonas

Amy Crawford

Lisa Ewing

Frank Holder

Adam Smith

The physical therapist assistant (PTA) is a skilled paraprofessional health-care provider who implements the plan of care for patients under the direction and supervision of a licensed physical therapist. Following established procedures, the PTA may train patients in exercises and activities of normal daily living; perform treatment interventions; utilize special equipment; assist in performing tests, data collection, and complex treatment procedures; and observe and document the patient's responses.

Physical therapists and PTAs may serve as part of a rehabilitation team—including occupational therapists, nurses, speech and hearing therapists, respiratory therapists, recreational therapists, physicians, social workers, chaplains, vocational counselors, dietitians, and psychologists. This team has as its objective the optimum functional restoration and rehabilitation of patients disabled by illness or injury.

## Opportunities

Physical therapy offers a career for men and women who are interested in medical science and who enjoy working with people. Program graduates have a wide range of opportunities in hospitals, rehabilitation centers, outpatient clinics, national and state agencies, and school systems. For those who desire to further their education, the Doctor of Physical Therapy and the Doctor of Physical Therapy Science degrees are available.

## The program

The PTA Program is fifteen months in length and leads to the Associate in Science degree and professional licensure. The program begins with the sophomore year. Instruction begins in June; students participate in graduation ceremonies the following June. Program completion occurs when clinical performance requirements are completed, typically by the end of September.

## Clinical learning experience

The program includes supervised, one-on-one clinical instruction across the human lifespan in a variety of settings, including acute and subacute inpatient facilities and outpatient clinics. Students complete three major clinical assignments, each six weeks in length. In addition, students participate in learning experiences at the LLU Medical Simulation Center on campus.

All clinical assignments will be made by the director of clinical education or the program director. Although the program makes an effort to accommodate the student's preference, the student agrees to accept the clinical assignment made by the program at any of the affiliated facilities, whether local or out of state. Because of the limited number of local facilities available, assignments cannot be made on the basis of the student's family/marital status or personal preference.

## Transportation

Students are required to have their own transportation to and from clinical sites.

## CPR certification

Students are required to hold current certification in cardiopulmonary resuscitation (CPR) for the adult, child, and infant during all scheduled clinical experiences. Basic life support CPR certification for health-care providers must be completed via the American Heart Association. Certification may be completed prior to beginning the program of study or may be obtained at Loma Linda University. Classes are available on

campus at Life Support Education, University Arts Building, 24887 Taylor Street, Suite 102, Loma Linda, CA.

## Professional licensing

Satisfactory completion of the clinical affiliations and degree requirements will qualify the student for the National Physical Therapy Examination (NPTE) for PTAs. State licensure or certification is required to practice as a PTA in all fifty states and DC. Information about licensing or certification in the state in which one wishes to practice can be found on the Web at <http://www.apta.org/licensure>

## Professional association

Students and graduates are eligible for membership in the American Physical Therapy Association. The objectives of the association are to foster development and improvement of service and education. This organization grants student membership at a nominal cost to undergraduates of approved schools. The student is required to become a member of this association while in the program. The national office of the American Physical Therapy Association is at 1111 North Fairfax Street, Alexandria, VA 22314.

## Program philosophy statement

In accordance with the motto of Loma Linda University—"To make man whole"—and the mission of the School of Allied Health Professions—"To continue the teaching and healing ministry of Jesus Christ," the program is committed to the highest development of the physical, emotional, mental, and spiritual capacities of its faculty and students. Promoting wholeness constitutes a caring commitment to the well-being of others, to students, and to program personnel; to active engagement in advancement of the profession; and to a living consecration to God. Students in this program will have opportunities to develop a commitment to excellence in service for others and their profession, and to develop a biblically informed faith and a commitment to lifelong spiritual growth.

## Program mission

The PTA Program affirms the mission and values of Loma Linda University and the School of Allied Health Professions by providing an educational program that prepares PTAs with balanced intellectual development, social skills, competent practice, and spiritual connection.

## Program goals

In order to achieve the PTA Program mission, the program aims to:

1. Provide technical-level physical therapy education for the PTA that culminates in an Associate in Science degree.
2. Prepare graduates ready to provide physical therapy interventions and services under the direction and supervision of licensed physical therapists in a variety of settings.
3. Prepare graduates for service who demonstrate ethical behavior consistent with legal and professional standards.
4. Provide opportunities for students to gain compassionate insight into practices and behaviors found in a variety of ethnic and cultural backgrounds within an atmosphere of respect for differences.
5. Provide opportunities for graduates to consider the concept of wholeness when addressing the needs of the patient/client in terms of physical, mental, and spiritual concerns.

6. Prepare graduates to communicate effectively with patients/clients and families, when appropriate; with colleagues; and with other members of the health-care delivery team.
7. Maintain compliance with the Standards and Required Elements for accreditation of PTA educational programs published by the Commission on Accreditation in Physical Therapy Education.

## Program faculty goals

In order to provide the learning experiences necessary and desired to prepare graduates for practice, the PTA Program faculty will:

1. Hold state practice licensure, and membership in the professional organization.
2. Hold a master's-level degree or higher.
3. Maintain contemporary knowledge/practice expertise in assigned teaching areas.
4. Practice effective instructional methods relevant to course content, course design, and learning assessment methods.
5. Develop, implement, and evaluate the technical and clinical education components of the PTA curriculum.
6. Accept applicants into the PTA program who have adequately completed all eligibility requirements and who provide sufficient evidence on which to predict successful completion of the PTA program.
7. Use an approach to education in the PTA classroom that reflects an appreciation of the teaching and healing ministry of Jesus Christ.
8. Engage in service for the school, the University, the profession, and/or the community.
9. Model professional and personal behavior that is in harmony with Christ-like values in interactions with students, staff, colleagues, alumni, family, and the public.

## Student learning outcomes

The mission of the PTA Program is to graduate physical therapist assistants with balanced intellectual development, social skills, competent practice, and spiritual connection.

Graduates of the program will be able to:

1. Demonstrate a basic level of knowledge and skills appropriate for safe and effective practice as a PTA and as a member of the health-care team.
2. Provide physical therapy interventions and services under the direction and supervision of licensed physical therapists in a variety of settings.
3. Exhibit ethical behavior consistent with legal and professional standards when interacting with instructors, classmates, patients/clients and their family members, and clinical personnel.
4. Demonstrate compassionate respect for differences encountered in interactions with individuals from other ethnic and cultural backgrounds.
5. Demonstrate consideration of the close interrelationship of physical, mental, and spiritual concerns when addressing the needs of patients/clients and others.

## Accreditation

The Physical Therapist Assistant Program at Loma Linda University is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 1111 North Fairfax Street, Alexandria, VA 22314;

703/ 706-3245 or 703/ 706-3245; e-mail: accreditation@apta.org; Web site: <http://www.capteonline.org>

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- a minimum G.P.A. of 2.50 in the three basic science prerequisite courses and a minimum G.P.A. of 2.50 in the remaining non-science prerequisite courses
- transfer of prerequisite courses from a regionally-accredited academic institution (college or university) Note: Grades below C are not transferable for credit.
- a personal interview
- a writing assessment done at the time of the interview
- documentation of work or observation experience; specifically, at least 20 hours of work or observation in an *inpatient* physical therapy setting and at least 20 hours in an *outpatient* physical therapy setting, plus additional work/observation hours in either an inpatient or an outpatient physical therapy setting for a minimum total of 80 hours.

## Prerequisites

All prerequisite courses must be completed prior to entering the program. An application for admission may be submitted while some coursework is in progress if the student expects to complete the required course work before the program begins. Individuals who have earned a bachelor's degree from a regionally-accredited college or university need to complete only the courses denoted with an asterisk (\*):

Humanities: Four units from one of the topics listed: history, literature, philosophy, foreign language, art/music appreciation/ history

\*Human anatomy and physiology, complete sequence with laboratory components (preferred); or general biology, complete sequence with laboratory components (accepted)

\*Introductory physics with laboratory component, one quarter/semester

\*Two years high school mathematics with grades C or above, or intermediate algebra in college

\*General psychology

\*Human growth and development or developmental psychology or abnormal psychology

English composition, complete sequence

\*Speech (preferred) or Interpersonal communication (accepted)

Personal health/nutrition, or two physical education/activity courses

\*Medical terminology

If needed, elective courses may be taken to meet the minimum total requirements of 48 quarter units or 32 semester units

## Program requirements

### Sophomore

#### Summer Quarter 1

		Units
PTAS 201	Anatomy	4
PTAS 205	Introduction to Physical Therapy	1
PTAS 206	Documentation Skills	1
PTAS 212	Physical Therapy Procedures	3

PTAS 231	Physical Therapy Modalities	3
PTAS 275	Psychosocial Aspects of Health	2
PTAS 265	Professional Seminar	0
RELE 257	Health Care Ethics	2
<b>Autumn Quarter</b>		
AHCJ 305	Infectious Disease and the Health-Care Provider	1
PTAS 203	Applied Kinesiology	3
PTAS 204	Applied Gait	1
PTAS 224	General Medicine I	3
PTAS 225	Neurology	3
PTAS 227	Therapeutic Exercise	2
PTAS 236	Applied Electrotherapy	3
PTAS 265	Professional Seminar	0
<b>Winter Quarter</b>		
PTAS 226	Orthopaedics I	3
PTAS 234	General Medicine II	1
PTAS 238	Wound Care	1
PTAS 243	Applied Geriatrics	3
PTAS 252	Applied Neurology	3
PTAS 264	Applied Orthotics and Prosthetics	2
PTAS 265	Professional Seminar	0
RELR 275	Art and Science of Whole Person Care	2
<b>Spring Quarter</b>		
PTAS 241	Applied Pediatrics	2
PTAS 251	Orthopaedics II	3
PTAS 261	Physical Therapy Practice	1
PTAS 265	Professional Seminar	1
PTAS 293	Physical Therapist Assistant Clinical Experience I	6
<b>Summer Quarter 2</b>		
PTAS 294	Physical Therapist Assistant Clinical Experience II	6
PTAS 295	Physical Therapist Assistant Clinical Experience III	6
Total Units:		72

A minimum grade of C (2.0) is required for all courses in the program.

### Normal time to complete the program

1.33 years (academic quarters) at LLU. Full-time enrollment is typical; half-time enrollment (3.25 years) by permission only.

## Physical Therapy – M.S.R., D.P.T. (Entry Level), D.P.T. (Postprofessional), D.Sc., Ph.D.

Physical therapists are highly educated, licensed health-care professionals who provide services to patients/clients who have impairments, disabilities, or changes in physical function and health status as a result of injury, disease, or other causes.

Physical therapists teach patients how to prevent or manage their condition so that they will achieve long-term health benefits. They examine each individual and develop a plan, using treatment techniques to promote the ability to move, reduce pain, restore function, and prevent disability. In addition, physical therapists work with individuals to prevent

the loss of mobility before it occurs by developing fitness- and wellness-oriented programs for healthier and more active lifestyles.

Physical therapists provide care for people in a variety of settings, including hospitals, private practices, outpatient clinics, home-health agencies, schools, sports and fitness facilities, work settings, and skilled nursing facilities. State licensure is required in each state in which a physical therapist practices

Within the Department of Physical Therapy, in addition to the Associate in Science degree (PTA) found in the previous section of the Catalog, the program options include:

- postprofessional Master of Science in Rehabilitation
- entry-level Doctor of Physical Therapy
- postprofessional Doctor of Physical Therapy
- Doctor of Science
- Doctor of Philosophy

## Professional association

Students and graduates are eligible for membership in the American Physical Therapy Association (APTA). The objective of the association is to foster development and improvement of service and education. This organization grants student membership at a nominal cost to students of approved schools. The student is required to become a member of this association while in the program and is encouraged to read the journal and attend the APTA-sponsored meetings.

## Professional registration

Satisfactory completion of the entry-level D.P.T. degree requirements qualifies the student to sit for all state licensure examinations. Information about the state registries of physical therapists can be obtained at the office of the department chair. All states require that a physical therapist pass the national qualifying examination for licensure to practice. California application form and fee are submitted to the Physical Therapy Board of California, 2005 Evergreen Street, Suite 1350, Sacramento, CA 95815; Web site: <<http://www.ptbc.ca.gov/>>.

## Programs

- Physical Therapy – M.S.R. (Postprofessional) (p. 122), D.P.T. (Entry Level) (p. 117), D.P.T. (Postprofessional) (p. 120) | (p. 117), D.Sc. (Postprofessional) (p. 121) Comparison (p. 124), Ph.D. (p. 125)

## Physical Therapy – D.P.T. (Entry Level)

**Program director**  
Lawrence E. Chinnock

**Academic coordinator of clinical education**  
Theresa Joseph

The entry-level Doctor of Physical Therapy (D.P.T.) degree is for individuals who have no previous degree in physical therapy or who have an associate degree in the field of physical therapy. The D.P.T. degree curriculum is three years in length. Individuals may enter the program with or without a bachelor's degree. Those who enter with a previous bachelor's degree will be granted the Doctor of Physical Therapy degree upon completion of the curriculum. Individuals who enter the program without a previous bachelor's degree will be granted

a Bachelor of Science degree and a Doctor of Physical Therapy degree upon completion of the curriculum. [Students entering the program in June 2018 will be required to have an earned bachelor's degree, in any area, from a regionally accredited institution prior to starting the program.]

## Clinical experience

Supervised experience is obtained in a variety of settings and at different times during the course of study. First-year students complete a two-week practicum assignment during the Spring Quarter. Second-year students complete a four-week assignment following Spring Quarter. The major clinical assignments are during the third year. The student will be assigned a ten-week affiliation during the Summer Quarter, an eleven-week affiliation during the Winter Quarter, and a ten-week affiliation during the Spring Quarter.

All clinical assignments will be made by the academic coordinator of clinical education or a designee. Because of the limited number of local facilities available, assignments cannot be made on the basis of the student's family/marital status or personal preference. Although the department makes an effort to accommodate the student's preference, the student agrees to accept the clinical assignments made by the department at any of the affiliated facilities, whether local or out of state. Students should expect that at least one rotation will be beyond commuting distance from Loma Linda University. Many clinical sites will require the student to have a current flu vaccine if the rotation is during the "flu season." Students need to be aware of this potential requirement before enrolling in the D.P.T. degree program.

## Student learning outcomes

Upon completion of the degree, graduates should be qualified to demonstrate:

- Entry-level knowledge and clinical skills appropriate for safe and effective physical therapy practice.
- Multicultural competence, i.e., compassion and respect during interactions with individuals from different ethnic and cultural backgrounds.
- Clinical reasoning evidenced by the ability to think critically and integrate evidence-based practice into their clinical decision-making skill set.
- Awareness and application of the ethical and legal parameters surrounding the profession of physical therapy.
- Understanding of evidence-based clinical care utilizing collaborative relationships among the patient, physical therapist, and other health-care practitioners.
- Effective verbal and nonverbal communication with instructors, classmates, and clinical personnel as needed to work effectively as a member of a health-care team.

## Accreditation

The entry-level Doctor of Physical Therapy Program at Loma Linda University is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE), 1111 North Fairfax Street, Alexandria, Virginia 22314; Telephone 703-706-3245; Email: accreditation@apta.org; website: <<http://www.capteonline.org>>.

## Admissions

Admission is based on a selective process. Criteria used include: G.P.A., completion of subject requirements, interview, and recommendations. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- a minimum G.P.A. of 3.4.
- a minimum of 138 quarter units (92 semester units) at a regionally accredited college or university. The minimum subject admission requirements are listed below. Note: Grades of C- and below are not transferable for credit. Individuals who already have an earned bachelor's degree in any field from a regionally accredited institution need to complete only the prerequisites denoted with two asterisks (\*\*).
- Work/observation experience—A minimum of 80 hours of work / observation experience is required prior to beginning the degree. Of the 80 hours, a minimum of 20 hours must be in an inpatient physical therapy setting and a minimum of 20 hours must be in an outpatient physical therapy setting.

### Domain 1: Religion and Humanities (24 quarter/16 semester units, minimum)

#### Humanities (12 quarter/8 semester units minimum)

Credits in humanities must be selected from at least three of the following content areas, and one course must be at the upper division level.

Civilization/History  
 Fine arts  
 Literature  
 Modern language  
 Philosophy  
 Performing/Visual arts (not to exceed 4 quarter units)

#### Religion

An applicant who has attended a Seventh-day Adventist college or university is required to have taken 4 quarter units of religion from an Adventist institution for each full year of attendance at an Adventist college or university. Up to 12 quarter units may apply towards the 24 units required in Domain 1. If the applicant has not attended an Adventist institution, no religion units are required. In either case, however, the applicant must have completed 24 quarter/16 semester units in Domain 1: Humanities and Religion.

### Domain 2: Scientific Inquiry and Analysis

#### Natural Sciences

- \*\* Human anatomy and physiology, complete sequence with laboratory
- \*\* General chemistry, complete sequence with laboratory
- \*\* General physics, complete sequence with laboratory
- \*\* Two additional biological science courses (e.g. cell biology, microbiology, upper division anatomy and/or physiology)
- \*\* Statistics
- \*\* Medical terminology



**Social Sciences (12 quarter/8 semester units, minimum)**

The study of social sciences must include at least one upper division course:

\*\* General psychology

\*\* Human growth and development

**Domain 3: Communication (9 quarter/6 semester units, minimum)**

English composition, complete sequence (must meet transfer requirements to four-year college or university)

\*\* One course in basic communication skills (speech)

**Domain 4: Health and Wellness (3 quarter/2 semester units, minimum)**

Physical education (two physical activity courses)

Personal health education or nutrition course

**Domain 5: Electives**

To meet total requirements of 138 quarter/92 semester units

Students must have a minimum of 18 quarter/12 semester units of upper division course work.

No more than 105 quarter/70 semester units may be transferred from a community college.

\*\* Individuals who already have an earned bachelor's degree in any field from a regionally accredited institution need to complete only the prerequisites denoted with two asterisks (\*\*).

**Technology requirement**

Students are required to have a lap top computer or an iPad that can be brought to class with them as the majority of quizzes and test are completed on the device. A \$60 technology fee is charged in years one and two.

**Prerequisite changes for individuals entering the program in June 2018:**

All applicants must have an earned bachelor's degree in any field from a regionally accredited institution prior to enrolling in the program. In addition to having a bachelor's degree, the prerequisites for all applicants will be:

Human anatomy and physiology with laboratory (complete sequence)

General chemistry with laboratory (complete sequence)

General physics with laboratory (complete sequence)

Statistics

Two additional biological science courses (e.g. cell biology, microbiology, upper division anatomy and/or physiology)

Medical terminology

General psychology

Human growth and development

One course in oral communication skills

A minimum of 80 hours of work /observation experience is required prior to beginning the degree. Of the 80 hours, a minimum of 20 hours must be in an inpatient physical therapy setting and a minimum of 20 hours must be in an outpatient physical therapy setting.

**Program requirements****First Year****Summer Quarter**

		<b>Units</b>
AHCJ 510	Human Gross Anatomy	9
PHTH 510	Kinesiology	3
PHTH 514	Manual Muscle Testing	3
RELR 709	Christian Perspectives on Death and Dying	2

**Autumn Quarter**

AHCJ 560	Physiology	4
AHCJ 561	Neuroscience I: Neuroanatomy	4
AHCJ 705	Infectious Disease and the Health Care Provider	1
AHCJ 721	Wholeness Portfolio I	0
PHTH 509	Physical Therapy Modalities	3
PHTH 513	Therapeutic Procedures	3
PHTH 563	Scientific Inquiry I	2
RELT 718	Adventist Heritage and Health	2

**Winter Quarter**

AHCJ 538	Histology	3
AHCJ 542	Pathology I	4
AHCJ 562	Neuroscience II: Neurophysiology	3
AHCJ 721	Wholeness Portfolio I	0
PHTH 527	Scientific Foundations for Therapeutic Exercise	2
PHTH 528	Therapeutic Exercise I	2
PHTH 557	Life Span Studies I: Infant through Adolescent	3
PHTH 564A	Scientific Inquiry IIA	1

**Spring Quarter**

AHCJ 543	Pathology II	3
AHCJ 563	Neuroscience III: Clinical Neurology	2
AHCJ 721	Wholeness Portfolio I	1
PHTH 506	Exercise Physiology	3
PHTH 508	PT Communication and Documentation	2
PHTH 519	Locomotion Studies	3
PHTH 521A	Orthopaedics 1A	3
PHTH 564B	Scientific Inquiry IIB	1
PHTH 571	Physical Therapy Practicum I	1

**Second Year****Summer Quarter**

AHCJ 524	Pharmacology	2
PHTH 511	Clinical Orthopaedics	2
PHTH 512	Clinical Psychiatry	2
PHTH 526A	Cardiopulmonary I	2
RELT 740	World Religions and Human Health	3

**Autumn Quarter**

AHCJ 516	Clinical Imaging	3
AHCJ 722	Wholeness Portfolio II	0
PHTH 501	Neurology I	2
PHTH 521B	Orthopaedics 1B	3
PHTH 525	General Medicine	3

PHTH 526B	Cardiopulmonary II	2
PHTH 530	Therapeutic Exercise II	3
PHTH 575	Orthopaedics IV	0
<b>Winter Quarter</b>		
AHCJ 722	Wholeness Portfolio II	0
PHTH 502	Neurology II	3
PHTH 518	Aspects of Health Promotion	2
PHTH 522	Orthopaedics II	3
PHTH 534	Soft Tissue Techniques	2
PHTH 540	Concepts of Acute Care	2
PHTH 558	Life Span Studies II: Developmental Disabilities	3
PHTH 575	Orthopaedics IV	0
RELE 707	Ethics for Allied Health Professionals	2
<b>Spring Quarter</b>		
AHCJ 722	Wholeness Portfolio II	1
PHTH 503	Neurology III	3
PHTH 517	Movement Science	2
PHTH 523	Orthopaedics III	3
PHTH 555	Differential Diagnosis	2
PHTH 559	Life Span Studies III: Geriatrics	2
PHTH 561	Physical Therapy Administration	4
PHTH 575	Orthopaedics IV	1
<b>Third Year</b>		
<b>Summer Quarter</b>		
PHTH 572	Physical Therapy Practicum II	2
PHTH 701A	Physical Therapy Affiliation IA	4
<b>Autumn Quarter</b>		
PHTH 567	Pain Science	2
PHTH 701B	Physical Therapy Affiliation IB	1
PHTH 731	Advanced Orthopaedic Studies	3
PHTH 732	Advanced Neurologic Studies	3
PHTH 733	Advanced General Medicine Studies	3
<b>Winter Quarter</b>		
PHTH 702	Physical Therapy Affiliation II	5
<b>Spring Quarter</b>		
PHTH 703	Physical Therapy Affiliation III	5
Total Units:		163

## Normal time to complete the program

3 years (12 academic quarters) – full-time enrollment required

# Physical Therapy – D.P.T. (Postprofessional)

## Program director

Everett B. Lohmann III

The postprofessional Doctor of Physical Therapy (PP-D.P.T.) degree is designed for the individual with a degree in physical therapy who wishes to pursue advanced studies in the profession. This program is also offered on the campus of Universidad Adventista de las Antillas located in Mayagüez, Puerto Rico.

2 Two tracks lead to the postprofessional Doctor of Physical Therapy  
3 degree:

- 0 • The 65-unit track is designed for the individual with a bachelor's  
0 degree in physical therapy from an accredited program or who has  
3 the equivalent of a U.S. bachelor's degree in physical therapy.
- 2 • The 45-unit track is designed for the individual with a bachelor's  
3 degree in physical therapy from an accredited program or who has  
2 the equivalent of a U.S. bachelor's degree in physical therapy and has  
3 earned a master's degree.

## Technology requirement

Students are required to have an iPad for the courses in the orthopaedic and neurology tracks, as well as for testing activities in all courses. It is highly recommended that students have access to a personal computer (minimum: 800 MHz multimedia) with Internet access (minimum: 56 k.b.p.s. [connected at 44+ k.b.p.s.]). A \$60 technology fee is charged in year one for the 45-unit track and years one and two for the 65-unit track.

## Student learning outcomes

In addition to the stated institutional learning outcomes, the PP-D.P.T. degree (45-unit track) student is expected to meet the following program learning outcomes:

1	Outcome 1	Discovery. Students will demonstrate a commitment to discovery.
2	Outcome 2	Science. Students will use basic science knowledge-related physical therapy practice.
4	Outcome 3	Clinical excellence. Students will provide advanced patient-specific physical therapy care.
2	Outcome 4	Evidence-based practice. Students will select best practice and examination techniques based on scientific evidence.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions (p. 46) admissions requirements, the applicant must also complete the following requirements:

- must have earned a bachelor's degree in physical therapy from an accredited program or have the equivalent of a 4 year U.S. bachelor's degree in physical therapy
- must have earned a master's degree (45-unit track only).
- Upon evaluation of transcripts, additional corequisites may be required, and sequencing of courses may be modified.

There is no GRE requirement for acceptance into this curriculum.

## Program requirements

### 45-unit track

#### Required

AHRM 605	Critical Analysis of Scientific Literature	3
PTGR 511	Advanced Clinical Practice I: Orthopaedic Rehabilitation	3
PTGR 512	Advanced Clinical Practice II	3
PTGR 513	Advanced Clinical Practice III	3
PTGR 514	Professional Systems in Management I	3

PTGR 516	Movement Science of the Upper Quarter	3
PTGR 517	Movement Science: Lower Quarter Biomechanical Relationships	3
PTGR 571	Advanced Physiology I: Neurobiology	3
PTGR 577	Pharmacology in Physical Therapy	3
PTGR 578	Medical Screening for Physical Therapists	3
PTGR 579	Clinical Imaging for Physical Therapist	3
RELR 525	Health Care and the Dynamics of Christian Leadership	3
___	Elective	9
Total Units		45

### Normal time to complete the program

1 year (4 academic quarters) – based on full-time enrollment

### 65-unit track

#### Required

AHRM 571	Statistics and Research for Health Professionals I	3
AHRM 572	Statistics and Research for Health Professionals II	3
AHRM 605	Critical Analysis of Scientific Literature	2
PTGR 505	Orthopaedic Intervention: Regional Interdependency of the Cervical Spine & Upper Extremities	3
PTGR 506	Soft-Tissue Mobilization	3
PTGR 509	Function-Based Rehabilitation	3
PTGR 510	Neurologic Upper Extremity Management	3
PTGR 511	Advanced Clinical Practice I: Orthopaedic Rehabilitation	3
PTGR 512	Advanced Clinical Practice II	3
PTGR 513	Advanced Clinical Practice III	3
PTGR 514	Professional Systems in Management I	3
PTGR 516	Movement Science of the Upper Quarter	3
PTGR 517	Movement Science: Lower Quarter Biomechanical Relationships	3
PTGR 571	Advanced Physiology I: Neurobiology	3
PTGR 573	Pathokinesiology of Gait	3
PTGR 577	Pharmacology in Physical Therapy	3
PTGR 578	Medical Screening for Physical Therapists	3
PTGR 579	Clinical Imaging for Physical Therapist	3
RELR 525	Health Care and the Dynamics of Christian Leadership	3
___	Elective	9
Total Units		65

### Normal time to complete the program

1.5 years (6 academic quarters) – based on full-time enrollment

## Physical Therapy – D.Sc. (Postprofessional)

#### Program director

Everett B. Lohmann III

The Doctor of Science Program is a research-oriented doctoral degree designed for the physical therapist who wishes to pursue advanced studies in the area of education, research, basic science, and advanced

clinical practice. To be eligible for admission, the applicant must have a Bachelor of Science degree in physical therapy earned from an accredited program or the equivalent of a U.S. bachelor's degree in physical therapy, and an earned master's degree. Upon evaluation of transcripts, additional corequisites may be required; and sequencing of courses may be modified. There is no GRE requirement for acceptance; however, successful completion of a comprehensive written examination is required in order to advance to candidacy. A written dissertation and a defense of the dissertation are required. Upon completion of the curriculum, the diploma will be awarded by the School of Allied Health Professions in conjunction with the Faculty of Graduate Studies.

## Technology requirement

Students are required to have an iPad for the courses in the orthopaedic and neurology tracks, as well as for testing activities in all courses. It is highly recommended that students have access to a personal computer (minimum: 800 MHz multimedia) with Internet access (minimum: 56 k.b.p.s. [connected at 44+ k.b.p.s.]). A \$60 technology fee is charged in years one and two.

## Research funding

Each student will be required to perform one or more research projects in partial fulfillment of the requirements for the degree of Doctor of Science in Physical Therapy. The typical costs for student research projects range from \$1,500 to \$10,000. The physical therapy department will cover the first \$1,500 of approved research expenses. The student and/or his/her sponsor will be required to cover any research-related expenses over this amount. When necessary, the program director and dissertation chair will assist the student in attempting to secure funding for unmet research expenses.

## Student learning outcomes

In addition to the stated institutional learning outcomes, the D.Sc. degree student is expected to meet the following program learning outcomes:

- |           |  |
|-----------|--|
| Outcome 1 | Discovery. Students will demonstrate a commitment to discovery.  |
| Outcome 2 | Science. Students will use basic science knowledge to advance physical therapy practice.                                   |
| Outcome 3 | Global outreach. Students will provide physical therapy care and education to the larger world population.                 |
| Outcome 4 | Clinical excellence. Students will provide advanced patient-specific physical therapy care.                                |
| Outcome 5 | Teaching. Students will serve as mentors and educators to ignite the flame of discovery, knowledge, and critical thinking. |

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- a Bachelor of Science degree in physical therapy earned from an accredited program or the equivalent of a U.S. bachelor's degree in physical therapy
- an earned master's degree.

- Upon evaluation of transcripts, additional corequisites may be required; and sequencing of courses may be modified.

There is no GRE requirement for acceptance

## Program requirements

### Required

AHCJ 506	Educational Evaluation and Clinical Assessment	3
AHCJ 515	Curriculum Development in Higher Education	3
AHCJ 556	Administration in Higher Education	3
AHCJ 564	Collaborative Learning in Higher Education	3
AHCJ 599	Directed Teaching	3
AHRM 581	Research and Statistics I	3
AHRM 582	Research and Statistics II	3
AHRM 605	Critical Analysis of Scientific Literature	3
PTGR 511	Advanced Clinical Practice I: Orthopaedic Rehabilitation	3
PTGR 512	Advanced Clinical Practice II	3
PTGR 513	Advanced Clinical Practice III	3
PTGR 514	Professional Systems in Management I	3
PTGR 517	Movement Science: Lower Quarter Biomechanical Relationships	3
PTGR 523	Advanced Neurological Rehabilitation	3
PTGR 571	Advanced Physiology I: Neurobiology	3
PTGR 572	Advanced Physiology II: Exercise and Thermoregulation	3
PTGR 577	Pharmacology in Physical Therapy	3
PTGR 578	Medical Screening for Physical Therapists	3
PTGR 579	Clinical Imaging for Physical Therapist	3
PTGR 599	Comprehensive Examination	0
PTGR 693	Research and Statistics III: Development and Approval of Research Topic and Questions	3
PTGR 695	Research and Statistics V: Data Collection	3
PTGR 696	Research and Statistics VI: Data Analysis	3
PTGR 699	Research and Statistics VII - Dissertation	3
RELE 525	Ethics for Scientists	3
RELR 525	Health Care and the Dynamics of Christian Leadership	3
RELT 557	Theology of Human Suffering	3
— —	Elective	6
Total Units		84

### Other requirements

- successful completion of a comprehensive written examination is required in order to advance to candidacy.
- a written dissertation and a defense of the dissertation.

### Normal time to complete the program

5 years (20 academic quarters) based on full-time enrollment

## Physical Therapy – M.S.R. (Postprofessional)

### Program director

Todd C. Nelson

The Master of Science in Rehabilitation (M.S.R.) degree is a postprofessional program designed for individuals with a baccalaureate degree in physical therapy who wish to pursue advanced studies in their profession.

### Technology requirement

Students are required to have an iPad for the courses in the orthopaedic and neurology tracks, as well as for testing activities in all courses. It is highly recommended that students have access to a personal computer (minimum: 800 MHz multimedia) with Internet access (minimum: 56 kbps [connected at 44+ kbps]). A \$60 technology fee is charged in year one.

### Practice credentials

To practice physical therapy in the United States, one must meet the criteria of the state in which s/he wishes to practice. Credentials are evaluated based on the applicable entry-level education. Postprofessional education cannot be used for this purpose.

### Learning outcomes

In addition to the stated institutional learning outcomes, the M.S.R. degree student is expected to meet the following program learning outcomes:

Outcome 1	Discovery. Students will demonstrate a commitment to discovery.
Outcome 2	Science. Students will use basic science knowledge to advance physical therapy practice.
Outcome 3	Global outreach. Students will provide physical therapy care to the larger world population.
Outcome 4	Clinical excellence. Students will provide advanced patient-specific physical therapy care.

### Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- a bachelor's degree in physical therapy from an accredited program or have the equivalent of a 4 year U.S. bachelor's degree in physical therapy.

The GRE is not required for acceptance.

### Program requirements

#### First Year

Autumn Quarter		Units
AHCJ 519	Graduate Wholeness Portfolio	0
AHRM 571	Statistics and Research for Health Professionals I	3
PTGR 506	Soft-Tissue Mobilization	3
PTGR 510	Neurologic Upper Extremity Management	3
PTGR 690	Research Rotations	2

**Winter Quarter**

AHCJ 519	Graduate Wholeness Portfolio	0
AHRM 572	Statistics and Research for Health Professionals II	3
PTGR 505	Orthopaedic Intervention: Regional Interdependency of the Cervical Spine & Upper Extremities	3
PTGR 573	Pathokinesiology of Gait	3

**Spring Quarter**

AHCJ 519	Graduate Wholeness Portfolio	0
AHCJ 545	Legal and Ethical Issues in the Health Professions	3
PTGR 501	Advanced Orthopaedic Specialty Tracks I	3
PTGR 503	Medical Documentation and Billing	3
PTGR 508	Current Topics in Neurological Rehabilitation	3

**Summer Quarter**

AHCJ 519	Graduate Wholeness Portfolio	1
PTGR 500	Integrative Approach to Early Rehabilitation	3
PTGR 507	Advanced Pediatric Clinical Practice	3
PTGR 509	Function-Based Rehabilitation	3
RELR 575	Art and Science of Whole Person Care	3

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Total Units:		45
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**Normal time to complete the program**

1 year (4 academic quarters) – based on full-time enrollment

## Physical Therapy – D.P.T. (Postprofessional), D.Sc. Comparison

Required	Course Title	DPT (Prior MPT)	DPT (Prior BS)	DSc
AHRM 605	Critical Analysis of Scientific Literature	3.0	2.0	3.0
PTGR 511	Advanced Clinical Practice I: Orthopaedic Rehabilitation	3.0	3.0	3.0
PTGR 512	Advanced Clinical Practice II	3.0	3.0	3.0
PTGR 513	Advanced Clinical Practice III	3.0	3.0	3.0
PTGR 514	Professional Systems in Management I	3.0	3.0	3.0
PTGR 516	Movement Science of the Upper Quarter	3.0	3.0	
PTGR 517	Movement Science: Lower Quarter Biomechanical Relationships	3.0	3.0	3.0
PTGR 571	Advanced Physiology I: Neurobiology	3.0	3.0	3.0
PTGR 577	Pharmacology in Physical Therapy	3.0	3.0	3.0
PTGR 578	Medical Screening for Physical Therapists	3.0	3.0	3.0
PTGR 579	Clinical Imaging for Physical Therapist	3.0	3.0	3.0
RELR 525	Health Care and the Dynamics of Christian Leadership	3.0	3.0	3.0
___ ___	Electives	9.0		
AHRM 571	Statistics and Research for Health Professionals I		3.0	
AHRM 572	Statistics and Research for Health Professionals II		3.0	
PTGR 505	Orthopaedic Intervention: Regional Interdependency of the Cervical Spine & Upper Extremities		3.0	
PTGR 506	Soft-Tissue Mobilization		3.0	
PTGR 509	Function-Based Rehabilitation		3.0	
PTGR 510	Neurologic Upper Extremity Management		3.0	
PTGR 573	Pathokinesiology of Gait		3.0	
___ ___	Electives		9.0	
AHCJ 506	Educational Evaluation and Clinical Assessment			3.0
AHCJ 515	Curriculum Development in Higher Education			3.0
AHCJ 556	Administration in Higher Education			3.0
AHCJ 564	Collaborative Learning in Higher Education			3.0
AHCJ 599	Directed Teaching			3.0
AHRM 581	Research and Statistics I			3.0
AHRM 582	Research and Statistics II			3.0
PTGR 523	Advanced Neurological Rehabilitation			3.0
PTGR 572	Advanced Physiology II: Exercise and Thermoregulation			3.0
PTGR 599	Comprehensive Examination			0.0
PTGR 693	Research and Statistics III: Development and Approval of Research Topic and Questions			3.0
PTGR 695	Research and Statistics V: Data Collection			3.0
PTGR 696	Research and Statistics VI: Data Analysis			3.0
PTGR 699	Research and Statistics VII - Dissertation			3.0
RELE 525	Ethics for Scientists			3.0
RELT 557	Theology of Human Suffering			3.0
___ ___	Electives			6.0
<b>Totals</b>		<b>45.0</b>	<b>65.0</b>	<b>84.0</b>

# Physical Therapy – Ph.D

## Program director

Everett B. Lohman III

The Department of Physical Therapy offers the Doctor of Philosophy degree in physical therapy. This research-oriented program for physical therapists emphasizes pain and movement sciences and lifestyle health and wellness as it prepares graduates for research, teaching, and administration. Successful completion of a comprehensive written examination, written dissertation, and an oral defense of the dissertation are required. At the completion of the curriculum, the diploma will be awarded by the School of Allied Health Professions in conjunction with the Faculty of Graduate Studies.

It is the goal of the program to prepare graduates with:

- Skills to design and conduct novel, original research; provide evidence of an understanding of research design and the ability to formulate and develop methodologies; collect and reduce data; interpret results; draw defensible conclusions; and effectively disseminate research findings;
- Qualities of lifelong learning and commitment to scholarship after graduation;
- Skills to add to the body of knowledge in physical therapy research literature through publications and presentations;
- Ability to demonstrate a commitment to conducting research in neurology, orthopaedics, pain science, movement science, or lifestyle health and wellness;
- Ability to demonstrate a commitment to providing whole person care;
- Skills to serve as an educator in entry-level, postprofessional and graduate-level physical therapy programs;
- Ability to demonstrate personal and group leadership skills at institutional, professional, national, and global levels.

In addition to the stated institutional student learning outcomes (p. 19) (ILOs), the Ph.D. degree student is expected to meet the following programmatic student learning outcomes (SLOs):

Outcome 1 - Discovery. The student will demonstrate a commitment to discovery.

Outcome 2 – Dissemination. The student will demonstrate a commitment to the dissemination of knowledge through publications and presentations.

Outcome 3 – Evidence-based Practice. The student will demonstrate a commitment to developing treatment plans that follow current evidence-based and best practice guidelines.

## Technology requirement

Students are required to have an iPad for the courses in the orthopaedic and neurology tracks, as well as for testing activities in all courses. It is highly recommended that students have access to a personal computer (minimum: 800 MHz multimedia) with Internet access (minimum: 56 k.b.p.s. [connected at 44+ k.b.p.s.]). A \$60 technology fee is charged in years one and two.

## Research funding

Each student will be required to conduct one or more research projects in partial fulfillment of the requirements for the Doctor of Philosophy degree

in physical therapy. The typical costs for student research projects range from \$2,500 to \$10,000. The physical therapy department will cover the first \$2,500 of approved research expenses. The student and/or his/her sponsor will be required to cover any research-related expenses over this amount. When necessary, the program director and dissertation chair will assist the student in attempting to secure funding for unmet research expenses.

## General requirements

For more information about program requirements and practices for graduate students, the student should consult the Policies and General Regulations in Section II and the School of Allied Health Professions in Section III of this Catalog. The student should also consult the Doctor of Philosophy's 26 elements for program specific requirements. These elements can be found at <http://alliedhealth.llu.edu/academics/physical-therapy/degree-options/physical-therapy-phd>.

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- Bachelors of Science degree in Physical Therapy plus a master's degree, a Masters of Physical Therapy (MPT) degree, or a Doctor of Physical Therapy (DPT) degree from an accredited program or equivalency.
- Minimum grade point average (GPA) of 3.3 in academic and professional coursework.
- Proof of physical licensure or equivalency in the USA or their country of training.

Must also submit:

- At least one example of written work (e.g., personal essay, term paper, publication, master's thesis or project).
- Curriculum vitae, including work history, formal education, continuing education, licensure and certification, professional organizations, honors, awards, publications, presentations, and grants.
- A formal letter outlining research interests.
- A structured oral interview.

## Program requirements

Required units:

- 103 – for students with a Bachelor of Science degree in physical therapy plus a Masters of Physical Therapy (MPT) degree or another appropriate master's degree
- 82 – for students with a Doctor of Physical Therapy (D.P.T.) degree

### Domain 1: Core courses

PTGR 518	Topics in Rehabilitation	1-6
PTGR 550	Introduction to Psychoneuroimmunology: The Science of Whole Person Care	3
PTGR 551	Clinical Translation of Pain Science	3
PTGR 552	Pain Science: Interactions of the Brain and Body	3
PTGR 557	Doctoral Dissertation Seminar	1

PTGR 553	Clinical Reasoning and Critical Thinking in Physical Therapy	3
PTGR 599	Comprehensive Examination	0
STAT 515	Grant- and Contract-Proposal Writing	3
<b>Domain 2: Clinical specialization</b> <sup>1</sup>		9-18
Select from the following: (9 units required for students with a prior D.P.T. degree and 18 units required for students with a prior M.S./M.P.T. degree) <sup>2</sup>		
PTGR 500	Integrative Approach to Early Rehabilitation	
PTGR 501	Advanced Orthopaedic Specialty Tracks I	
PTGR 505	Orthopaedic Intervention: Regional Interdependency of the Cervical Spine & Upper Extremities	
PTGR 506	Soft-Tissue Mobilization	
PTGR 507	Advanced Pediatric Clinical Practice	
PTGR 509	Function-Based Rehabilitation	
PTGR 510	Neurologic Upper Extremity Management	
PTGR 511	Advanced Clinical Practice I: Orthopaedic Rehabilitation	
PTGR 512	Advanced Clinical Practice II	
PTGR 513	Advanced Clinical Practice III	
PTGR 515	Cardiopulmonary Approaches to Assessment, Wellness, and Disease	
PTGR 516	Movement Science of the Upper Quarter <sup>4</sup>	
PTGR 517	Movement Science: Lower Quarter Biomechanical Relationships <sup>4</sup>	
PTGR 518	Topics in Rehabilitation <sup>3</sup>	
PTGR 520	Cervical Spine	
PTGR 521	Lumbar Spine	
PTGR 522	Assessment and Management of the Knee	
PTGR 523	Advanced Neurological Rehabilitation	
PTGR 524	Women's Health Issues I	
PTGR 528	Residency Level Advanced Seminars	
PTGR 531	Advanced Orthopaedic Procedures I	
PTGR 532	Advanced Orthopaedic Procedures II	
PTGR 533	Advanced Orthopaedic Procedures III	
PTGR 575	Upper Quarter Biomechanics	
PTGR 576	Lower Quarter Biomechanics	
<b>Domain 3: Sciences and applied sciences</b>		
Select from the following: (9 units required for students with a prior D.P.T. degree and 15 units required for students with a prior M.S./M.P.T. degree.) In addition to the courses listed, students may select another 3-unit science-related course with approval from dissertation chair.) <sup>2</sup>		
AHCJ 542	Pathology I	
AHCJ 543	Pathology II	
AHCJ 560	Physiology	
PTGR 570	Muscle Energetics and Biochemistry	
PTGR 571	Advanced Physiology I: Neurobiology	
PTGR 572	Advanced Physiology II: Exercise and Thermoregulation	
PTGR 575	Upper Quarter Biomechanics	
PTGR 576	Lower Quarter Biomechanics	
PTGR 577	Pharmacology in Physical Therapy	
PTGR 578	Medical Screening for Physical Therapists	
PTGR 579	Clinical Imaging for Physical Therapist	
<b>Domain 4: Lifestyle health and wellness</b>		
Select from the following: (3 units required for students with a prior D.P.T. degree and 6 units required for students with a prior M.S./M.P.T. degree)		
AHCJ 528	Lifestyle Health and Wholeness	
AHCJ 541	Managing Stress	
AHCJ 546	Therapeutic Humor in Health Care	
AHCJ 568	Spirituality and Health: The Wholeness Connection	
HPRO 515	Mind-Body Interactions and Health Outcomes	
<b>Domain 5: Education, administration, and leadership</b>		9
Select from the following:		
AHCJ 506	Educational Evaluation and Clinical Assessment	
AHCJ 509	Transformational Teaching and Learning	
AHCJ 515	Curriculum Development in Higher Education	
AHCJ 556	Administration in Higher Education	
AHCJ 564	Collaborative Learning in Higher Education	
AHCJ 566	Theoretical Foundations of Leadership	
AHCJ 567	Personal Leadership	
AHCJ 599	Directed Teaching	
AHCJ 600	Active Online Learning	
PTGR 514	Professional Systems in Management I	
PTGR 590	Political Advocacy and Health Policy for Physical Therapists	
<b>Domain 6: Religion</b>		
Select one course from the following:		
RELE 525	Ethics for Scientists	3
RELE 564	Ethics and Health Disparities	
RELE 567	World Religions and Bioethics	
RELE 568	Bioethics and the Law	
RELE 588	Explorers of the Moral Life	
Select one course from the following:		
RELR 500	Religion and Global Health	3
RELR 525	Health Care and the Dynamics of Christian Leadership	
RELR 536	Spirituality and Everyday Life	
RELR 540	Wholeness and Health	
RELR 575	Art and Science of Whole Person Care	
RELR 588	Personal and Family Wholeness	
RELR 692	Seminar in Religion and Health Care Leadership: Current Trends	
Select one course from the following:		
RELT 540	World Religions and Human Health	
RELT 557	Theology of Human Suffering	
RELT 617	Seminar in Religion and the Sciences	
<b>Domain 7: Research and statistics (24-27 units)</b>		
Not required of all students. See footnotes for details.		
Required:		
AHRM 581	Research and Statistics I	3
AHRM 582	Research and Statistics II	3
AHRM 605	Critical Analysis of Scientific Literature <sup>5</sup>	2,3



PTGR 693	Research and Statistics III: Development and Approval of Research Topic and Questions	3
PTGR 694	Proposal Development and Institutional Review Board Approval	3
PTGR 695	Research and Statistics V: Data Collection <sup>6</sup>	6
PTGR 696	Research and Statistics VI: Data Analysis	3
PTGR 699	Research and Statistics VII - Dissertation	3
Total Units		82-109

- <sup>1</sup> All courses will be focused toward research topic and/or movement science.
- <sup>2</sup> Courses to be selected in consultation with program director and dissertation chair to enhance the student's knowledge base in regards to their research topic.
- <sup>3</sup> Two topics are offered as separate registrations: 1) Manual Therapy and 2) Sports Medicine.
- <sup>4</sup> PTGR 516 Movement Science of the Upper Quarter and PTGR 517 Movement Science: Lower Quarter Biomechanical Relationships (or equivalency) required for students who have not taken these courses in prior M.P.T. or D.P.T. program.
- <sup>5</sup> Required for M.S./M.P.T. Required for D.P.T. if course, or equivalent, not taken prior to entrance into the program.
- <sup>6</sup> Course to be taken twice – each registration (3 units) pertains to the data collection for one of the two required papers.

### Comprehensive Examination

PTGR 599 Comprehensive Examination is designed to establish that the student has a broad understanding of physical therapy, research biostatistics and basic research methodology, education, bioethics, and professionalism. Since Education is a component of the comprehensive exam, students are encouraged to select a minimum of 9 units of teaching/education-related courses from Domain 5. The written comprehensive examination will be administered after students have successfully completed the majority of required courses in Domains 1-6. The comprehensive examination will typically occur during the summer quarter of the student's second year in the Ph.D. in Physical Therapy program.

### Noncourse requirement

#### Advancement to Candidacy

The student may apply for advancement to candidacy after a) passing the comprehensive examination, b) securing support from their research guidance committee, and c) successfully defending their research topic and questions. The Candidate's capacity for original, independent investigation and scholarly achievements must be demonstrated by the presentation and oral defense of an acceptable dissertation in order to participate in the commencement ceremony. The candidate must submit a written dissertation to the LLU Faculty of Graduate Studies. The candidate must also submit a minimum of two papers for publication. One paper must be accepted for publication to fulfill program completion requirements.

### Normal time to complete the program

4 years (16 academic quarters) – full-time enrollment required

## Department of Physician Assistant Sciences

Physician assistants (PAs) are health professionals who are licensed to practice medicine under physician supervision. Physician assistants are qualified by graduation from an accredited physician assistant educational program and by certification by the National Commission on Certification of Physician Assistants. Within the physician/PA relationship, the PA exercises autonomy in medical decision making and provides a broad range of diagnostic and therapeutic services. The clinical role of a PA includes primary and specialty care in medical and surgical settings in rural and urban areas. The PA's practice is centered on patient care and may also include educational, research, and administrative activities.

For more information, call 909/558-7295; email <pa@llu.edu>; or visit the department web site at <llu.edu/allied-health/sahp/pa>.

### Chair/Program director

Gerald Glavaz

### Medical director

Wessam Labib

### Didactic director

Frank Sirna

### Didactic coordinators

Catherine Oms

Julie Yang

### Clinical director

Ghina Katrib

### Clinical coordinator

Courtney McConnell

### Primary faculty

Yasmin Chene

Gerald Glavaz

Ghina Katrib

Courtney McConnell

Catherine J. Oms

Frank Sirna

Anthony C. Sutton

## Program

Physician Assistant – M.P.A. (p. 128)

## Physician Assistant – M.P.A.

Loma Linda University offers a professional course of study leading to the Master of Physician Assistant (M.P.A.) degree. This degree prepares students for medical work as midlevel health-care professionals.

The program consists of didactic and clinical phases that run concurrently for eight quarters over a twenty-four month period. A new class is accepted annually. Students are selected from a variety of

clinical backgrounds. Each applicant is evaluated based on the following: experience in patient care, duration of experience, level of patient contact, and degree of responsibility.

## Program objectives

Upon completion of the program, the physician assistant graduate will be qualified to:

1. Obtain detailed and accurate patient histories.
2. Perform appropriate physical examinations.
3. Evaluate patients and make diagnoses.
4. Order, perform, and interpret diagnostic tests.
5. Order and perform selected therapeutic procedures.
6. Develop, implement, and monitor patient-management plans.
7. Present patient data in oral and written forms.
8. Provide continuity of patient care.
9. Assist in surgical procedures.
10. Perform life-saving procedures in emergency situations.
11. Counsel and instruct patients regarding issues of health-care management, mental health, therapeutic regimens, normal growth and development, and family planning.
12. Refer patients to appropriate health/mental/social service agencies in the community.
13. Write drug orders.
14. Conduct an evidence-based review of the literature.

## Program outcomes

In addition to the stated institutional learning outcomes (p. 19), the M.P.A. degree student is expected to meet the following program learning outcomes:

1. Demonstrate basic science knowledge in physician assistant sciences.
2. Demonstrate competence, knowledge, and clinical skills in physician assistant sciences.
3. Demonstrate critical thinking skills in physician assistant sciences and practice.

## Housing

On-campus housing is available for men and women. For information on the men's dormitory (Daniells' Residence), call 909/558-4561. For information on the women's dormitory (Lindsay Hall), call 909/558-4561.

## Financial aid

Applications for financial aid should be submitted early, even before the student is admitted into the program. Processing of financial aid should be done by January 1. The University's Student Financial Aid Office will help applicants obtain the necessary applications and guide them in the process of applying for aid. Applicants for aid must contact the Office of Financial Aid, Loma Linda University, Loma Linda, CA 92350 at 909/558-4509.

## Accreditation

The Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA), has granted accreditation-continued status to the Loma Linda University Physician Assistant Program sponsored by Loma Linda University. Continued accreditation is a status granted

when a currently-accredited program is in compliance with the ARC-PA standards.

Continued accreditation remains in effect until the program closes or withdraws from the accreditation process or until accreditation is withdrawn for failure to comply with the standards. The approximate date for the next comprehensive review of the program by the ARC-PA will be March 2017.

## Admissions

Applications are accepted between May 1 and October 1, 11:59 pm EST. Applications must be made through the Central Application Service for Physician Assistants (CASPA). This service is available at <caspaonline.org (https://portal.caspaonline.org)>. In addition, completion of a secondary application from Loma Linda University is required. Completed applications and all supporting documents must be received by the Department of Physician Assistant Sciences no later than December 15, 11:59 pm PST. Required interviews are granted to qualified applicants upon invitation by the admissions committee. The applicant must also complete the following requirements:

- A baccalaureate degree from a regionally accredited institution, completed by December 31 of the year of application.
- An overall G.P.A. of at least 3.0 or higher and a science G.P.A. of 3.0 or higher on a 4.0 scale.
- Three letters of recommendation—one from a practicing M.D., D.O., or P.A. (not from shadowing, friend, or relative) who has worked with you in your paid patient care role.
- Documented paid patient-care experience of 2,000 hours minimum by matriculation—It is preferred that this requirement be completed by the time the application is submitted but must be completed by matriculation in the program. Student clinical hours, shadowing and volunteer experience are not acceptable. An example or definition of preferred direct patient-care experience are those accredited, credentialed professions that provide: patient assessment, treatment, patient-care plans, and diagnostic testing. Preferred applicants will have direct patient-care experience working in clinical settings that involve a range of patient responsibility and involve a high level of critical thinking.
- Complete all prerequisite course work at a regionally accredited college before being admitted to a program in the School of Allied Health Professions. Note: Grades below C are not accepted for credit.
- A minimum score of 550 (paper based), 213 (computer based), or 80 (Internet based) from the Test of English as a Foreign Language (TOEFL) must be submitted for any applicant whose native language is not English or whose secondary education has been given outside the United States. Any student with a score on the TOEFL writing test (TWE) of less than 4 will be required to do remedial work during the program and retake the TOEFL. TOEFL scores are valid for two years.
- Prerequisites:
  - Only two prerequisite courses can be outstanding at the time of submission of the CASPA application (one science, one non-science), even if the course will be completed prior to the applicant submitting his or her supplemental application.
  - Science prerequisites must include an on-campus laboratory component.
  - All prerequisite course work must be taken at a regionally accredited institution in the United States.

## Prerequisite courses

College-level prerequisite courses include the following:

Human anatomy and physiology with laboratory, complete sequence OR separate courses in human anatomy with laboratory and human physiology with laboratory. Must cover all organ systems

One year of general chemistry sequence with laboratory or a sequence in inorganic, organic, and biochemistry with laboratory (3 quarters or 2 semesters)

General microbiology with laboratory. Must cover medically important bacteria, viruses, fungi, and protozoa.

General psychology or equivalent

General sociology or equivalent

**or**  
Cultural anthropology or equivalent

College-level algebra or equivalent

One year of English (language courses not accepted)

## Recommended

Statistics

Medical Terminology

Conversational Spanish

## Preference given to

Seventh-day Adventists

Graduates of Loma Linda University

Applicants from underrepresented populations

Applicants with a history of meaningful, continuous involvement in community service consistent with the mission and values of Loma Linda University

Applicants with documented military service

## Program requirements

### First Year

#### Autumn Quarter

		Units
PAST 504	Primary Care Pediatrics	2
PAST 505	Women's Health Care	2
PAST 518	Anatomy for Physician Assistants I	3
PAST 519	Anatomy for Physician Assistants II	3
PAST 540	Introduction to Clinical Medicine for Physician Assistants	2
PAST 541	Clinical Medicine for Physician Assistants I	5
PAST 542	Clinical Medicine for Physician Assistants II	5
PAST 543	Clinical Medicine for Physician Assistants III	3
PAST 544	Pharmacology for Physician Assistants I	3
PAST 545	Pharmacology for Physician Assistants II	3
PAST 547	Basic Medical Science	3
PAST 551	Pathophysiology for Physician Assistants I	3
PAST 552	Pathophysiology for Physician Assistants II	3

PAST 554	Clinical Skills for Physician Assistants	5
PAST 556	Preventive Medicine and Health Promotion	2
PAST 558	Psychiatry for Physician Assistants	3
PAST 571	Multicultural Competencies for Physician Assistants	3
PAST 572	Cultural Immersion for Physician Assistants	3
PAST 580	Clinical Correlation for Physician Assistants	1
PAST 581	Physical Diagnosis for Physician Assistants I	2
PAST 582	Physical Diagnosis for Physician Assistants II	3
PAST 583	Physical Diagnosis for Physician Assistants III	2
PAST 584	Physical Diagnosis for Physician Assistants IV	2
PAST 601	Evidence-Based Medicine for Physician Assistants I	2
PAST 602	Evidence-Based Medicine for Physician Assistants II	2
RELE 505	Clinical Ethics	3
<b>Second Year</b>		
<b>Autumn Quarter</b>		
PAST 516	Physician Assistant Professional Issues	2
PAST 603	Capstone	2
PAST 701	Rotation I	6
PAST 702	Rotation II	6
PAST 703	Rotation III	6
PAST 704	Rotation IV	6
PAST 705	Rotation V	6
PAST 706	Rotation VI	6
PAST 707	Rotation VII	6
PAST 708	Rotation VIII	6
Total Units:		125

Eight six-week clinical rotations, including: family medicine, internal medicine, pediatrics, obstetrics/gynecology, general surgery, emergency medicine, behavioral medicine, and one elective are required.

### **Normal time to complete the program**

2.33 years (8 academic quarters) – full-time enrollment required

## Department of Radiation Technology

The Department of Radiation Technology is made up of diverse professions. Radiographers image body structures utilizing ionizing radiation; and they can specialize in CT, MRI, imaging informatics, mammography, nuclear medicine, sonography, or radiation therapy. While CT and MRI both produce cross-sectional images of the body, MRI utilizes a magnetic field rather than ionizing radiation. Nuclear medicine employs the nuclear properties of radioactive and stable nuclides to make diagnostic evaluations of the anatomic or physiologic conditions of the body. Sonography uses sound waves to image the human body; and radiation therapy employs medical use of ionizing radiation to treat cancer and control malignant cell growth. Professionals in these areas are able to communicate effectively, think critically, demonstrate professionalism by treating all persons with respect, assume responsibility and accountability for their actions, and adhere to the rules of confidentiality.

### Chair

Laura L. Alipoon

### Associate chairs

Michael F. Iorio

Timothy Seavey

### Primary faculty

Laura L. Alipoon

Elle J. Ashlock

Abdulkader Atattas

Brenda L. Boyd

Mark J. Clements

Kathryn M. Cockrill

James R. Cruise II

Carol A. Davis

Marie T. DeLange

William J. Edmunds

Erma P. Ezpeleta

Joseph E. Hewes

Michael F. Iorio

Brigit C. Mendoza

Teresa R. Mosley

Jerone G. Murphy

Timothy Seavey

Andrew J. Shepard

### Clinical faculty

Irene M. Bielitz

Noriece R. Kisinger

Sara Leeds

Anh M. Ly

Ruth Reyes

Glenn A. Rouse

Shelia A. Wilson

### Adjunct faculty

Javed Ahmad

Mohamed Radwan El Atamna

### Associated faculty

Patricia J. Applegate

Noha S. Daher

Donna A. Goff

Baldev Patyal

Samuel M. Randolph

Grenith Zimmerman

## Programs

- Diagnostic Medical Sonography – Certificate (Track 1) (p. 133), Certificate (Track 2) (p. 133) Comparison (p. 134)
- Imaging Informatics – Certificate (p. 135)
- Medical Dosimetry – Certificate (B.S. in Physics Track) (p. 135), Certificate (A.S. in Radiation Therapy Track) (p. 135) Comparison (p. 137)
- Medical Radiography – A.S. (p. 137)
- Nuclear Medicine Technology – B.S. (p. 140)
- Radiation Sciences – B.S. (p. 144), M.S.R.S. (p. 146)
- Radiation Therapy Technology – B (p. 147).S. (p. 147)
- Radiography Advanced Placement – Certificate (p. 150)
- Radiologist Assistant – M.S.R.S. (p. 150)
- Special Imaging – CT, MRI, CT/MRI Certificate (p. 151) Comparison (p. 154)

## Cardiac and Vascular Imaging (CVI) – Certificate

### Program director

J. Robert Cruise

Cardiac interventional (CI) and vascular interventional (VI) technologists work in a highly specialized field operating sophisticated imaging equipment. This technology provides detailed fluoroscopic images of the human body, assisting physicians with quality patient diagnosis and treatment.

The Cardiac and Vascular Imaging Program is a full-time, twelve-month certificate program that requires four quarters beginning in the autumn. During the program, students take structured course work along with clinical instruction. There are no arrangements for part-time or evening status. Clinical sites are available in a variety of regions in Southern

California. However, the University cannot guarantee that the student will be placed close to his/her residence.

The program's load requires 40 hours per week, which includes didactic and clinical experience. Clinical experience involves up to four eight-hour days per week. Classes require the student to be on campus.

Students will be required to submit current immunization records and undergo a background check during the registration process. Further details regarding these two requirements can be found in the Admission Policies and Information (p. 24) section of this Catalog. Students will be responsible for paying any fees associated with immunizations and background checks.

Loma Linda University and the Department of Radiation Technology cannot guarantee employment.

## Program outcomes

Upon completion of the program, the graduate should be qualified to:

1. Demonstrate clinical competency in cardiac interventional radiography and vascular interventional radiography.
2. Demonstrate competency in advanced clinical life support (ACLS).
3. Demonstrate effective communication in the health sciences.

## The CVI student profile

1. Is enthusiastic and interested in maintaining high standards of academics, clinical performance, and patient care.
2. Possesses a broad knowledge of human anatomy and computer skills.
3. Demonstrates strong academic performance in science and related courses.
4. Is detail oriented and able to work under pressure while demonstrating critical-thinking and problem-solving skills.

## Admissions

In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- Recommendations: meaningful recommendations must be from prior teachers, work supervisors, or health professionals who are knowledgeable about your qualifications
- Current ARRT registry in Radiography (R)
- Current California (CRT) license
- Current BLS card with the American Heart Association
- A minimum G.P.A. of 2.5 maintained in all didactic and clinical course work
- Venipuncture is highly recommended
- 1 year of professional experience in imaging is highly recommended

An applicant who is completing a program in radiologic technology prior to the start of the program may apply as long as s/he has completed ARRT, CRT, and BLS requirements by the program start date.

### Observation experience

A minimum of 8 hours of career observation in cardiac and/or vascular imaging is required. The career observation form is available as a download from the forms page on the Web site.

### Application procedure

1. Applications are accepted starting January of each year.
2. Deadline for applications is April 1<sup>st</sup>
3. Applicants should submit applications early as there are a limited number of slots available for interviews.

### Interviews

Cardiovascular and Interventional Program (CVI) interviews are conducted in June or July. All applicants will be interviewed by the program director and representatives of the School of Allied Health Professions. Applicants residing in southern California should plan for a personal interview on campus at Loma Linda. Applicants will be notified by phone and/or e-mail of their interview schedule. Applicants are rated in the following four areas:

- Work experience or training background
- Recommendations
- Academic record
- Communication skills, knowledge, motivation, etc.

### Selection

After all applicants have been interviewed, the selection committee for the CVI Program meets to make the final selections. Selections are usually decided by the middle of July, and confirmation of each decision is mailed to the respective applicant from the Office of Admissions for the School of Allied Health Professions.

## Program requirements

### First Year

#### Autumn Quarter

		Units
CEPT 245	Cardiovascular Anatomy and Physiology	3
CEPT 248	Cardiovascular Patient Assessment	2
CEPT 251	Cardiac Electrophysiology and Rhythm Recognition I	2
CEPT 275	Cardiovascular Pharmacology	3
RTSI 345	Cardiac/Interventional Procedures	3
RTSI 975	Cardiac/Interventional (CVI) Affiliation	2.5

#### Winter Quarter

AHCJ 402	Pathology I	4
CEPT 252	Cardiac Electrophysiology and Rhythm Recognition II	2
RTSI 344	Interventional Pharmacology	4
RTSI 975 <sup>1</sup>	Cardiac/Interventional (CVI) Affiliation	10

#### Spring Quarter

RTSI 351	Angio/Interventional Procedures I	3
RTSI 356	Vascular Anatomy and Physiology	3
RTSI 975 <sup>1</sup>	Cardiac/Interventional (CVI) Affiliation	10

#### Summer Quarter

REL_ 4_	Religion elective	2
RTSI 358	CVI Review Course	2
RTSI 352	Angio/Interventional Procedures II	3
RTSI 975 <sup>1</sup>	Cardiac/Interventional (CVI) Affiliation	10

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Total Units: 68.5

<sup>1</sup> Repeated registrations required to complete total units. Students are only charged for 2 units per quarter.

RTSI 974 is an additional quarter of clinic available to students who have not met program requirements. This additional time will be at the discretion of the school or at the request of the student.

## Diagnostic Medical Sonography – Certificate (Track 1, Track 2)

### Program director

Marie T. DeLange

### Medical directors

Ramesh C. Bansal

Glenn A. Rouse

### Clinical coordinator

Ronda R. Adey

Linda Le

The diagnostic ultrasound profession is a multispecialty field comprised of diagnostic medical sonographers (DMS) with subspecialties in abdomen, obstetrics/gynecology, breast, and pediatrics; vascular technologists (RVT); and diagnostic cardiac sonographers (DCS) with subspecialties in adult, pediatrics, and fetal echocardiography.

The diagnostic ultrasound professional performs patient assessments and acquires and analyzes data obtained using ultrasound diagnostic technologies. The sonographer provides a summary of findings to the physician to aid in patient diagnosis and management. S/he utilizes independent judgment and systematic problem-solving methods to produce quality diagnostic information. A sonographer must complete comprehensive clinical training and obtain a credential by successfully passing the national boards.

## Program outcomes

Upon completion of the medical sonography program, the graduate should be qualified to:

1. Demonstrate the knowledge and skill required for employment in a hospital or clinic radiology/cardiology department (ultrasound area).
2. Demonstrate leadership and critical thinking.
3. Conduct him-/herself in a professional manner in all interactions.
4. Comply with the current standards and practices set by the governing bodies and professional organizations.
5. Apply advanced practice in ultrasonography.

## Track 1 (General RDMS and RVT)

Track 1 is a twenty-four-month curriculum leading to eligibility to take the RVT (registered vascular technology) and RDMS (registered diagnostic medical sonography) national board examinations. General sonographers perform examinations evaluating organs such as the liver, kidneys, spleen, gallbladder, and thyroid; as well as obstetrics/gynecology, pediatrics, and breast. The vascular sonographer performs a variety of noninvasive examinations to evaluate the arteries and veins, assess blood flow and valve competency, and detect the presence of clots.

## Track 2 (Cardiac RDCS)

Track 2 is a twelve-month curriculum leading to proficiency in diagnostic imaging of cardiac function and disease processes. Graduates are eligible to take the adult RDCS (registered diagnostic cardiac sonography) board examination.

The medical sonography curricula in both general sonography and echocardiography have been accredited since 1983 by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) and reviewed annually by the Joint Review Committee on Education in Diagnostic Medical Sonography.

## Professional credentialing

Upon completion of the certificate requirements, the student is eligible to sit for the national board examination of the American Registry of Diagnostic Medical Sonographers.

## CPR certification (American Heart Association only)

Students are required to have current health-care provider cardiopulmonary resuscitation (CPR) certification (adult, child, and infant) for all scheduled clinical experiences. CPR certification must be completed at the American Heart Association health-care provider level, and must be completed prior to beginning the program. CPR classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102.

## Accreditation

The medical sonography curricula in both general sonography and echocardiography have been accredited since 1983 by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) and reviewed annually by the Joint Review Committee on Education in Diagnostic Medical Sonography.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

*Fulfill one of the following four requirements:*

- Hold an ARRT-registered radiologic technologist certification;

**or**

- Have graduated from an accredited allied health program, including nursing (two years minimum training), licensed vocational nurse, or registered nurse;

**or**

- Hold an associate degree (science preferred not required);

**or**

- Hold a baccalaureate degree (science preferred not required);

**and must have completed credits in the following:\***

- Human anatomy and physiology with laboratory, complete two-semester sequence, **within the past five years**
- College algebra, **within the past five years**
- Medical terminology, **within the past five years**
- Introduction to physics, **within the past five years**
- Patient-care methods (will be completed after being accepted into the program) OR complete a Certified Nursing Assistant course, approved by the Program Director

\* Specific course requirements must be completed at an accredited college or university.

## Program Requirements

- Certificate in Diagnostic Medical Sonography (Track 1) (p. 134)
- Certificate in Diagnostic Cardiac Sonography (Track 2) (p. 134)
- Certificate in Diagnostic Medical Sonography - Comparison (p. 134)

## Certificate in Diagnostic Medical Sonography (Track 1)

### Required

RELE 457	Christian Ethics and Health Care	2
RTMS 344	Introduction to Medical Sonography	5
RTMS 345	Ob-Gyn Sonography	5
RTMS 346	Vascular Technology/Doppler/Scan Techniques	5
RTMS 348	Abdomen/Neurosonography	5
RTMS 379	Ultrasound Physics and Instrumentation I	2
RTMS 381	Topics in Medical Sonography I	1
RTMS 382	Topics in Medical Sonography II	1
RTMS 383	Topics in Medical Sonography III	1
RTMS 384	Topics in Medical Sonography IV	1
RTMS 387	Ultrasound Physics and Instrumentation II	2
RTMS 971	Medical Sonography Clinical Affiliation	11
RTMS 972	Medical Sonography Clinical Affiliation	11
RTMS 973	Medical Sonography Clinical Affiliation	11
RTMS 974	Medical Sonography Clinical Affiliation	11
RTMS 975	Medical Sonography Clinical Affiliation	12
RTMS 976	Medical Sonography Clinical Affiliation	11
RTMS 977	Medical Sonography Clinical Affiliation	11
RTMS 978	Medical Sonography Clinical Affiliation	11
Total Units		119

### Normal time to complete the program

92 weeks (8 academic quarters) – full-time enrollment required

## Certificate in Diagnostic Cardiac Sonography (Track 2)

### Required

RELE 457	Christian Ethics and Health Care	2
RTMS 339	Echocardiography I	4
RTMS 347	Echocardiography II	4
RTMS 379	Ultrasound Physics and Instrumentation I	2
RTMS 384	Topics in Medical Sonography IV	1

RTMS 385	Topics in Medical Sonography V	2
RTMS 387	Ultrasound Physics and Instrumentation II	2
RTMS 965	Cardiac Ultrasound Clinical Affiliation	12
RTMS 966	Cardiac Ultrasound Clinical Affiliation	11
RTMS 967	Cardiac Ultrasound Clinical Affiliation	11
RTMS 968	Cardiac Ultrasound Clinical Affiliation	12
Total Units		63

### Normal time to complete the program

47 weeks (4 academic quarters) – full-time enrollment required

## Diagnostic Medical Sonography – Certificate (Track 1, Track 2) Comparison

Required	Course Title	Track 1	Track 2
RELE 457	Christian Ethics and Health Care	2.0	2.0
RTMS 379	Ultrasound Physics and Instrumentation I	2.0	2.0
RTMS 384	Topics in Medical Sonography IV	1.0	1.0
RTMS 387	Ultrasound Physics and Instrumentation II	2.0	2.0
RTMS 344	Introduction to Medical Sonography	5.0	
RTMS 345	Ob-Gyn Sonography	5.0	
RTMS 346	Vascular Technology/Doppler/Scan Techniques	5.0	
RTMS 348	Abdomen/Neurosonography	5.0	
RTMS 381	Topics in Medical Sonography I	1.0	
RTMS 382	Topics in Medical Sonography II	1.0	
RTMS 383	Topics in Medical Sonography III	1.0	
RTMS 971	Medical Sonography Clinical Affiliation	11.0	
RTMS 972	Medical Sonography Clinical Affiliation	11.0	
RTMS 973	Medical Sonography Clinical Affiliation	11.0	
RTMS 974	Medical Sonography Clinical Affiliation	11.0	
RTMS 975	Medical Sonography Clinical Affiliation	12.0	
RTMS 976	Medical Sonography Clinical Affiliation	11.0	
RTMS 977	Medical Sonography Clinical Affiliation	11.0	
RTMS 978	Medical Sonography Clinical Affiliation	11.0	
RTMS 339	Echocardiography I		4.0
RTMS 347	Echocardiography II		4.0
RTMS 385	Topics in Medical Sonography V		2.0
RTMS 965	Cardiac Ultrasound Clinical Affiliation		12.0
RTMS 966	Cardiac Ultrasound Clinical Affiliation		11.0



RTMS 967	Cardiac Ultrasound Clinical Affiliation	11.0
RTMS 968	Cardiac Ultrasound Clinical Affiliation	12.0
Totals		63.0

## Imaging Informatics – Certificate

### Program director

Timothy Seavey

This program provides the foundation necessary for its graduates to function as picture archival communication systems (PACS) administrators. Advances in technology drive radiology departments to continuously adopt new means for increasing productivity, quality, and efficiency. This often translates into a complex system of servers, networks, and imaging equipment. Management of these systems involves a special skill set crossing between information technology and radiography. These specialized people are usually termed PACS administrators.

### Distance education

The Imaging Informatics Program is an online program open to qualified applicants residing in states authorizing/recognizing students from Loma Linda University.

### Program outcomes

Upon completion of the program, the graduate should be qualified to:

Outcome 1	Management: Demonstrate leadership and critical thinking in the management of imaging informatics.
Outcome 2	Professionalism: Behave in a professional manner in all interactions in imaging informatics.
Outcome 3	Standards and Practices: Comply with the current standards and practices set by governing bodies within the imaging and medical field.
Outcome 4	Knowledge: Improve knowledge and skills in imaging informatics.

### Program design

The program will consist of eight 3-unit core courses and one religion course, totaling 26 quarter units. The student will be assessed using quizzes, papers, group discussion, laboratory assignments, and projects. Completion of the informatics certificate counts for two points of the seven required to qualify for the American Board of Imaging Informatics Examination (see <<http://www.ABII.org>>).

Students can utilize the courses in the Imaging Informatics Program as an emphasis within the Bachelor of Science degree in radiation sciences at LLU (see the program director for details).

Loma Linda University does not guarantee employment for graduates from this program.

### Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- Copy of current state and/or national license/certification
- One-page essay describing applicant's personal and professional skills and accomplishments, interests, career goals, and how the Imaging Informatics program will help achieve career goals
- Telephone interview (to be scheduled after application has been submitted)
- Proof of having completed a medical radiography associate-level certificate from an accredited institution, or evidence of compliance with the American Registry of Radiologic Technology (ARRT) regulations for limited technicians using computed radiography (CR) and direct capture radiography (DR)
- Minimum two years experience with digital imaging in applicant's work place, or, a recommended CR/DR course (available online at Loma Linda University). Special considerations can be made by the program director on a case-by-case basis. For clarification and to insure proper advisement, please contact the program director, Timothy Seavey, via e-mail <[tseavey@llu.edu](mailto:tseavey@llu.edu)> prior to starting the application process.
- It is preferred that applicants meet at least one of the following:
  - Certification by the American Registry of Radiologic Technology (ARRT), Diagnostic Radiography
  - or
  - Good standing with the American Registry of Radiologic Technology (ARRT) Limited Tech CR/DR

The applicant's recommendations, telephone interview, and work experience are also considered in the admissions screening process.

### Program requirements

Autumn Quarter		Units
RTII 354	Introduction to Informatics	3
RTII 368	Communication and Education in Imaging Informatics	3
Winter Quarter		
RTII 364	Administrative Issues in Informatics	3
RTII 378	Systems Management in Informatics	3
Spring Quarter		
RTII 374	Image Management in Informatics	3
RTII 356	Information Technology in Radiology	3
Summer Quarter		
RTII 358	PACS Planning and Implementation	3
RTII 384	Advanced Imaging Informatics	3
RELE 457	Christian Ethics and Health Care	2
Total Units:		26

Religion course is selected based upon academic plan with the student.

### Normal time to complete the program

44 weeks (4 academic quarters) – based on half-time enrollment

## Medical Dosimetry – Certificate (B.S. in Physics Track, Radiation Therapist Track)

Program director

Carol A. Davis

The Medical Dosimetry Program is designed to educate personnel in the discipline of dosimetry within a radiation oncology environment, and to prepare them to take the Medical Dosimetry Certification Board (MDCB) examination.

Medical dosimetry is a dynamic, exciting field involving a combined knowledge of mathematics, physics, and the biological and medical sciences. Dosimetrists plan optimal isodose distributions and treatment dose calculations for a variety of external beam as well as brachytherapy treatments. Medical dosimetrists must possess excellent analytical skills, the ability to critically evaluate data, and an aptitude for physics and mathematics. They must also be able to work closely as a team with physicists, physicians, radiation therapists, and other personnel.

Due to a lack of training programs in medical dosimetry throughout the United States, there is a shortage of medical dosimetrists in many areas of the country. This program aims to provide a supply of well-trained dosimetrists who will be able to meet the needs of radiation oncology facilities in the local area and beyond.

## Mission statement

The mission of the certificate program in medical dosimetry is to prepare professionals in the field through broad education and training in all aspects of the profession. This will include critical thinking, clinical competence, effective communication, and professionalism as they apply to the field of medical dosimetry. The program encourages intellectual, physical, social, and spiritual development by emphasizing these goals in its curriculum, which is reflected in the motto of Loma Linda University Health—"To Make Man Whole".

## Program learning outcomes (PLOs)

1. Students will demonstrate critical thinking by performing hand calculations, utilizing software tools to optimize isodose distributions to achieve treatment goals through maximizing target coverage, minimizing hot/cold spots, and sparing critical structures as per prescription.
2. Students will be clinically competent at creating deliverable treatment plans with considerations of machine and patient constraints, calculating monitor units for clinical set-ups, and minimizing systematic and random errors by checking plan parameters. Students will thoughtfully follow hospital policies and procedures while performing all dosimetry activities.
3. Students will be able to communicate effectively, both verbally and in writing.
4. Students will demonstrate professionalism by treating everyone with respect and courtesy, abiding by all HIPPA rules. They will demonstrate responsible attitude and be accountable for their actions.
5. The program will achieve the following outcomes: Students will complete the program, pass the MDCB examination, have a job within a 6 month post completions of passing their MDCB exam, and maintain an attrition rate of than 25%.

## Program design

- The program for both tracks is five quarters in length.
- Instruction includes a mixture of lecture, laboratory, and clinical work. Students will be exposed to a variety of methodologies within dosimetry, including work with proton therapy treatment planning.

- The majority of instruction will be conducted in the Radiation Medicine Department of Loma Linda University Medical Center. There are also short clinical rotations to Long Beach Memorial and City of Hope medical centers.
- The program faculty consists of physicists, dosimetrists, and radiation therapists who are extremely experienced in their field—many in both photon and proton therapy treatment planning.

## Accreditation

The American Association of Medical Dosimetrists (AAMD) strongly supports the concept of formal dosimetry training, which leads to board eligibility for the certification in medical dosimetry. This qualification is considered to be the gold standard in dosimetry education.

The program is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT).

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

### Track 1—A.S. in radiation therapy technologist track

- ARRT registration in radiation therapy technology, with a minimum of two years postgraduate clinical experience
- Must hold bachelor's degree (any major) in addition to radiation therapy certification
- College algebra
- Trigonometry

### Track 2—B.S. physics track

- a baccalaureate degree in physics, mathematics, or equivalent from an accredited university
- Anatomy and physiology (no laboratory required)
- Medical terminology
- Eight hours in a radiation oncology department observing the work of the medical dosimetrist

## Program requirements

- Certificate in Medical Dosimetry — A.S. in Radiation Therapy Track (p. 136), B.S. in Physics/Mathematics Track (p. 137), Comparison (p. 137)

## Certificate in Medical Dosimetry (Radiation Therapist Track)

### First Year

		Units
RTMD 301	Treatment Planning I	2
RTMD 307	Principles of Brachytherapy	2
RTMD 309	Radiation Therapy Core—Concept Review	1
RTMD 310	Applied Math for Medical Dosimetry	1
RTMD 355 <sup>1</sup>	Physical Principles of Radiation Therapy I	3
RTMD 356 <sup>1</sup>	Physical Principles of Radiation Therapy II	3
RTMD 971	Practicum	10

RTMD 973	Practicum	10
RTMD 972	Practicum	9
RTSI 367	Cross-sectional Radiographic Anatomy	2
RTSI 369	CT Physics	2
<b>Second Year</b>		
RELE 457	Christian Ethics and Health Care	2
RTMD 302	Treatment Planning II	2
RTMD 305	Special Topics	2
RTMD 314	Quality Assurance, with Laboratory	2
RTMD 974	Practicum	11
RTMD 975	Practicum	11
<b>Total Units:</b>		<b>75</b>

<sup>1</sup> RTTH 355 Physical Principles of Radiation Therapy I and RTTH 356 Physical Principles of Radiation Therapy II will not substitute for these courses, respectively.

### Normal time to complete the program

56 weeks (5 academic quarters) – based on full-time enrollment

## Certificate in Medical Dosimetry (B.S. in Physics/Mathematics Track)

### First Year

		<b>Units</b>
RTMD 301	Treatment Planning I	2
RTMD 307	Principles of Brachytherapy	2
RTMD 355 <sup>1</sup>	Physical Principles of Radiation Therapy I	3
RTMD 356 <sup>1</sup>	Physical Principles of Radiation Therapy II	3
RTMD 961	Practicum	8
RTMD 962	Practicum	10
RTMD 963	Practicum	9
RTMR 285	Principles of Radiography I	3
RTSI 367	Cross-sectional Radiographic Anatomy	2
RTSI 369	CT Physics	2
RTTH 332	Radiation Biology	2
RTTH 344	Radiation Therapy Procedures	2
RTTH 364	Radiation Oncology I	2
RTTH 365	Radiation Oncology II	2
RTTH 366	Radiation Oncology III	2

### Second Year

RELE 457	Christian Ethics and Health Care	2
RTMD 302	Treatment Planning II	2
RTMD 305	Special Topics	2
RTMD 314	Quality Assurance, with Laboratory	2
RTMD 964	Practicum	11
RTMD 965	Practicum	11
<b>Total Units:</b>		<b>84</b>

<sup>1</sup> RTTH 355 Physical Principles of Radiation Therapy I and RTTH 356 Physical Principles of Radiation Therapy II will not substitute for these courses, respectively.

### Normal time to complete the program

56 weeks (5 academic quarters) – based on full-time enrollment

## Medical Dosimetry – Certificate (B.S. in Physics Track, Radiation Therapist Track) Comparison

	<b>Course Title</b>	<b>BS in Physics Track</b>	<b>Radiation Therapist Track</b>
<b>First Year</b>			
RTMD 301	Treatment Planning I	2.0	2.0
RTMD 307	Principles of Brachytherapy	2.0	2.0
RTMD 355	Physical Principles of Radiation Therapy I	3.0	3.0
RTMD 356	Physical Principles of Radiation Therapy II	3.0	3.0
RTSI 369	CT Physics	2.0	2.0
RTSI 367	Cross-sectional Radiographic Anatomy	2.0	2.0
RTMD 961	Practicum	8.0	
RTMD 962	Practicum	10.0	
RTMD 963	Practicum	9.0	
RTMR 285	Principles of Radiography I	3.0	
RTTH 332	Radiation Biology	2.0	
RTTH 344	Radiation Therapy Procedures	2.0	
RTTH 364	Radiation Oncology I	2.0	
RTTH 365	Radiation Oncology II	2.0	
RTTH 366	Radiation Oncology III	2.0	
RTMD 309	Radiation Therapy Core—Concept Review		1.0
RTMD 310	Applied Math for Medical Dosimetry		1.0
RTMD 971	Practicum		10.0
RTMD 972	Practicum		9.0
RTMD 973	Practicum		10.0
<b>Totals</b>		<b>54.0</b>	<b>45.0</b>
	<b>Course Title</b>	<b>BS in Physics Track</b>	<b>Radiation Therapist Track</b>
<b>Second Year</b>			
RELE 457	Christian Ethics and Health Care	2.0	2.0
RTMD 302	Treatment Planning II	2.0	2.0
RTMD 305	Special Topics	2.0	2.0
RTMD 314	Quality Assurance, with Laboratory	2.0	2.0
RTMD 964	Practicum	11.0	
RTMD 965	Practicum	11.0	
RTMD 974	Practicum		11.0
RTMD 975	Practicum		11.0
<b>Totals</b>		<b>30.0</b>	<b>30.0</b>
<b>Overall Totals</b>		<b>84.0</b>	<b>75.0</b>

## Medical Radiography – A.S.

Program director

Brenda L. Boyd

#### Medical advisor

Samuel M. Randolph

The medical radiographer, or radiologic technologist, is responsible for the accurate imaging of body structures on a radiograph or other image receptors. The technologist provides for patient protection and comfort, determines proper exposure factors, manipulates medical imaging equipment, evaluates the radiograph image for quality, and utilizes film or digital technologies to archive and transmit the patient's examination images for physician evaluation.

The technologist may also assist the radiologist physician in specialized radiographic procedures. This may require the use of sterile procedures and universal precautions in the administration of radiographic contrast agents to the patient for the enhanced viewing of body systems and their functions.

## The program

The Medical Radiography Program begins with the Autumn Quarter and is based on the completion of one year of prerequisite course work at any regionally-accredited college or university. The first quarter at Loma Linda University primarily emphasizes the theoretical aspects of radiography, with one day per week in clinical orientation. The remaining six quarters combine clinical training on a two-to-five-days-per-week basis, with more advanced classroom topics. The schedule may involve limited evening assignments. Clinical and classroom involvement in the program is full time (forty hours/week). Students are off on all national holidays and quarter breaks.

### Program mission statement

The Medical Radiography Program at Loma Linda University provides a quality educational experience focused on the whole person. The program prepares students to be registry-eligible, entry-level radiographers—equipped with the knowledge, skills, values, attitudes, and behaviors appropriate for providing excellent patient care and safely managing radiation exposure.

### Program objectives

Upon completion of the program, the graduate should be qualified to:

1. Complete all certification requirements of the American Registry of Radiologic Technologists and licensure requirements for the state of California.
2. Anticipate and render appropriate patient care, comfort, and education for a variety of radiologic examinations.
3. Use principles of basic x-ray production to provide radiation protection that minimizes radiation exposure to the patient, to one's self, and to other members of the health-care team.
4. Understand the scope and limits of equipment operation used in radiography, and recognize and report equipment malfunctions.
5. Exhibit clinical competence by properly using radiographic equipment, techniques, and procedures; and applying knowledge of human anatomy, function, and pathology to a variety of patient situations.
6. Demonstrate excellence in the application of knowledge and skills in order to maintain a high level of quality patient care.
7. Apply problem-solving and critical-thinking skills when working with patients, performing examinations, and evaluating radiographs for diagnostic quality.

8. Incorporate the values, ethics, and practices of the radiography profession in order to provide service to humanity; and respect the dignity and diversity of all people.
9. Employ appropriate verbal, written, and interpersonal communication skills when relating to patients, co-workers, and other members of the health-care team.
10. Demonstrate the highest professional behavior in all interactions.
11. Demonstrate collaboration and teamwork in the health-care setting in order to meet the goals of the organization.
12. Defend the profession's code of ethics and work within the profession's scope of practice.
13. Construct a professional development plan for ongoing improvement in the knowledge and skills of the profession.
14. Understand the value of participating in educational and professional activities, sharing knowledge with colleagues, and investigating new and innovative aspects of professional practice.
15. Understand and apply Loma Linda University's philosophy of wholeness in one's personal and professional life.
16. Prepare students for leadership and for providing a positive patient experience.

## Student learning outcomes

1. Students will demonstrate clinical competence by performing radiographic examinations of diagnostic quality and applying patient care and practices for radiographic procedures.
2. Students will communicate effectively by clearly explaining radiographic procedures to patients, effectively communicating and working with the health-care team, and demonstrating appropriate communication for diverse populations.
3. Students will develop critical-thinking and problem-solving skills by appropriately adjusting procedures and critiquing images to determine diagnostic acceptability.
4. Students will demonstrate the values and attitudes of an entry-level radiographer by constructing a plan for professional development, modeling professional behavior, and examining the core values and reflecting on their personal application.

## Affiliations

For the clinical portion of the program, students are assigned to one of the affiliated medical centers: Loma Linda University Medical Center-Loma Linda, Loma Linda University Medical Center-East Campus, Loma Linda University Medical Center-Faculty Medical Offices, Loma Linda University-Murrieta, Hemet Valley Medical Center, Eisenhower Medical Center, Desert Hospital, Redlands Community Hospital, Parkview Community Hospital, Pioneers Memorial Hospital, El Centro Regional Medical Center, St. Bernardine Medical Center, Community Hospital of San Bernardino, Riverside Community Hospital, Highland Springs, San Geronimo, White Memorial Medical Center, or St. Mary Regional Medical Center.

## CPR certification

Students are required to have current health-care provider cardiopulmonary resuscitation (CPR) certification (adult, child, and infant) for all scheduled clinical experience. CPR certification must be completed at the American Heart Association health-care provider level. This may be completed prior to beginning the program of study or may be obtained at Loma Linda University. Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102.

## Professional registration and certification

Upon completion of the requirements for the Associate in Science degree, the graduate is eligible to write the qualifying examination of The American Registry of Radiologic Technologists (ARRT). Program graduates who pass the ARRT examination in radiography are eligible to pay for and receive the state license (CRT) in California without further testing within five years of passing the ARRT examination. Graduates are encouraged to become members of the California Society of Radiologic Technologists (CSRT) and the American Society of Radiologic Technologists (ASRT) for professional growth and continuing education in their professional discipline.

## Quarterly fee

In addition to the cost of the ASMR program, additional fees include a quarterly University fee and a program fee of \$40.00.

## Accreditation

The program is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT), 20 North Wacker Drive, Suite 2850, Chicago, IL 60606-3182; telephone: 312/704-5300. The program is also approved by the Radiologic Health Branch (RHB) of the state of California, Department of Public Health MS 7610, P.O. Box 997414, Sacramento, CA 95899-7414; telephone: 916/327-5106.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- high school completion from an accredited institution or passed the GED
- completed a minimum of 42 quarter units (or 28 semester units) at an accredited college or university.
- observation experience—A minimum of eight hours of observation in a radiology department is required. Contact the department to obtain the appropriate form.
- service/volunteer experience—A minimum of 20 hours of volunteer service in any area except the field of radiology is required. Contact the department to obtain more information.
- applicants are required to submit references, an essay transcripts from all schools attended, proof of volunteer hours, proof of career observation hours, and a video interview. Contact the department for more information.
- continuation in the program includes maintaining a program GPA of 2.5, a quarterly GPA of 2.5, and passing every class each quarter. Failure to pass a class or earning a 2.49 GPA and below in any quarter will result in failure to progress and termination in the program.

## Prerequisites

- Human anatomy and physiology, complete sequence with laboratory
- Two years high school mathematics at algebra level or above, with grades of C or above; or intermediate algebra in college (college algebra is preferred)
- Medical terminology

- One year high school chemistry or physics; or introductory chemistry, introductory physics in college (one quarter/semester) (physics is preferred)
- General psychology or general sociology
- English composition, complete sequence
- Interpersonal communication, oral communication, or public speaking
- Computer course one year high school or one quarter/semester college (or by faculty approval if substantial documentation is shown to prove computer literacy)
- Religion is a requirement only if a student attended a Seventh-day Adventist college or university (1 unit of religion for every 12 units earned at an SDA college)
- Electives to meet the minimum total requirements of 42 units (such as; cultural anthropology, nutrition, critical thinking, Spanish, or computers)

## Program Requirements

### Sophomore

#### Autumn Quarter

AHCJ 326	Fundamentals of Health Care	2
AHCJ 328	Wholeness Portfolio I	0
REL_4__	Upper-division Religion	2
RTMR 202	Clinical Orientaton	3
RTMR 224	Legal Issues in Medical Radiography	1
RTMR 246	Professional Communication	2
RTMR 253	Medical Radiography Procedures I	2
RTMR 253L	Medical Radiography Procedures Laboratory I	1
RTMR 285	Principles of Radiography I	3

#### Winter Quarter

AHCJ 328	Wholeness Portfolio I	0
RTMR 221	Radiologic Patient Care	2
RTMR 254	Medical Radiography Procedures II	2
RTMR 254L	Medical Radiography Procedures Laboratory II	1
RTMR 284	Radiation Protection and Biology	2
RTMR 286	Principles of Radiography II	3
RTMR 371	Medical Radiography Affiliation I	5

#### Spring Quarter

AHCJ 328	Wholeness Portfolio I	1
RTMR 247	Languages for Radiographers	1
RTMR 255	Medical Radiography Procedures III	2
RTMR 255L	Medical Radiography Procedures Laboratory III	1
RTMR 283	Radiologic Physics	3
RTMR 372	Medical Radiography Affiliation II	7

#### Clinical Year

##### Summer Quarter

RTMR 373	Medical Radiography Affiliation III	12
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##### Autumn Quarter

REL_4__	Upper-division Religion	2
RTMR 305	Introduction to Computed Tomography I	2
RTMR 324	Radiographic Image Evaluation and Pathology	3
RTMR 374	Medical Radiography Affiliation IV	10

##### Winter Quarter

RTMR 306	Introduction to Computed Tomography II	2
RTMR 363	Comprehensive Review I	2
RTMR 375	Medical Radiography Affiliation V	10
<b>Spring Quarter</b>		
RTMR 344	Professional Development and Service Learning	3
RTMR 365	Comprehensive Review II	2
RTMR 386	Medical Radiography Affiliation VI	10
Total Units:		104

Certain aspects of the curriculum require individual scheduling. Time arrangements may be subject to change. Entrance to the clinical year is contingent upon completion of all prior requirements.

A minimum G.P.A. of 2.5 is required for all courses in the program.

### Normal time to complete the program

2 years (7 academic quarters) – full-time enrollment required

## Nuclear Medicine Technology – B.S.

### Program director

Raynold Ho

### The Program

Nuclear medicine uses radioactivity to diagnose and treat disease. This medical specialty provides information about both the structure and the function of virtually every major organ system within the body. Nuclear medicine procedures are safe, involve little or no patient discomfort, and do not require the use of anesthesia.

The nuclear medicine technologist is responsible for preparing and administering radiopharmaceuticals; performing patient-imaging procedures; accomplishing computer processing and image enhancement; analyzing biologic specimens; and providing images, data analysis, and patient information for diagnostic interpretation by the physician health-care team member.

The Bachelor of Science degree with a major in nuclear medicine is a face-to-face program and is 24-27 months long. In addition to adding the B.S. degree in radiation sciences core courses, this program will now have the CT didactic courses included in the curriculum. With the addition of the B.S. degree core, there will now be 27 units taught online (less than 25% percent of the program). These courses are taught by faculty experienced in online teaching. Students will interact with the faculty, their classmates, and the content material.

The content for the nuclear medicine courses is guided by the Society of Nuclear Medicine and Molecular Imaging (SNMMI), the Nuclear Medicine Technology Certification Board (NMTCB), and the American Registry of Radiation Technologists (ARRT) content specifications. The content for the CT courses is guided by the American Society of Radiation Technologists (ASRT), as well as the American Registry of Radiation Technologists (ARRT) content specifications. Efforts are also made to assist students in experiencing the core values of Loma Linda University. The state of California requires approximately 1,000 clinical hours in nuclear medicine; and this program provides more than 1,550 clinical hours in nuclear medicine and more than 250 clinical hours in CT procedures and patient care.

### Objectives

During the Bachelor of Science degree in nuclear medicine technology program, students take formal course work along with instruction in the clinical aspects of nuclear medicine. This includes participation, under close supervision, in the actual procedures within the nuclear medicine department.

Students are required to follow the guidelines given by the NMTCB and the ARRT and meet required competencies each quarter. Students should accomplish the required competencies in the following areas: skeletal, CNS, cardiovascular, endocrine/exocrine, gastrointestinal, genitourinary, respiratory, radiopharmacy, venipuncture, vital signs, and EKG placement and monitoring. Students will receive more than 1,550 hours of nuclear medicine and 250 hours of CT clinical experience.

### Program outcomes

Upon completion of the program, the graduate should be qualified to:

1. Skill: Demonstrate the knowledge, skills, and responsibilities necessary for the practice of nuclear medicine.
2. Compassion and Diversity: Practice safe, compassionate patient care, including appreciation and respect for cultural diversity.
3. Critical Thinking: Demonstrate critical thinking, problem solving, and decision making skills in nuclear medicine.
4. Knowledge: Maintain skills and knowledge by interacting with fellow professionals, attending educational conferences, and staying current with changing technology. Demonstrates knowledge of departmental organization and function.
5. Quantitative Reasoning: Apply quantitative reasoning to the practice of nuclear medicine.
6. Clinical: Obtain required clinical competencies including: patient care, procedures, showing how to competently utilize a variety of NM and CT equipment.

### Professional registration and certification

Upon completion of the certificate requirements, the student is eligible to write the qualifying examination in nuclear medicine of the American Registry of Radiologic Technologists (ARRT); and the certifying examination of the Nuclear Medicine Technology Certification Board (NMTCB) and of the state of California (CTNM).

### Accreditation

The program is approved by the California Department of Public Health, Radiologic Health Branch, P.O. Box 942732, Sacramento, CA 94234-7320. Loma Linda University is regionally accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; Web site: <<http://www.wascsenior.org>> or <<http://www.wascsenior.org/contact>>.

### Admissions

To be eligible for admission to the BSNM program, the applicant must fulfill the following requirements: Complete the prerequisite requirements, or be a graduate of an accredited radiologic technology program who has completed the prerequisite requirements in conjunction with that program.

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions

requirements (p. 46), the applicant must also complete the following requirements:

- An Associate in Science degree or equivalent (minimum of 96 quarter units that are applicable to the B.S. degree program)
- G.P.A. of 3.0 or better
- A minimum of 24 hours of career observation (volunteer/employee) in a Nuclear Medicine Department is required prior to the interview. The observation form is located online <www.llu.edu> under School of Allied Health Professions, under "forms". Print it out and take it with you to the facility you will be observing.
- Interview

## Certifications

Applicants must have all of the following certifications completed prior to the beginning of the school year.

- Current CPR card from the American Heart Association (adult and child). Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102.
  - It is highly suggested that the student obtain the CPR certification prior to the start of the start of the Nuclear Medicine Program.

## Prerequisite courses

Applicants must complete the following subjects at an accredited college or university prior to entering the program. Please note: C- grades are not transferable for credit.

**Humanities**—20 quarter (14 semester) units minimum (choose minimum of three areas from: history, literature, philosophy, foreign language, art/music appreciation or art/music history)

Included in this minimum, 4 units of religion per year of attendance at a Seventh-day Adventist college or university

**Natural sciences**—Chemistry (Introductory or general) with laboratory, one year (12 units)

Introductory or general physics with laboratory (4 units)

Human anatomy and physiology with laboratory, complete sequence (4 units)

College algebra (4 units)

**Social Sciences**—General psychology (4 units)

Cultural anthropology or an approved course dealing with cultural diversity

Introduction to Sociology (4 units)

Lifespan development (4 units)

**Communication**—English composition, complete sequence (required) (12 units)

Oral communication (4 units)

**Health and Wellness**—Physical education (two activities) (2 units)

Health or nutrition (3-4 units)

**Other**—Medical terminology (2 units)

**Electives**—Meet minimum total of 96 quarter units

The diversity requirement is fulfilled in the portfolio core courses: AHCJ 493 Senior Portfolio I and AHCJ 494 Senior Portfolio II (approved by the University GE Committee).

For total unit requirements for graduation, see LLU General Education Requirements (p. 28).

## Program requirements

### ARRT certified students

#### First Year

##### Autumn Quarter

AHCJ 493	Senior Portfolio I	3
RELE 457	Christian Ethics and Health Care	2
RTCH 318	Imaging Modalities	2
RTCH 464	Moral Leadership	4
RTNM 351	Principles of Nuclear Medicine I	4
RTNM 351L	Principles of Nuclear Medicine I Laboratory	1

##### Winter Quarter

RTCH 387	Writing for Health-Care Professionals	3
RTNM 352	Principles of Nuclear Medicine II	4
RTNM 352L	Principles of Nuclear Medicine II Laboratory	1
RTNM 353	Nuclear Medicine Procedures I	2
RTNM 353L	Nuclear Medicine Procedures Laboratory	1
RTNM 364	Nuclear Medicine Statistics	3
RTNM 430	Clinical Affiliation Introduction	1

##### Spring Quarter

RTNM 354	Nuclear Medicine Procedures II	2
RTNM 354L	Nuclear Medicine Procedures II Laboratory	1
RTNM 357	Instrumentation I	4
RTNM 357L	Instrumentation I Laboratory	1
RTNM 361	Radiopharmacy I	3
RTNM 431	Clinical Affiliation I	2

#### Second Year

##### Summer Quarter

AHCJ 318	Emotional Intelligence and Leadership Skills for Health-Care Professionals	3
RTCH 305	CT Fundamentals	2
RTNM 358	Instrumentation II	4
RTNM 358L	Instrumentation II Laboratory	1
RTNM 362	Radiopharmacy II	3
RTNM 432	Clinical Affiliation II	3

##### Autumn Quarter

REL_ 4_	Upper-division religion	2
RTCH 385	Radiologic Trends in Health Care	2
RTNM 363	Nuclear Cardiology	3
RTNM 433	Clinical Affiliation III	3
RTSI 367	Cross-sectional Radiographic Anatomy	2
RTSI 369	CT Physics	2

##### Winter Quarter

REL_ 4_	Upper-division religion	2
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RTCH 467	Management of a Radiologic Service	3	AHCJ 318	Emotional Intelligence and Leadership Skills for Health-Care Professionals	3
RTNM 355	PET/CT	2	RTCH 305	CT Fundamentals	2
RTNM 366	Medical Informatics	1	RTNM 358	Instrumentation II	4
RTNM 434	Clinical Affiliation IV	3	RTNM 358L	Instrumentation II Laboratory	1
RTSI 364	CT Patient Care and Procedures	2	RTNM 362	Radiopharmacy II	3
<b>Spring Quarter</b>			RTNM 432	Clinical Affiliation II	3
REL_ 4__	Upper-division religion	2	<b>Autumn Quarter</b>		
RTCH 325	Applications for Managers	2	REL_ 4__	Upper-division Religion	2
RTCH 415	Radiation Emergency Procedures	3	RTCH 385	Radiologic Trends in Health Care	2
RTNM 421	Comprehensive Review of Nuclear Medicine I	3	RTNM 363	Nuclear Cardiology	3
RTNM 435	Clinical Affiliation V	4	RTNM 433	Clinical Affiliation III	3
<b>Third Year</b>			RTSI 367	Cross-sectional Radiographic Anatomy	2
<b>Summer Quarter</b>			RTSI 369	CT Physics	2
AHCJ 494	Senior Portfolio II	3	<b>Winter Quarter</b>		
HCAD 414	Sustainability for Health-Care Management	3	REL_ 4__	Upper-division Religion	2
RTNM 422	Comprehensive Review of Nuclear Medicine II	3	RTCH 467	Management of a Radiologic Service	3
RTNM 436	Clinical Affiliation VI	4	RTNM 355	PET/CT	2
Total Units:		114	RTNM 366	Medical Informatics	1

## Non-ARRT certified students

### First Year

#### Summer Quarter

AHCJ 326	Fundamentals of Health Care	2
RTCH 283	Basic Imaging	2
RTCH 283L	Radiation Clinical Basics Laboratory	1
RTCH 285	The Principles and Physics of Radiation	4
RTMR 224	Legal Issues in Medical Radiography	1
RTMR 284	Radiation Protection and Biology	2

#### Autumn Quarter

AHCJ 493	Senior Portfolio I	3
RELE 457	Christian Ethics and Health Care	2
RTCH 318	Imaging Modalities	2
RTCH 464	Moral Leadership	4
RTNM 351	Principles of Nuclear Medicine I	4
RTNM 351L	Principles of Nuclear Medicine I Laboratory	1

#### Winter Quarter

RTCH 387	Writing for Health-Care Professionals	3
RTNM 352	Principles of Nuclear Medicine II	4
RTNM 352L	Principles of Nuclear Medicine II Laboratory	1
RTNM 353	Nuclear Medicine Procedures I	2
RTNM 353L	Nuclear Medicine Procedures Laboratory	1
RTNM 364	Nuclear Medicine Statistics	3
RTNM 430	Clinical Affiliation Introduction	1

#### Spring Quarter

RTNM 354	Nuclear Medicine Procedures II	2
RTNM 354L	Nuclear Medicine Procedures II Laboratory	1
RTNM 357	Instrumentation I	4
RTNM 357L	Instrumentation I Laboratory	1
RTNM 431	Clinical Affiliation I	2
RTNM 361	Radiopharmacy I	3

### Second Year

#### Summer Quarter

#### Units

3	AHCJ 318	Emotional Intelligence and Leadership Skills for Health-Care Professionals	3
2	RTCH 305	CT Fundamentals	2
1	RTNM 358	Instrumentation II	4
3	RTNM 358L	Instrumentation II Laboratory	1
2	RTNM 362	Radiopharmacy II	3
2	RTNM 432	Clinical Affiliation II	3
<b>Autumn Quarter</b>			
2	REL_ 4__	Upper-division Religion	2
3	RTCH 385	Radiologic Trends in Health Care	2
4	RTNM 363	Nuclear Cardiology	3
4	RTNM 433	Clinical Affiliation III	3
3	RTSI 367	Cross-sectional Radiographic Anatomy	2
3	RTSI 369	CT Physics	2
<b>Winter Quarter</b>			
3	REL_ 4__	Upper-division Religion	2
3	RTCH 467	Management of a Radiologic Service	3
2	RTNM 355	PET/CT	2
1	RTNM 366	Medical Informatics	1
3	RTNM 434	Clinical Affiliation IV	3
2	RTSI 364	CT Patient Care and Procedures	2
<b>Spring Quarter</b>			
2	REL_ 4__	Upper-division Religion	2
2	RTCH 325	Applications for Managers	2
3	RTCH 415	Radiation Emergency Procedures	3
3	RTNM 421	Comprehensive Review of Nuclear Medicine I	3
4	RTNM 435	Clinical Affiliation V	4
<b>Third Year</b>			
<b>Summer Quarter</b>			
3	AHCJ 494	Senior Portfolio II	3
3	HCAD 414	Sustainability for Health-Care Management	3
3	RTNM 422	Comprehensive Review of Nuclear Medicine II	3
4	RTNM 436	Clinical Affiliation VI	4
Total Units:			126

A minimum grade of C (2.0) is required for all courses in this program.

## Normal time to complete the program

A student who is a radiologic technologist (ARRT) should complete the program in 8 quarters (24 months). A student who is not a radiologic technologist (Non-ARRT) starts one quarter earlier and will complete in 9 quarters (27 months).

## Comparison

See the comparison (p. 143) of the ARRT certified students and Non-ARRT certified students tracks of this program.



## Nuclear Medicine Technology B.S. – ARRT and Non-ARRT Certified Students Comparison

	Course Title	ARRT Certified	Non-ARRT Certified
<b>First Year: Summer Quarter</b>			
AHCJ 326	Fundamentals of Health Care		2.0
RTCH 283	Basic Imaging		2.0
RTCH 283L	Radiation Clinical Basics Laboratory		1.0
RTCH 285	The Principles and Physics of Radiation		4.0
RTMR 224	Legal Issues in Medical Radiography		1.0
RTMR 284	Radiation Protection and Biology		2.0
Totals			12.0
	Course Title	ARRT Certified	Non-ARRT Certified
<b>First Year: Autumn Quarter</b>			
AHCJ 493	Senior Portfolio I	3.0	3.0
RELE 457	Christian Ethics and Health Care	2.0	2.0
RTCH 318	Imaging Modalities	2.0	2.0
RTCH 464	Moral Leadership	4.0	4.0
RTNM 351	Principles of Nuclear Medicine I	4.0	4.0
RTNM 351L	Principles of Nuclear Medicine I Laboratory	1.0	1.0
Totals		16.0	16.0
	Course Title	ARRT Certified	Non-ARRT Certified
<b>First Year: Winter Quarter</b>			
RTCH 387	Writing for Health-Care Professionals	3.0	3.0
RTNM 352	Principles of Nuclear Medicine II	4.0	4.0
RTNM 352L	Principles of Nuclear Medicine II Laboratory	1.0	1.0
RTNM 353	Nuclear Medicine Procedures I	2.0	2.0
RTNM 353L	Nuclear Medicine Procedures Laboratory	1.0	1.0
RTNM 364	Nuclear Medicine Statistics	3.0	3.0
RTNM 430	Clinical Affiliation Introduction	1.0	1.0
Totals		15.0	15.0
	Course Title	ARRT Certified	Non-ARRT Certified
<b>First Year: Spring Quarter</b>			
RTNM 354	Nuclear Medicine Procedures II	2.0	2.0
RTNM 354L	Nuclear Medicine Procedures II Laboratory	1.0	1.0
RTNM 357	Instrumentation I	4.0	4.0
RTNM 357L	Instrumentation I Laboratory	1.0	1.0
RTNM 431	Clinical Affiliation I	2.0	2.0
RTNM 361	Radiopharmacy I	3.0	3.0
Totals		13.0	13.0
	Course Title	ARRT Certified	Non-ARRT Certified
<b>Second Year: Summer Quarter</b>			
AHCJ 318	Emotional Intelligence and Leadership Skills for Health-Care Professionals	3.0	3.0
RTCH 305	CT Fundamentals	2.0	2.0
RTNM 358	Instrumentation II	4.0	4.0
RTNM 358L	Instrumentation II Laboratory	1.0	1.0
RTNM 362	Radiopharmacy II	3.0	3.0
RTNM 432	Clinical Affiliation II	3.0	3.0
Totals		16.0	16.0
	Course Title	ARRT Certified	Non-ARRT Certified
<b>Second Year: Autumn Quarter</b>			
REL_4__	Upper-division Religion	2.0	2.0

RTCH 385	Radiologic Trends in Health Care	2.0	2.0
RTNM 363	Nuclear Cardiology	3.0	3.0
RTNM 433	Clinical Affiliation III	3.0	3.0
RTSI 367	Cross-sectional Radiographic Anatomy	2.0	2.0
RTSI 369	CT Physics	2.0	2.0
Totals		14.0	14.0

	Course Title	ARRT Certified	Non-ARRT Certified
<b>Second Year: Winter Quarter</b>			
REL_ 4_	Upper-division Religion	2.0	2.0
RTCH 467	Management of a Radiologic Service	3.0	3.0
RTNM 355	PET/CT	2.0	2.0
RTNM 366	Medical Informatics	1.0	1.0
RTNM 434	Clinical Affiliation IV	3.0	3.0
RTSI 364	CT Patient Care and Procedures	2.0	2.0
Totals		13.0	13.0

	Course Title	ARRT Certified	Non-ARRT Certified
<b>Second Year: Spring Quarter</b>			
REL_ 4_	Upper-division Religion	2.0	2.0
RTCH 325	Applications for Managers	2.0	2.0
RTCH 415	Radiation Emergency Procedures	3.0	3.0
RTNM 381		3.0	3.0
RTNM 435	Clinical Affiliation V	4.0	4.0
Totals		14.0	14.0

	Course Title	ARRT Certified	Non-ARRT Certified
<b>Third Year: Summer Quarter</b>			
AHCJ 494	Senior Portfolio II	3.0	3.0
HCAD 414	Sustainability for Health-Care Management	3.0	3.0
RTNM 382	Topics in Nuclear Medicine II	3.0	3.0
RTNM 436	Clinical Affiliation VI	4.0	4.0
Totals		13.0	13.0

Overall Totals		114.0	126.0
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## Radiation Sciences – B.S.

### Program director

Timothy Seavey

### Assistant program director

Kathryn Cockrill

## The program

The Bachelor of Science degree in radiation sciences provides imaging professionals with the foundational education necessary to advance into various career possibilities, including: advanced imaging modalities; graduate degrees; and professional advancement into entry management, education, and informatics positions.

The baccalaureate degree comprises a minimum of 192 quarter units in the following:

- Loma Linda University general education (GE) requirements
- Professional certification in an imaging modality (entry-level imaging degree)
- Radiation science core requirements (on-campus or online)

- Area of emphasis (administration, education, clinical practice, science, advanced medical imaging, pre-RA/PA, or imaging informatics)
- ePortfolio that comprises academic and professional work, a signature project, and service learning

Electives to meet the needs of individual students are selected from existing courses after consultation with the program director.

Students have the ability to customize their degree by choosing an area of emphasis for their studies. Emphases include: education, imaging informatics (PACS administration), science, advanced medical imaging, pre-RA/PA, clinical specialties (diagnostic sonography, cardiac sonography, computed tomography, magnetic resonance imaging, cardiovascular imaging, radiation therapy, nuclear medicine, or dosimetry), or administration. The administration track has a minor in health-care administration embedded into the course work.

Loma Linda University and the Department of Radiation Technology cannot guarantee employment.

## Program objectives

1. Graduate practitioners who are leaders in the profession and who are capable of serving the greater community in the public, private, and nonprofit sectors.
2. Graduate managers, administrators, and educators who contribute to the profession's body of knowledge through leadership roles, publications, professional presentations, and advocacy.

## Program learning outcomes

Upon completion of the curriculum, the graduate will be qualified to:

1. Develop meaningful interactions in health care
2. Demonstrate moral leadership
3. Discuss health-care advancement and sustainability
4. Apply emotional intelligence and leadership skills

## CPR certification

Students in a clinically-based emphasis are required to have current health-care provider cardiopulmonary resuscitation (CPR) certification (adult, child, and infant) for all scheduled clinical experience. CPR certification must be completed at the American Heart Association health-care provider level. This may be completed prior to beginning the program of study or be obtained at Loma Linda University. Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102; telephone, 909/558-4977.

## Accreditation

Loma Linda University is regionally accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; Web site: <<http://www.wascsenior.org>> or <<http://www.wascsenior.org/contact>>.

## Admissions

Applicants may enter the B.S. degree program at any quarter. Applications are accepted year-round. Contact program director for advisement. Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must have the following requirements:

- An associate degree (or a minimum of 72-96 degree transferable units per program director approval.)
- be a graduate of an approved program in radiologic technology, computed tomography, magnetic resonance imaging, radiation therapy, nuclear medicine, cardiovascular imaging, or sonography (ultrasound), and
- must have certification from the American Registry of Radiologic Technologists (ARRT), American Registry for Diagnostic Medical Sonography (ARDMS), or a equivalent specialty certification. Applicants who are eligible to take the ARRT or ARDMS examination for certification but who have not had opportunity to do so are given provisional status for one quarter. Eligibility to continue is subject to student's obtaining certification. It should be understood that the University will not sign or validate registry documents of students who obtained their training in another program.

## Prerequisites/corequisites

A maximum of 70 semester or 105 quarter units (didactic only) from an accredited junior college will be accepted as transfer credit. Students who have completed a hospital training program are allowed up to 50 junior college-level quarter units of academic credit on the basis of their registry certificate. Students should fall within 12 quarter units of completion of general education (GE) requirements in order to be considered for the Bachelor of Science core program OR have developed an academic plan with the program director. For a complete listing of general education requirements, see LLU General Education Requirements (p. 28). Following is a list of specific requirements and the general education domain to which they apply:

### Domain 2: Scientific Inquiry and Analysis

#### Natural sciences

Two years of high school mathematics with grades of C or above, or intermediate algebra in college (does not count toward total units required for this domain or the 192 units required for the degree)

Human anatomy and physiology with laboratory, one semester/quarter minimum; or general biology with laboratory, one semester/quarter minimum.

#### Social sciences

Note: The B.S. degree program is approved to meet the cultural diversity requirement of the University in lieu of cultural anthropology.

### Domain 5: Electives

Electives to meet the minimum total requirement of 192 quarter units.

Students who have completed their general education requirements can work with the program director to select course from the B.S. degree didactic emphases to complete necessary elective course work.

## Program requirements

### Core (30 units)<sup>1</sup>

AHCJ 493	Senior Portfolio I	3
RTCH 387	Writing for Health-Care Professionals	3
AHCJ 318	Emotional Intelligence and Leadership Skills for Health-Care Professionals	3
HCAD 305	Health-Care Communication	3
RTCH 467	Management of a Radiologic Service	3
RTCH 385	Radiologic Trends in Health Care	2
AHRM 475	Health-Care Research and Statistics	4
RTCH 464	Moral Leadership	4
RTCH 325	Applications for Managers	2
AHCJ 494	Senior Portfolio II	3

### Religion (4 - 16 units)<sup>2</sup>

REL 423	Loma Linda Perspectives (Choose one course)	2
or REL 436	Adventist Heritage and Health	
or REL 437	Current Issues in Adventism	
or REL 406	Adventist Beliefs and Life	

REL_4_ Religion Elective	6
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<b>Area of emphasis</b> <sup>3</sup>	12-24
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<b>Electives</b> <sup>4</sup>	0-34
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Total Units	50-96
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<sup>1</sup> Core courses are available on campus and online.

<sup>2</sup> Students are required to take one of the required RELT courses listed above. Total units required are based on the percentage of course work from an SDA college/university. The maximum requirement is 16 units, including transfer units.

<sup>3</sup> Select from options listed below.

<sup>4</sup> Remaining units required for the BSRS program can be obtained from remaining emphases and other available courses offered at Loma Linda University.

#### Area of emphasis: administration

RTCH 485	Digital Management in Radiology	3
HCAD 374	Health-Care Human Resources	3
HCAD 465	Health-Care Financial Mangement	3
HCAD 336	Legal Environment of Health Care	3
HCAD 401	Health-Care Operations Management	3
RTCH 413	Management Practicum I	3
RTCH 414	Management Practicum II	3
RTCH 418	Health Information Management and Radiology Coding for Radiology Managers	3
Total Units		24

#### Area of emphasis: education

RTED 474	Instructional Techniques for the Radiation Sciences	3
RTED 476	Adult Learning Theory for the Radiation Science Student	3
RTED 475	Curriculum Development for the Radiation Sciences	3
RTED 484	Learning Environments for Radiation Science Students	3
RTED 485	Digital Design for the Radiation Sciences	3
RTED 487	Issues in Radiation Sciences	3
RTED 477	Learning Activities and Assessment for the Radiation Sciences	3
RTED 415	Teaching Practicum in the Radiation Sciences	3
Total Units		24

#### Area of emphasis: imaging informatics

RTII 354	Introduction to Informatics	3
RTII 368	Communication and Education in Imaging Informatics	3
RTII 378	Systems Management in Informatics	3
RTII 364	Administrative Issues in Informatics	3
RTII 356	Information Technology in Radiology	3
RTII 374	Image Management in Informatics	3
RTII 358	PACS Planning and Implementation	3
RTII 384	Advanced Imaging Informatics	3
Total Units		24

#### Area of emphasis: science for pre RA or PA

AHCJ 101	Introductory Chemistry (or a sequence in General Chemistry)	4
AHCJ 102	Introductory Organic Chemistry (or a sequence in General Chemistry)	4
AHCJ 103	Introductory Biochemistry (or a sequence in General Chemistry)	4

AHCJ 241	Microbiology	2.5
AHCJ 242	Microbiology	2.5
MATH 111	College Algebra	4
Total Units		21

#### Area of emphasis: science (15-20 units)

15-20 quarter units selected from the natural sciences in the areas of biology, microbiology, chemistry, math, or physics. Courses must be taken from two different content areas with the approval of the program director. These courses are taken at your local college/university. A minimum grad of C+ (2.3) is required for all courses.

#### Area of emphasis: clinical practice (12-31 units)

The didactic (not including clinical units) coursework from a 6-24 month, full-time Clinical-based imaging specialty can be selected from the following areas:

A 6-24 month, full-time internship in a clinical specialty can be selected from the following areas:

- Diagnostic Sonography (30 units)
- Cardiac Sonography (17 units)
- Nuclear Medicine Technology (17 units)
- Special Imaging (Computed Tomography and/or Magnetic Resonance Imaging ) (6-12 units)
  - Students with special imaging coursework totaling less than 12 units must take additional science courses to complete the emphasis. Courses must be approved by the program director.
- Radiation Therapy Technology (27 units)
- Special Imaging in Cardiovascular Imaging (34 units)

Acceptance into these specialties is separate from acceptance into the B.S. degree program.

#### Normal time to complete the program

2 years (6 academic quarters) at LLU – based on full-time enrollment; part time permitted

## Radiation Sciences – M.S.R.S. (Online Program)

#### Program director

Mike Iorio

### The program

The faculty of the Master of Science in Radiation Sciences (M.S.R.S.) degree program is committed to educate and expand the knowledge and expertise of radiology health professionals by providing radiology practitioners an opportunity to advance their education in leadership, management, administration, and education.

#### Program objectives

1. Graduate practitioners who are leaders in the profession and who are capable of serving the greater community in the public, private, and nonprofit sectors.

- Graduate managers, administrators, and educators who can contribute to the profession's body of knowledge through leadership roles, publications, professional presentations, and advocacy.

## Program outcomes

Upon completion of the curriculum, the graduate should be qualified to:

- Demonstrate leadership and reflective thinking in the areas of management, administration, and education.
- Behave in a professional manner in all interactions, including communicating appropriately (written and oral) with patients, colleagues, and others with whom he or she comes in contact.
- Continue to improve knowledge and skills by participating in educational research and professional activities, sharing knowledge with colleagues, and investigating new and innovative aspects of professional practice.
- Apply advanced practice in managerial, administrative, or educational realms.

## Program design

The M.S.R.S. degree is a two-year, 49-unit, part-time program consisting of 90 academic weeks. This eight-quarter program begins in the Fall Quarter and concludes at the end of the second summer term. Students are expected to complete two 3-unit courses each quarter for seven quarters, with the eighth quarter of study consisting of one 1-unit and two 3-unit courses. An accelerated full-time, four-quarter option spanning twelve months is available for qualified students. Students enroll in the same courses, and there are no emphases. Students are encouraged to participate in the graduation ceremony on campus. The program faculty utilizes a learning management system to host courses, and email is the primary communication mechanism between faculty members and students.

## Distance education

The M.S.R.S. degree is an online program open to qualified applicants.

## Mission statement

The mission of the M.S.R.S. degree program is to provide students with an enhanced understanding of leadership, management, administration, and education so that they can serve humanity as practitioners and leaders in radiation technology environments.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- Bachelor's degree from an accredited institution (international degrees must be evaluated for U.S. equivalency)
- minimum G.P.A. of 3.0
- Certification by the American Registry of Radiologic Technologists (or equivalent) in a radiation sciences discipline
- Two-to three-page essay describing personal and professional skills and accomplishments, interests, and how earning the MSRS degree will help achieve career goals. This essay is included in the online application process.
- Phone interview (to be scheduled after application has been submitted)

- Recommended courses: statistics and research methods

## Program requirements

### Required

AHCJ 549	Professional Responsibility in Allied Health Professions	3
AHCJ 550	Organizational Theory	3
AHCJ 566	Theoretical Foundations of Leadership	3
AHCJ 567	Personal Leadership	3
AHCJ 576	Basics of Marketing	3
AHCJ 579	Instructional Effectiveness	3
AHCJ 586	Curricula Planning in Health Sciences	3
AHCJ 588	Fundamentals of Human Resource Management	3
AHCJ 589	Strategic Planning in Health-Care Organizations	3
AHRM 595	Research and Statistics Concepts and Methods: Intermediate	3
RELT 563	Health Care, Humanity, and God	3
RTRS 578	Healthcare Financial Management	3
RTRS 584	Management of Imaging Informatics	3
RTRS 614	Professional Portfolio	1
RTRS 615	Advances in Technology: Educational and Managerial Issues	3
RTRS 621	Capstone Project I	3
RTRS 622	Capstone Project II	3
Total Units		49

## Professional Portfolio

Students will complete a professional portfolio while pursuing the degree. The portfolio will contain evidence of the growth and learning throughout the program.

## Normal time to complete the program

2 years (8 academic quarters) part-time

# Radiation Therapy Technology – BS

### Program director

Carol A. Davis

### Clinical coordinator

Noriece Kisinger

Radiation therapy (or radiation oncology) is the medical use of ionizing radiation to treat cancer and control malignant cell growth. Radiation therapy is commonly combined with other modes of treatment for cancer, such as surgery, chemotherapy, and hormone therapy. Radiation therapists should be able to think critically, work with computers, and be able to work on a treatment team. Patient care and empathy are also important assets. It is intended for radiographers who seek additional specialization.

## Mission

The mission of the Bachelor of Science in Radiation Therapy Program is to prepare professionals in the field of radiation therapy who have received broad education and training in all aspects of the profession.

This will include critical thinking, clinical competence, effective communication, and professionalism as they apply to the field of radiation therapy. The program encourages intellectual, physical, social,

and spiritual development by emphasizing these goals in its curriculum, which is reflected in the motto of Loma Linda University Health—"To Make Man Whole".

## Program goals and student learning outcomes (SLOs)

1. Student will demonstrate critical thinking.
  - a. Student will be able to monitor change in patient condition.
  - b. Student will be able to interpret isocenter shift from CT sim data to treatment-planning data.
2. Student will be clinically competent.
  - a. Student will perform daily QA.
  - b. Student will be able to check that dosimetry data is acutely transferred to electronic chart.
  - c. Student will be able to recognize treatment changes.
3. Student will be able to communicate effectively in English.
  - a. Student will demonstrate effective verbal communications skills.
  - b. Student will demonstrate effective written communication skills.
4. Student will demonstrate professionalism.
  - a. Student will treat all persons with respect.
  - b. Student will demonstrate knowledge of HIPPA.
  - c. Student will demonstrate responsibility and accountability for actions.
5. For JRCERT requirements the program will achieve the following:
  - a. Students will complete the program.
  - b. Graduates will pass the ARRT examination.
  - c. Graduates will have job placement within six months

## CPR certification

Students are required to have current health-care provider cardiopulmonary resuscitation (CPR) certification (adult, child, and infant) for all scheduled clinical experience. CPR certification must be completed at the American Heart Association health-care provider level. This must be completed prior to beginning the program of study. Classes are available on campus at Life Support Education, University Arts building, 24887 Taylor Street, Suite 102.

## Accreditation

The program is accredited by the Joint Review Committee on Education in Radiologic Technology, 20 North Wacker Drive, Suite 900, Chicago, IL 60606-2901; telephone: 312/704-5300.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- Prerequisite courses met
- Must be either an ARRT registered radiographer (two-year minimum degree) or a Registered Nurse or graduate of an accredited Allied Health Program with patient care experience (2-year minimum degree) and complete the following subjects at an accredited college or university prior to entering the program

- 40 hours of career observation in a Radiation Oncology Department
- GPA of 3.0 or better, higher is more competitive
- Current BLS with American Heart Association, adult and child
- Admissions essay
- Interview
- Must have the following courses:

### Prerequisite courses

Applicants must complete the following subjects at an accredited college or university prior to entering the program. Please note: C- grades are not transferable for credit.

**Humanities** – 20 units minimum are needed prior to program entry. Choose a minimum of three areas from the following subjects: history, literature, philosophy, foreign language, art/music appreciation/history. Included in this minimum are 4 units of religion per year of attendance at a Seventh-day Adventist college or university. Eight units of religion are included in the B.S. degree core as a co-requisite. A total of 28 quarter units are required to fulfill this area.

**Natural Sciences** – The study of natural sciences must include a minimum of 12 units.

- Human anatomy and physiology with laboratory, complete sequence
- College algebra (Pre-calculus will be required starting 2017-2018)
- Selected from the following content areas: biology, chemistry, geology, mathematics, physics, and statistics.

**Social Science** – must have a total of 12 quarter units of social science.

- General psychology
- Select additional units from: economics, geography, political science, psychology, sociology, or anthropology.

**Communication** – A minimum of 9 units are needed to complete this area

- English composition, complete sequence

**Health and Wellness** – Personal health or nutrition and two physical activity courses are required to meet the minimum of 3 quarter units.

**Other required courses:**

- Medical terminology
- Patient-care methods
- Radiation physics, radiation protection, principles of radiography (available in the professional program for those who do not have it)

**Electives** – may be needed to meet the minimum requirements of 192 quarter units. A minimum of 68 quarter units must be taken from general education areas listed above (i.e. humanities, natural sciences, social sciences, communication, and health and wellness).

- ARRT-certified students will earn 90 units in the program. (prerequisite units required: 102 quarter/68 semester)
- non-ARRT-certified students will earn 102 units in the program. (prerequisite units required: 90 quarter/60 semester)

For total unit requirements for graduation, see LLU General Education Requirements (p. 28).

## Program requirements

### ARRT certified students

#### First Year

##### Autumn Quarter

AHCJ 493	Senior Portfolio I	3
RTTH 344	Radiation Therapy Procedures	2
RTTH 355	Physical Principles of Radiation Therapy I	3
RTTH 364	Radiation Oncology I	2
RTTH 371	Radiation Therapy Affiliation I	2

##### Winter Quarter

RTCH 387	Writing for Health-Care Professionals	3
RTTH 342	Patient-Care Practices in Radiation Therapy	2
RTTH 356	Physical Principles of Radiation Therapy II	3
RTTH 365	Radiation Oncology II	2
RTTH 372	Radiation Therapy Affiliation II	3

##### Spring Quarter

AHCJ 403	Pathology II	3
AHRM 475	Health-Care Research and Statistics	4
RTTH 332	Radiation Biology	2
RTTH 357	Applied Dosimetry	2
RTTH 366	Radiation Oncology III	2
RTTH 373	Radiation Therapy Affiliation III	3

#### Second Year

##### Summer Quarter

AHCJ 318	Emotional Intelligence and Leadership Skills for Health-Care Professionals	3
RELR 415 <sup>1</sup>	Christian Theology and Popular Culture	2
RTTH 354	Quality Assurance in Radiation Therapy	2
RTTH 474	Radiation Therapy Affiliation VII	5

##### Autumn Quarter

RTSI 367	Cross-sectional Radiographic Anatomy	2
RTSI 369	CT Physics	2
RELT 423 or 436	Loma Linda Perspectives	2
RTTH 475	Radiation Therapy Affiliation V	5

##### Winter Quarter

REL_ 4_	Upper-division religion elective	2
RTCH 464	Moral Leadership	4
RTCH 467	Management of a Radiologic Service	3
RTSI 364	CT Patient Care and Procedures	2
RTTH 476	Radiation Therapy Affiliation VI	4

##### Spring Quarter

AHCJ 494	Senior Portfolio II	3
REL_ 4_	Upper-division religion elective	2
RTTH 348	Radiation Therapy Review	2
RTTH 477	Radiation Therapy Affiliation VII	4

Total Units: 90

### Non-ARRT certified students

#### First Year

##### Summer Quarter

		Units
AHCJ 326	Fundamentals of Health Care	2
RTCH 283	Basic Imaging	2
RTCH 283L	Radiation Clinical Basics Laboratory	1
RTCH 285	The Principles and Physics of Radiation	4
RTMR 224	Legal Issues in Medical Radiography	1
RTMR 284	Radiation Protection and Biology	2

##### Autumn Quarter

AHCJ 493	Senior Portfolio I	3
RTTH 344	Radiation Therapy Procedures	2
RTTH 355	Physical Principles of Radiation Therapy I	3
RTTH 364	Radiation Oncology I	2
RTTH 371	Radiation Therapy Affiliation I	2

##### Winter Quarter

RTCH 387	Writing for Health-Care Professionals	3
RTTH 342	Patient-Care Practices in Radiation Therapy	2
RTTH 356	Physical Principles of Radiation Therapy II	3
RTTH 365	Radiation Oncology II	2
RTTH 372	Radiation Therapy Affiliation II	3

##### Spring Quarter

AHCJ 403	Pathology II	3
AHRM 475	Health-Care Research and Statistics	4
RTTH 332	Radiation Biology	2
RTTH 357	Applied Dosimetry	2
RTTH 366	Radiation Oncology III	2
RTTH 373	Radiation Therapy Affiliation III	3

#### Second Year

##### Summer Quarter

AHCJ 318	Emotional Intelligence and Leadership Skills for Health-Care Professionals	3
RELR 415 <sup>1</sup>	Christian Theology and Popular Culture	2
RTTH 474	Radiation Therapy Affiliation VII	5
RTTH 354	Quality Assurance in Radiation Therapy	2

##### Autumn Quarter

RELT 423 or 436	Loma Linda Perspectives	2
RTSI 367	Cross-sectional Radiographic Anatomy	2
RTSI 369	CT Physics	2
RTTH 475	Radiation Therapy Affiliation V	5

##### Winter Quarter

REL_ 4_	Upper-division religion elective	2
RTCH 464	Moral Leadership	4
RTCH 467	Management of a Radiologic Service	3
RTSI 364	CT Patient Care and Procedures	2
RTTH 476	Radiation Therapy Affiliation VI	4

##### Spring Quarter

AHCJ 494	Senior Portfolio II	3
REL_ 4_	Upper-division religion	2
RTTH 348	Radiation Therapy Review	2

RTTH 477	Radiation Therapy Affiliation VII	4
Total Units:		102

<sup>1</sup> May be substituted with another RELR course

A minimum grade of C (2.0) is required for all courses in this program.

## Radiography Advanced Placement – Certificate

**Program director**  
William J. Edmunds

The purpose of the Radiography Advanced Placement Program is to prepare candidates to take the American Registry of Radiologic Technologists (ARRT) examination if they need to requalify due to failing the registry examination; or to enable candidates to complete the ARRT didactic and clinical requirements for the first time if they graduated from a program outside the United States.

The American Registry of Radiologic Technologists distinguishes three types of candidates eligible for this program:

1. One who received radiologic technology education more than five years ago, which makes them no longer eligible under ARRT's three-year rule;
2. One who is no longer eligible under ARRT's three-attempt, three-year rule;
3. One who received his/her professional education in a country without an accreditation mechanism that was recognized by the ARRT at the time of program completion.

Individual courses may be taken on a case-by-case basis if a candidate wishes to review a certain registry section in-depth prior to taking the test, or has failed the ARRT examination fewer than three times and wants to review certain areas to obtain the remediation hours needed. Details are provided in the following Web site:

<https://www.arrt.org/education/advanced-placement>

### School certificate

Students interested in enrolling in this certificate program register through the Office of University Records for the courses, but the certificate is issued by the School of Allied Health Professions, not Loma Linda University. The University Records Office maintains a record of registration but not the certificate. Record of the certificate and its awarding are maintained by the sponsoring department in the School of Allied Health Professions.

Financial aid is NOT available to students registered in school certificate programs. These programs do not meet requirements established by the U.S. Department of Education for aid eligibility.

### Student learning outcomes

Upon completion of the program, the graduate should be qualified to:

1. Demonstrate clinical competence.
2. Demonstrate effective patient care.
3. Pass the registry examination.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements: Individuals must have successfully completed a radiography program (not limited permit). Students must identify a local clinical site that will provide opportunity to complete the mandatory and elective competencies outlined by the ARRT prior to starting the program. See program policies for more information and latest admissions requirements.

## Program requirements

There are five academic and up to three clinical courses. Each candidate must complete the 31 mandatory and 15 of 35 elective clinical competencies required by the ARRT. If a student can complete the competencies in one quarter of clinical work, s/he does not need to take the second or third clinical course. See program website (<http://alliedhealth.llu.edu/rtap>) for more information on when courses are offered and contact the program director for questions about clinical requirements.

### Required

RTAP 221	Patient Care and Education	1
RTAP 255	Radiographic Procedures	2
RTAP 283	Equipment Operation and Quality Control	1
RTAP 284	Radiation Protection	1
RTAP 287	Image Production and Evaluation	2
RTAP 971	Clinical Affiliation	2
RTAP 972	Clinical Affiliation	2
RTAP 973	Clinical Affiliation	2
Total Units		13

## Radiologist Assistant – M.S.R.S.

**Program director**  
Brigit Mendoza

### The program

The student will receive didactic and clinical mentoring on neonatal, pediatric, adult, and geriatric populations. Courses will be a combination of discussion, projects, case studies, and Web-based learning. Students are responsible for finding their own clinical site and radiologist mentor. This is an online program; however, students must be on campus during orientation, the first Autumn, Winter, and Spring quarters; and during the final Spring Quarter.

### Mission

The mission of the Radiologist Assistant Program is to provide students with a sound clinical, didactic, and moral foundation so that they can impact patient care in a positive and meaningful manner.

### Vision

The Radiologist Assistant Program at Loma Linda University will be one of the premier radiologist assistant programs in the nation—home to a program that students will want to attend. Its diverse and safe learning environment will contribute to promoting Loma Linda University as one of the state's economic and cultural centers.



## Purpose

The purpose of the Radiologist Assistant Program is to educate students to competently function as radiologist assistants in a variety of imaging environments.

## Program objectives

1. Graduate competent advanced practice technologists who perform procedures and clinical activities of the profession.
2. Graduate leaders who engage in activities that advance the profession.
3. Graduate midlevel practitioners who will impact health-care delivery.
4. Graduate professionals who maintain recognized educational standards of the profession.
5. Graduate professionals who employ proper ethics within the profession.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- Bachelor's degree from a regionally accredited institution, the degree can be in administration or science.
- Current certification in medical radiography from the American Registry of Radiologic Technologists (ARRT).
- A minimum of two years of full-time, consecutive radiography work experience.
- Current CPR certification (must complete ACLS certification prior to applying for boards).
- A course in statistics completed within the past five years.
- A course in research methods completed within the past five years.

## Program requirements

### First Year

#### Autumn Quarter

RELT 423	Loma Linda Perspectives	2
RTRA 521	Radiology Procedures and Image Evaluation I	3
RTRA 525	Fluoroscopy and Radiation Protection	1
RTRA 526	Radiology Reporting	1
RTRA 531	Pharmacology for RAs I	2
RTRA 534	Pathophysiology	2
RTRA 771	Clinical Internship I	2

#### Winter Quarter

AHCJ 402	Pathology I	4
RTRA 510	Cross-Sectional Anatomy I	1
RTRA 522	Radiology Procedures and Image Evaluation II	3
RTRA 532	Pharmacology for RAs II	2
RTRA 541	Patient Assessment I	2
RTRA 772	Clinical Internship II	5

#### Spring Quarter

AHCJ 403	Pathology II	3
RTRA 511	Cross-sectional Anatomy II	1
RTRA 523	Radiology Procedures and Image Evaluation III	3
RTRA 542	Patient Assessment II	2

RTRA 546	Topics for the Radiologist Assistant	2
RTRA 773	Clinical Internship III	6

### Second Year

#### Summer Quarter

RTRA 524	Radiology Procedures and Image Evaluation IV	3
RTRA 543	Clinical Management and Education	2
RTRA 774	Clinical Internship IV	6

#### Autumn Quarter

AHCJ 566	Theoretical Foundations of Leadership	3
REL_ 5__	Graduate-level Religion	3
RTRA 591	Radiologist Assistant Research Project I	1
RTRA 775	Clinical Internship V	6

#### Winter Quarter

RTRA 588	Comprehensive Review I	1
RTRA 592	Radiologist Assistant Research Project II	2
RTRA 776	Clinical Internship VI	6

#### Spring Quarter

RTRA 519	Medical-Legal Issues in Radiology	1
RTRA 518	Radiobiology and Health Physics	2
RTRA 589	Comprehensive Review II	1
RTRA 593	Radiologist Assistant Research Project III	2
RTRA 614	Professional Portfolio	1
RTRA 777	Clinical Internship VII	6

Total Units: 93

## Normal time to complete the program

2 years (7 academic quarters) – based on full-time enrollment

## Special Imaging CT and MRI – Certificates

### Program director

Kate Cockrill

### Clinical coordinator

Joe Hewes

## Overview of program

Computed tomography (CT) and magnetic resonance imaging (MRI) technologists work in a highly specialized field operating sophisticated computerized tomography equipment. This technology provides detailed cross-sectional images of the human body, assisting physicians with quality patient diagnosis and treatment. These full-time programs are scheduled as follows:

CT—six-month certificate program completed in two quarters—Autumn and Winter. An additional quarter of clinic may be available to students who have not met program requirements. Additional time will be at the discretion of the school or at the request of the student.

MRI—six-month certificate program that requires two quarters beginning Spring Quarter or Autumn Quarter. An additional quarter of clinic may be available to students who have not met program requirements. Additional time will be at the discretion of the school or at the request of the student.

CT/MRI—twelve-month certificate program completed in four academic quarters—Autumn through Summer. An additional quarter of clinic may be available to students who have not met program requirements. Additional time will be at the discretion of the school or at the request of the student.

During the program, students take formal course work along with clinical instruction. There are no arrangements for part-time or evening status. Clinical sites are available in a variety of regions in Southern California. However, the University cannot guarantee that the student will be placed close to his/her residence.

The program's load requires 40 hours per week, which includes didactic education and clinical experience. Clinical experience includes four eight-hour days per week. Classes are scheduled for one day per week and may require the student to be on campus.

Students will be required to submit current immunization records and undergo a background check during the registration process. For information regarding immunizations, contact student health services at <<http://www.lju.edu/central/ssweb/index.page>>. Students will be responsible for paying any fees associated with immunizations and background checks.

Loma Linda University and the Department of Radiation Technology cannot guarantee employment.

## Program outcomes

Upon completion of the program, the graduate should be qualified to:

- Be a knowledgeable professional in the field of study.
- Demonstrate leadership and critical thinking in all areas of CT and/or MRI scanning.
- Behave according to ethical standards as a professional CT and/or MRI technologist.
- Positively interact and communicate with patients, department personnel, and professional staff.
- Maintain skills and knowledge by interacting with fellow professionals, attending educational conferences, and staying current with changing technology.

## The CT/MRI student profile

- Is enthusiastic and interested in maintaining high standards of academics, clinical performance, and patient care.
- Possesses a broad knowledge of human anatomy and computer skills.
- Demonstrates strong academic performance in science and related courses.
- Is detail-oriented and able to work under pressure while demonstrating critical-thinking and problem-solving skills.

## Admissions

Admission is based on a selective process. In addition to Loma Linda University (p. 24) and School of Allied Health Professions admissions requirements (p. 46), the applicant must also complete the following requirements:

- Current ARRT registry in Radiography (R)\*
- Current California (CRT) license\*
- Current CPR card with the American Heart Association

- A minimum G.P.A. of 2.5 maintained in all didactic and clinical course work
- Three recommendations—from prior teachers, work supervisors, or health professionals who are knowledgeable about your qualifications
- Observation experience—A minimum of twelve hours of career observation in each modality (CT and MRI) is required. The career observation form is available as a download from the Web site.
- Venipuncture is highly recommended

\* An applicant who is completing a program in radiologic technology prior to the start of the program may apply as long as s/he has completed ARRT, CRT, and CPR requirements by the program start date.

Applicants who are eligible to take the ARRT examination for certification but who have not had opportunity to do so are given provisional status for one quarter. Eligibility to continue is subject to student's obtaining certification. It should be understood that the University will not sign or validate registry documents of students who obtained their training in another program.

## Application dates

1. Applications are accepted starting January 1st of each year.
2. Deadlines for applications are
  - a. May 1 for CT-only applicants, MRI-only fall-start applicants, and CT/MRI combined applicants
  - b. December 1 for MRI-only spring-start applicants
3. Applicants should submit applications early because interview slots are limited.

## Interviews

CT and MRI interviews are conducted in July for fall-start applicants and January for MRI-only spring-start applicants. Qualified applicants will be interviewed by the program director and representatives of the School of Allied Health Professions. Applicants residing in Southern California should plan for a personal interview on campus at Loma Linda. Applicants will be notified by telephone and/or e-mail of their interview schedule. Due to the limited number of interview dates/times, you will be assigned an interview slot, and you should plan around your interview as alternate dates/times are not available. Applicants are rated in the following four areas:

- Work experience or training background
- Recommendations
- Academic record
- Communication skills, knowledge, motivation, etc.

## Selection

After applicants have been interviewed, the selection committee for the Special Imaging Program (CT and MRI) meets to make the final selections. Selections are usually decided by the middle of July for fall-start applicants and early February for spring-start applicants, and confirmation of each decision is mailed to the respective applicant from the Office of Admissions for the School of Allied Health Professions.

## Programs

### Special Imaging CT – Certificate

Autumn Quarter		Units
RTSI 367	Cross-sectional Radiographic Anatomy	2
RTSI 369	CT Physics	2
RTSI 971	Special Imaging (CT/MRI) Affiliation	10
Winter Quarter		
REL_ 4__	Upper-division religion <sup>1</sup>	2
RTSI 364	CT Patient Care and Procedures	2
RTSI 971	Special Imaging (CT/MRI) Affiliation	10
Total Units:		28

<sup>1</sup> Students take one religion course selected from offerings by the School of Religion. The selection of course varies by quarter, including but not limited to the following courses: RELT 423 Loma Linda Perspectives, RELE 457 Christian Ethics and Health Care, RELR 415 Christian Theology and Popular Culture

#### Normal time to complete the program

Twenty-three (23) weeks (2 academic quarters) – based on full-time enrollment.

### Special Imaging CT/MRI – Certificate

Autumn Quarter		Units
RTSI 367	Cross-sectional Radiographic Anatomy	2
RTSI 369	CT Physics	2
RTSI 971	Special Imaging (CT/MRI) Affiliation	10
Winter Quarter		
REL_ 4__	Upper-division religion <sup>1</sup>	2
RTSI 364	CT Patient Care and Procedures	2
RTSI 971	Special Imaging (CT/MRI) Affiliation	10
Spring Quarter		
RTSI 361	MRI Physics I	2
RTSI 971	Special Imaging (CT/MRI) Affiliation	10
Summer Quarter		
RTSI 362	MRI Physics II	2
RTSI 365	MRI Patient Care and Procedures	2
RTSI 971	Special Imaging (CT/MRI) Affiliation	10
Total Units:		54

<sup>1</sup> Students take one religion course selected from offerings by the School of Religion. The selection of course varies by quarter, including but not limited to the following courses: RELT 423 Loma Linda Perspectives, RELT 436 Adventist Heritage and Health, RELE 457 Christian Ethics and Health Care, RELR 415 Christian Theology and Popular Culture.

#### Normal time to complete the program

45 weeks (4 academic quarters) – based on full-time enrollment.

### Special Imaging MRI – Certificate

Spring Quarter		Units
RTSI 361	MRI Physics I	2
RTSI 367	Cross-sectional Radiographic Anatomy	2
RTSI 971	Special Imaging (CT/MRI) Affiliation	10
Summer Quarter		
REL_ 4__	Upper-division religion <sup>1</sup>	2
RTSI 362	MRI Physics II	2
RTSI 365	MRI Patient Care and Procedures	2
RTSI 971	Special Imaging (CT/MRI) Affiliation	10
Total Units:		30

<sup>1</sup> Students take one religion course selected from offerings by the School of Religion. The selection of course varies by quarter, including but not limited to the following courses: RELT 423 Loma Linda Perspectives, RELT 436 Adventist Heritage and Health, RELE 457 Christian Ethics and Health Care, RELR 415 Christian Theology and Popular Culture

#### Autumn and Spring starts

#### Normal time to complete the program

22 weeks (2 academic quarters) – based on full-time enrollment

## Special Imaging – CT, MRI, CT and MRI Comparison

	Course Title	CT	MRI	CT and MRI
<b>First Year: Autumn Quarter</b>				
RTSI 367	Cross-sectional Radiographic Anatomy	2.0		2.0
RTSI 369	CT Physics	2.0		2.0
RTSI 971	Special Imaging (CT/MRI) Affiliation	10.0		10.0
Totals		14.0		14.0
	Course Title	CT	MRI	CT and MRI
<b>First Year: Winter Quarter</b>				
REL_ 4__	Upper-division Religion <sup>1</sup>	2.0		
RTSI 364	CT Patient Care and Procedures	2.0		2.0
RTSI 971	Special Imaging (CT/MRI) Affiliation	10.0		10.0
REL_ 4__	Upper-division Religion <sup>1</sup>			2.0
Totals		14.0		14.0
	Course Title	CT	MRI	CT and MRI
<b>First Year: Spring Quarter</b>				
RTSI 361	MRI Physics I		2.0	2.0
RTSI 971	Special Imaging (CT/MRI) Affiliation		10.0	10.0
RTSI 367	Cross-sectional Radiographic Anatomy		2.0	
Totals			14.0	12.0
	Course Title	CT	MRI	CT and MRI
<b>Second Year: Summer Quarter</b>				
RTSI 362	MRI Physics II		2.0	2.0
RTSI 365	MRI Patient Care and Procedures		2.0	2.0
RTSI 971	Special Imaging (CT/MRI) Affiliation		10.0	10.0
REL_ 4__	Upper-division Religion <sup>1</sup>		2.0	
Totals			16.0	14.0
Overall Totals		28.0	30.0	54.0

<sup>1</sup> Students take one religion course selected from offerings by the School of Religion. The selection of course varies by quarter, including but not limited to the following courses: RELT 423 Loma Linda Perspectives, RELT 436 Adventist Heritage and Health, RELE 457 Christian Ethics and Health Care, RELR 415 Christian Theology and Popular Culture

Comparison chart based on MRI spring start date. MRI may also begin in autumn.

# SCHOOL OF BEHAVIORAL HEALTH

## Dean's welcome



We're glad you have chosen to consider Loma Linda University's School of Behavioral Health as you make plans to continue your educational goals. This Catalog describes who we are and what we have to offer. It will familiarize you with the philosophy and structure of our programs, and will provide you with a listing of the participating faculty.

Loma Linda University is a religious, nonprofit institution that welcomes students and staff from a broad spectrum of religious persuasions while reserving the right to give preference to qualified members of its sponsoring denomination. As stated in its nondiscrimination policy, the institution "affirms that all persons are of equal worth in the sight of God and they should so be regarded by all people." Since several of the professions—for which programs within the School of Behavioral Health (SBH) prepare students—have a tradition of advocacy for oppressed peoples, it is important that the institution, faculty, and staff demonstrate their acceptance of and willingness to assist those in our society who are less privileged. The University actively sponsors several programs that move the institutional health-care personnel resources and expertise into the local, national, and international communities to work with otherwise underserved populations. This component of service is an integral part

of the statement of mission and a message intended to be captured in the Good Samaritan sculpture that occupies a central position on the campus.

The School of Behavioral Health, as part of the University, has expectations of students, faculty, and staff in the areas of conduct and behavior while they are on campus or involved in school or University activities. The school does not discriminate on the basis of race, color, gender, age, ethnic or national origin, or handicap. Enrollment of students in SBH programs is not conditioned on their political or sexual orientation; in these areas, the school's policy is directed towards conduct or disruptive behavior, not orientation. In support of this position, we expect our students, faculty, and staff to demonstrate unwavering respect for the diversity of others and to interact with integrity—never forgetting the standards that guide professional actions. Further, we expect our programs through their faculty to develop competent, compassionate, ethical professionals who possess the knowledge, skills, and values to equip them for a life dedicated to service to all those in need—regardless of their lifestyles.

You will find vigorous academic programs that will stretch your mind as you take time to make new discoveries, get to understand our world, and apply Christ-centered values to your life and profession.

Our administrators, faculty, and staff are here to work with you and help you prepare for your future as a caring, Christian professional in the world of service to mankind. If you would like to know more about us, you can call us toll free at 800/422-4LLU.

Beverly J. Buckles, D.S.W.  
Dean, School of Behavioral Health

## School foundations

The School of Behavioral Health includes the Departments of Counseling and Family Sciences, Psychology, and Social Work and Social Ecology; and the Division of Interdisciplinary Studies. The school offers master's and doctoral degree programs, as well as a number of postbaccalaureate and postdegree certificates. These programs equip graduates with the leading-edge knowledge and practice experiences necessary for careers in behavioral health practice, research, or administration.

## Philosophy

The School of Behavioral Health is grounded in a deep commitment to the University's mission to further the teaching and healing ministries of Jesus Christ, which produces wholeness within transformed lives. Transformation is viewed as a lifelong journey of faith and learning underpinned by a bio-psycho-social-spiritual perspective, which assumes that wholeness is achieved when all subsystems affecting human needs are understood and in balance. This pursuit seeks to understand and promote healthy minds, communities, social systems, and human relationships that enable individuals to experience resiliency and live meaningful lives. Such wholeness manifests itself in a life of service to humanity and to God.

In the School of Behavioral Health, these purposes are achieved through academic programs—including research, clinical practice, and global learning experiences that engage faculty and students in the highest levels of scholarship, professionalism, and quest for wholeness. Because these pursuits are served by knowledge, graduate students are obliged to achieve both broad and detailed mastery of their fields of study and participate with the faculty in the process by which knowledge is created and applied. The end result is firm adherence to the global traditions of Loma Linda University through scholarly and practice pursuits that aim to strengthen the effectiveness of behavioral health practice and research to improve the quality of life for individuals and communities around the world.

## Goals

The School of Behavioral Health attempts to create an environment favorable to the pursuit of knowledge and meaning by:

1. Making available to graduate students who wish to study in a Seventh-day Adventist Christian setting the education necessary for scholarly and professional careers in the behavioral health professions.
2. Encouraging development of independent judgment, mastery of research techniques, and contribution to scholarly communication.
3. Fostering the integration of science and practice in the service of humankind.

## Learning outcomes and assessment

Supporting these goals, the School of Behavioral Health has adopted Loma Linda University's institutional learning outcomes (p. 19) (ILOs).

The School of Behavioral Health supports the realization of the University's learning outcomes through the curricula of its degree programs by providing students with content and active learning experiences that reflect the current practice and professional knowledge, skills, behaviors, and attitudes needed for competent practice in behavioral health, including, but not limited to:

- Professional and personal self care
- Ethical and professional standards of conduct and behavior

- Legal and statutory mandates affecting practice
- Clinical knowledge shared and specific to disciplines
- Therapeutic and reflective use of self
- Analytical methods supporting scholarship and the integration of science and practice in the development of new knowledge and improved services
- Professional communication and presentation skills
- Strengths perspectives supporting wellness, recovery, and anti-stigma
- Integration of spirituality and cultural competency
- Integration of behavioral health into primary health care
- Global context of behavioral health practice
- Collegial and collaborative team practice
- Commitment to continuous professional development, service, and lifelong learning

The assessment of the University's student learning outcomes is integrated into the specific program and department criteria and methods used to address professional accreditation assessment requirements. Where possible, these data are used to support the development of school-wide metrics.

## Mission

Operationalizing this philosophy, the mission of the School of Behavioral Health is to provide graduate-level education that prepares competent, ethical, and compassionate professionals who possess the knowledge, values, and skills necessary for a life dedicated to whole person care in behavioral health practice, research, and servant leadership.

## General regulations

### Application and acceptance

#### Application procedure

1. The application instructions, available on the Web at <llu.edu/central/apply>, allow students to apply online and begin an application. Applications and all supporting information, transcripts, test results, and references should be submitted by the deadline posted on the application, per degree.
2. Complete official transcripts of all academic records from all colleges, universities, and professional or technical schools must be provided for official acceptance into a program. It is the applicant's responsibility to arrange to have the transcripts—including official English translations, if applicable—sent directly to Admissions Processing by the issuing institution. Transcripts that come via an intermediary are unacceptable.
3. A personal interview is often desirable and is required by some programs. The interview should be arranged with the coordinator of the program in which the student wishes to study.

#### Acceptance procedure

1. When the program that the student wishes to enter has evaluated the applications and made its recommendation, the dean of the School of Behavioral Health takes official action and notifies the applicant. The applicant must respond affirmatively before becoming eligible to register in the School of Behavioral Health.
2. As part of registration, accepted students will be asked to file with Student Health Service a medical history with evidence of certain immunizations.
3. Transcripts of records and all other application documents are retained by the University and may not be withdrawn and used for

any purpose. Records of students who do not enroll or who withdraw prior to completion are retained for two years from the date of original acceptance to a School of Behavioral Health program.

4. New students are required to pass a background check before they register for classes.

### Admission requirements

A four-year baccalaureate degree (or its equivalent) from an accredited college or university is a prerequisite for admission to the School of Behavioral Health's graduate programs. Transcripts of the applicant's scholastic record should show appropriate preparation, in grades and content, for the curriculum chosen. Since there is some variation in the pattern of undergraduate courses prescribed by different programs, the applicant should note the specific requirements of the chosen program. Deficiencies may be fulfilled while enrolled; prerequisites must be completed prior to matriculation.

### Scholarship

Applicants are expected to present an undergraduate record with a grade point average of B (3.0) or better in the overall program and in the major field. Depending on program-specific criteria, some students with an overall grade point average between 2.5 and 3.0 may be admitted provisionally to graduate standing, provided the grades of the junior and senior years are superior or there is other evidence of capability.

### Graduate Record Examination

Scores on the general test of the Graduate Record Examination (GRE) are required with application for admission to many degree programs. New test scores are needed if it has been more than five years since the last test was taken. Applicants are advised to request information specific to their proposed program of study.

For complete information about the GRE, please visit their Web site at <<http://www.ets.org/gre/>>; or write to Educational Testing Service, 1947 Center Street, Berkeley, CA 94701 (for the West); and P.O. Box 6000, Princeton, NJ 08541 (for the East). For GRE publications (including study materials), call 800/537-3160.

Programs that do not require the GRE must submit one additional measure of a candidate's preparation for graduate study. This may be either an evaluation of critical essay-writing skills, the Miller Analogies Test, the results of a structured interview, or other specified program criteria.

### Re-entrance

Students who are currently enrolled in the School of Behavioral Health may request transfer to a different program or a more advanced degree level by contacting the School of Behavioral Health Admissions Office for information on an abbreviated application and instructions for submitting the appropriate supporting documents. Transcripts on file with the University are acceptable.

### English-language competence

All international students are encouraged (particularly those who do not have an adequate score on TOEFL or MTELP or other evidence of English proficiency) to attend an intensive American Language Institute prior to entering their program, because further study of English may be required to assure academic progress.

### Graduate degree requirements

#### Minimum required grade point average

Students must maintain a grade point average of at least a B (3.0) to continue in regular standing. This average is to be computed separately

for courses and research. Courses in which a student earns a grade between C (2.0) and B (3.0) may or may not apply toward the degree, at the discretion of the guidance committee. A student submitting transfer credits must earn a B average on all work accepted for transfer credit and on all work taken at this University, computed separately.

### From Master's to Ph.D. degree

#### Bypassing master's degree

A graduate student at this University may proceed first to a master's degree. If at the time of application the student wishes to qualify for the Doctor of Philosophy degree, this intention should be declared even if the first objective is a master's degree.

If after admission to the master's degree program a student wishes to go on to the doctoral degree, an abbreviated application should be completed and submitted, along with appropriate supporting documents, to the School of Behavioral Health Admissions Office. If the award of the master's degree is sought, the student will be expected to complete that degree before embarking on doctoral activity for credit. A student who bypasses the master's degree may be permitted, on the recommendation of the guidance committee and with the consent of the dean, to transfer courses and research that have been completed in the appropriate field and are of equivalent quality and scope to his/her doctoral program.

### Second master's degree

A student who wishes to qualify for an additional master's degree in a different discipline may apply. The dean of the School of Behavioral Health and the faculty of the program the student wishes to enter will consider such a request on its individual merits.

### Concurrent admission

Students may not be admitted to a School of Behavioral Health program while admitted to another program at this University or elsewhere. The exceptions to this are the combined degrees programs discussed in the next paragraph.

### Combined degrees

Students may not be admitted to a School of Behavioral Health program while admitted to another program at this University or elsewhere. The exceptions to this are the combined degrees programs.

### Certificate programs

The School of Behavioral Health offers several postbaccalaureate certificate programs. Students accepted into such programs will be assigned to an advisor who will work with them as they fulfill the program requirements. Students will be required to maintain a B (3.0) grade point average, with no course grade below C (2.0). All certificate students are required to take at least one 3-unit religion course (numbered between 500 and 600).

### Master of Arts/Master of Science/Master of Social Work Advisor and guidance committee

Each student accepted into a degree program is assigned an advisor who helps arrange the program of study to meet University requirements; subsequently (no later than when applying for candidacy), the student is put under the supervision of a guidance committee. This committee is responsible to and works with the coordinator of the student's program in arranging courses, screening thesis topics (where applicable), guiding research, administering final written and/or oral examinations, evaluating the thesis and other evidence of the candidate's fitness to receive the degree, and ultimately recommending the student for graduation.

**Subject prerequisites and deficiencies**

Gaps in an applicant's academic achievement will be identified by subject and classified either as prerequisites or as subject deficiencies. Applicants lacking certain subject or program prerequisites may not be admitted to the master's degree program until the prerequisites are completed (at Loma Linda University or elsewhere) and acceptable grades are reported. However, subject deficiencies do not exclude an applicant from admission or enrollment; but these must be removed as specified by the advisor or dean, usually during the first full quarter of study at this University.

**Study plan**

The student's advisor should develop with the student a written outline of the complete graduate experience, with time and activity specified as fully as possible. This will serve as a guide to both the student and the advisor, as well as to members of the guidance committee when it is selected.

The study plan is changed only after careful consultation. The student is ultimately responsible for ensuring both timely registration and completion of all required courses.

**Time limit**

The time allowed from admission to the School of Behavioral Health to conferring of the master's degree may not exceed five years. Some consideration may be given to a short extension of time if, in the dean's opinion, such is merited.

Course credit allowed toward the master's degree is nullified seven years from the date of course completion. Nullified courses may be revalidated, upon successful petition, through reading, conferences, written reports, or examination to assure currency in the content.

**Residence**

Students must meet the residence requirements indicated for their particular program (never less than one academic quarter). The master's degree candidate must complete one quarter of full-time study at the University or perform the thesis research at the University. Although the number of units students take varies by program, students are expected to work closely with their advisors to assure that their course loads are consistent with program requirements, as well as degree completion options and timelines.

**Professional performance probation**

Applied professional programs may recommend that the student be placed on professional performance probation. Details are contained in program guides for the programs concerned.

**Comprehensive and final examinations**

The student must take the written, oral, and final examinations prescribed by the program on or before the published dates. If a candidate fails to pass the oral or written examination for a graduate degree, the committee files a written analysis of the candidate's status with the dean, with recommendations regarding the student's future relation to the school. The student receives a copy of the committee's recommendation.

**Research competence**

Student skills required in research, language, investigation, and computation are specified in each program description in this CATALOG.

**Thesis**

Students writing a thesis must register for at least 1 unit of thesis credit. The research and thesis preparation are under the direction of the student's guidance committee. The student is urged to secure

the committee's approval of the topic and research design as early as possible. Such approval must be secured before petition is made for candidacy.

The student must register and pay tuition for thesis credit, whether the work is done in residence or in absentia. If the student has been advanced to candidacy, has completed all course requirements, and has registered for but not completed the research and thesis, continuous registration is to be maintained until the manuscript has been accepted. This involves a quarterly enrollment fee paid at the beginning of each quarter.

**Candidacy**

Admission to the School of Behavioral Health or designation of regular graduate standing does not constitute admission of the student to candidacy for a graduate degree. After achieving regular status, admission to candidacy is initiated by a written petition (School of Behavioral Health Form A) from the student to the dean, on recommendation of the student's advisor and the program coordinator or department chair.

Students petitioning the School of Behavioral Health for candidacy for the master's degree must present a satisfactory grade record, include a statement of the proposed thesis or dissertation topic (where applicable) that has been approved by the student's guidance committee, and note any other qualification prescribed by the program. Students are usually advanced to candidacy during the third quarter after entering their course of study toward a degree in the School of Behavioral Health.

**Specific program requirements**

In addition to the foregoing, the student is subject to the requirements stated in the section of the CATALOG governing the specific program chosen.

**Religion requirement**

All master's degree students are required to take at least one 3-unit religion course (courses numbered between 500 and 600). Students should check with their programs for specific guidelines.

**Combined degrees programs**

A number of combined degrees programs are offered, each intended to provide more comprehensive preparation in clinical applications and the biomedical sciences. Concurrent admission to two programs in the School of Behavioral Health or to a program in the School of Behavioral Health and to a professional school in the University is required. These curricula are described in greater detail under the heading "Combined Degrees Programs" in this section of the CATALOG.

**Thesis and dissertation**

The student's research and thesis or dissertation preparation are under the direction of the student's guidance committee. The student is urged to secure the committee's approval of the topic and research design as early as is feasible. Such approval must be secured before petition is made for advancement to candidacy.

**Format guide**

Instructions for the preparation and format of the publishable paper, thesis, or dissertation are in the "Thesis and Dissertation Format Guide," available through the Faculty of Graduate Studies dissertation editor. Consultation with the dissertation editor can help the student avoid formatting errors that would require him/her to retype large sections of manuscript. The last day for submitting copies to the school office in



final approved form is published in the events calendar (available from the academic dean's office).

### **Binding**

The cost of binding copies of the thesis or dissertation to be deposited in the University Library and appropriate department or school collection will be paid for by the student's department. The student will be responsible for paying the cost of binding additional personal copies.

### **Doctor of Philosophy**

The Doctor of Philosophy degree is awarded for evidence of mature scholarship; productive promise; and active awareness of the history, resources, and demands of a specialized field.

### **Advisor and guidance committee**

Each student, upon acceptance into a degree program, is assigned an advisor who helps arrange the study program. Subsequently (no later than when applying for candidacy), the student is put under the supervision of a guidance committee. The School of Behavioral Health requires advisors for Doctor of Philosophy degree candidates to have demonstrated scholarship productivity in their chosen disciplines. Each program maintains a list of qualified doctoral degree mentors. The guidance committee, usually chaired by the advisor, is responsible to and works with the coordinator of the student's program in arranging course sequences, screening dissertation topics, recommending candidacy, guiding research, administering written and oral examinations, evaluating the dissertation/project and other evidence of the candidate's fitness to receive the degree, and recommending the student for graduation.

### **Subject prerequisites and deficiencies**

Gaps in an applicant's academic achievement will be identified by subjects and classified as either prerequisites or as subject deficiencies.

Applicants lacking subject or program prerequisites may not be admitted to the Ph.D. degree program until the prerequisites are completed (at Loma Linda University or elsewhere) with acceptable grades.

Subject deficiencies do not exclude an applicant from admission or enrollment; but they must be removed as specified by the advisor or dean, usually at the beginning of the graduate experience at this University.

### **Study plan**

The student's advisor should develop with the student a written outline of the complete graduate experience, with time and activity specified as fully as possible. This serves as a guide to both the student and the advisor, as well as to members of the guidance committee when it is selected. The study plan is changed only after careful consultation. The student is ultimately responsible for ensuring both timely registration and completion of required courses.

### **Time limit**

Completion of the graduate experience signals currency and competence in the discipline. The dynamic nature of the biological sciences makes dilatory or even leisurely pursuit of the degree unacceptable. Seven years are allowed for completion after admission to the Ph.D. degree program. Extension of time may be granted on petition if recommended by the guidance committee to the dean of the School of Behavioral Health.

Course credit allowed toward the doctorate is nullified eight years from the date of course completion. To assure currency in the content, nullified courses may be revalidated—upon successful petition—through reading, conference, written reports, or examination.

### **Residence**

The School of Behavioral Health requires two years of residency for the doctoral degrees—D.M.F.T., Psy.D., Ph.D.—spent on the campus of the University after enrollment in a doctoral degree program. During residence, students devote full time to graduate activity in courses, research, or a combination of these. A full load of courses is 8 or more units each quarter; 36 or more clock hours per week is full time in research.

Students may be advised to pursue for limited periods at special facilities studies not available at Loma Linda University. Such time may be considered residence if the arrangement is approved in advance by the dean of the School of Behavioral Health.

The spirit and demands of doctoral degree study require full-time devotion to courses, research, reading, and reflection. But neither the passage of time nor preoccupation with study assures success. Evidence of high scholarship and original contribution to the field or professional competence form the basis for determining the awarding of the degree.

### **Professional performance probation**

Applied professional programs may recommend that the student be placed on professional performance probation. Details are contained in the program guides for the programs concerned.

### **Scholarly competence**

Doctoral degree students demonstrate competency in scholarship along with research and professional development. Expectations and standards of achievement with the tools of investigation, natural and synthetic languages, and computers are specified in this section of the CATALOG for each program.

### **Comprehensive examinations**

The doctoral degree candidate is required to take comprehensive written and oral examinations over the principal areas of study to ascertain capacity for independent, productive, scientific work; and to determine whether further courses are required before the final year of preparation for the doctorate is undertaken. The program coordinator is responsible for arranging preparation and administration of the examination, as well as its evaluation and subsequent reports of results. Success in the comprehensive examination is a prerequisite to candidacy (see below).

Students cannot be admitted to the examination until they have:

- Demonstrated reading knowledge of one foreign language, if applicable;
- Completed the majority of units required beyond the master's degree or its equivalent.

### **The final oral examination**

After completion of the dissertation and not later than a month before the date of graduation, the doctoral degree candidate is required to appear before an examining committee for the final oral examination.

If a candidate fails to pass this final examination for a graduate degree, the examining committee files a written analysis of the candidate's status with the dean, with recommendations about the student's future relation to the school. The student receives a copy of the committee's recommendation.

### **Project**

*(required for the Doctor of Psychology and Doctor of Marital and Family Therapy degrees)*

All Doctor of Psychology degree students must register for at least 1 unit of project credit. This should be done during the last quarter of registration prior to completion.

The research and project preparation are under the direction of the student's guidance committee. The student is urged to secure the committee's approval of the topic and research design as early as possible. Such approval must be secured before petition is made for advancement to candidacy.

If the student has been advanced to candidacy, has completed all course requirements, and has registered for but not completed the research and project, continuous registration is maintained until the manuscript is accepted. This involves a quarterly fee to be paid during registration each quarter. A continuing registration fee is also assessed for each quarter the student fails to register for new units.

### **Dissertation**

*(required for the Doctor of Philosophy degree)*

All doctoral students must register for at least 1 unit of research credit. This should be done during the last quarter of registration prior to completion.

The research and dissertation preparation are under the direction of the student's guidance committee. The student is urged to secure the committee's approval of the topic and research design as early as possible. Such approval must be secured before petition is made for advancement to candidacy.

Consultation with the Faculty of Graduate Studies dissertation editor can prevent the student from committing formatting errors that would require retyping large sections of the manuscript.

Students register and pay tuition for the dissertation, whether the work is done in residence or in absentia. If the student has been advanced to candidacy, has completed all course requirements, and has registered for but not completed the research and dissertation, continuous registration is maintained until the manuscript is accepted. This involves a quarterly fee to be paid during registration each quarter. A continuing registration fee is also assessed for each quarter the student fails to register for new units.

Doctoral dissertations are reported to University Microfilms International and to the National Opinion Research Center. The Faculty of Graduate Studies provides appropriate information and forms.

### **Candidacy**

Admission to the School of Behavioral Health does not constitute candidacy for a graduate degree. Admission to candidacy is initiated by a written petition (School of Behavioral Health Form A) from the student to the dean, with support from the student's advisor and the program chair.

The student's petition for candidacy for the Doctor of Philosophy degree will include confirmation that comprehensive written and oral examinations have been passed.

Students expecting the award of the doctorate at a June graduation should have achieved candidacy no later than the previous November 15. One full quarter must be allowed between the achievement of candidacy and the quarter of completion.

### **Specific program requirements**

Doctoral programs differ from each other. The unique program requirements appear in the programs section of this CATALOG (Section III) and in the program guides available from specific departments.

### **Religion requirement**

All doctoral students should take at least three 3-unit religion courses (numbered between 500 and 600). Students should check with their programs for specific guidelines.

### **Combined degrees programs**

A number of combined degrees programs are offered, each intended to provide additional preparation in clinical, professional, or basic areas related to the student's field of interest. All require concurrent admission to the School of Behavioral Health and a professional school in the University. The combined degrees programs provide opportunity for especially well-qualified and motivated students to pursue professional and graduate education; and to prepare for careers in clinical specialization, teaching, or investigation of problems of health and disease in humans.

For admission to a combined degrees program, the student must have a baccalaureate degree; must qualify for admission to the School of Behavioral Health; and must already be admitted to the School of Medicine, the School of Dentistry, the School of Religion, or the School of Public Health. Application may be made at any point in the student's progress in the professional school, though it is usually made during the sophomore year. Students in this curriculum study toward the M.A., M.S., M.S.W., Psy.D., or Ph.D. degree.

Students may be required to interrupt their professional study for two or more years (as needed) for courses and research for the graduate degree sought. Elective time in the professional school may be spent in meeting School of Behavioral Health requirements.

The student's concurrent status is regarded as continuous until the program is completed or until discontinuance is recommended by the School of Behavioral Health or the professional school. The usual degree requirements apply.

The following combined degrees programs are offered in conjunction with the School of Behavioral Health. (See Combined Degrees Programs at the end of Section III.)

Marital and Family Therapy *with* Clinical Ministry (M.S./M.A.)

Social Policy and Social Research *with* Biomedical and Clinical Ethics (Ph.D./M.A.)

Social Work *with* Criminal Justice (M.S.W./M.S.)

Social Work *with* Gerontology (M.S.W./M.S.)

Social Work *with* Social Policy and Social Research (M.S.W./Ph.D.)

## **Student life**

The information on student life contained in this CATALOG is brief. The *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies; and is available to each registered student. Students need to familiarize themselves with the contents of the *Student Handbook*. Additional information regarding policies specific to a particular school or program within the University is available from the respective school.

The School of Behavioral Health prepares the school-specific *Policies and Procedures Manual*, which is provided to all School of Behavioral Health students. Regulations, policies, procedures, and other program requirements are contained in this manual.

## Academic information

### Conditions of registration, residence, attendance

#### Academic residence

A student must meet the residence requirements indicated for a particular degree, which is never less than one academic quarter. A year of residence is defined as three quarters of academic work. A student is in full-time residence if registered for at least 8 units. A maximum of 12 units may be taken without special petition to the dean of the School of Behavioral Health, unless the student is enrolled in an approved block-registration program or the program requirements specify otherwise.

#### Transfer credits

Transfer credits will not be used to offset course work at this University that earns less than a B average. This transfer is limited to credits that have not already been applied to a degree and for which a grade of B (3.0) or better has been recorded. A maximum of 9 quarter units that have been previously applied to another degree may be accepted as transfer credits upon petition. A candidate who holds a master's degree or presents its equivalent by transcript may receive credit up to 20 percent of the total units for the degree, subject to the consent of the dean and the department chair involved. In such instances, the transfer student is not relieved of residence requirements at this University.

Students should also review the requirements of in their program of study as some professional degree programs require grades higher than a B (3.0) for transfer courses, and may restrict the courses and/or experiences that may be transferred from other academic institutions.

If permitted for transfer, credit for practicum experiences is allowed only where university credit has been received for equivalent experiences. Credit for life and/or work experiences cannot be used to meet the requirements in any degree or certificate program in the School of Behavioral Health.

#### Advanced standing

Advanced standing is a designation used in specific professional degree programs to address possible content redundancy between levels of degrees available within those professions. Evaluation of eligibility for advanced standing is program specific when specific conditions are met. Students should review the availability of advanced standing in their program. Academic variances are used to document the availability of advanced standing.

#### Academic, professional, and clinical probation

Continued enrollment in a professional degree program or certificate is contingent upon a student's continued satisfactory academic, professional, and clinical performance. Any student whose performance in any of these three areas falls below the requirements of their program, the school, or university will be placed on one or more of these types of probation.

#### Academic probation

Degree students whose overall grade point average falls below a 3.0 will be placed on academic probation. Students on academic probation who fail to earn a 3.0 for the next quarter or who fail to have an overall G.P.A. of 3.0 after two quarters may be dismissed from school. Students

enrolled in postbaccalaureate certificate programs should review the G.P.A. requirements of these programs, which may differ from G.P.A. requirements for degree programs.

#### Professional performance probation

All students enrolled in professional programs are required to adhere to the professional and ethical standards set forth by their disciplines, the school, and university. Any student whose performance is evaluated to fall below these requirements will be placed on professional performance probation. The continued enrollment for the next quarter of a student on professional probation is subject to the recommendation of the department and approval by the school's Academic Standards Committee. Any student whose professional performance falls below these minimum requirements for two quarters (consecutive or dispersed) will be dismissed from the school. Students obtain copies of the ethical and professional performance standards set forth by their disciplines through their academic programs. The professional performance requirements for the School of Behavioral Health are included in the school's "Policies and Procedures Manual," which is provided to each student. The University's conduct and behavior expectations are provided in the Loma Linda University *Student Handbook*.

#### Clinical probation

The successful completion of a clinical (or administrative) practicum is an essential requirement of professional degree programs. A student who receives an Unsatisfactory (U) in any segment or quarter of a practicum requirement is automatically placed on clinical probation. The continued enrollment for the next quarter, term, or rotation segment of a student on probation or clinical probation is subject to the recommendation of the department and approval by the school's Academic Standards Committee. A student who receives a U grade for a second segment or quarter (consecutive or dispersed) of practicum will be dismissed from the school. Students obtain copies of the clinical and professional performance requirements for their degree through their academic programs. The clinical and professional performance requirements for the School of Behavioral Health are included in the school's "Policies and Procedures Manual," which is provided to each student. Relevant University conduct and behavior expectations that affect successful completion of a practicum experience are provided in the Loma Linda University *Student Handbook*.

## Financial information

### Schedule of charges (2016–2017)

#### Tuition

\$782	Per unit, graduate credit
\$391	Per unit, audit
\$34,240	Per year: Psychology Psy.D. and Ph.D.

#### Special charges

\$35	Application fee*
\$100	Application fee for combined degrees
\$793	Enrollment fee per quarter
\$100	Psychology laboratory fee per quarter
\$200	Nonrefundable tuition deposit**
\$40	Application to add program or degree

Programs may have additional fees for course material.

- \* All students who submit their application by the VIP deadline will have 100 percent of the application fee credited to their student account towards the first quarter of tuition (see dates below).
- \*\* The \$200 nonrefundable deposit will be credited to the student's account towards the first quarter of tuition.
- \*\*\* Clinical training fees apply and vary by program. Fees are at a reduced rate below the current per unit tuition rate.

**VIP Application Deadline Dates**

Department	Fall Qtr.	Winter Qtr.	Spring Qtr.	Summer Qtr
Marriage and Family Therapy	December 31	September 2	January 1	March 15
Psychology	December 31			
Social Work	December 31	September 2	January 1	March 15
Dual Degrees	December 31	September 2	January 1	March 15

## Departments

- Department of Counseling and Family Science (p. 163)
- Department of Psychology (p. 181)
- Department of Social Work and Social Ecology (p. 189)

## Programs

- Child Life Specialist – M.S. (p. 163)
- Clinical Mediation – Certificate (p. 165)
- Counseling – M.S. (p. 165)
- Criminal Justice – M.S. (p. 189)
- Drug and Alcohol Counseling – Certificate (p. 168)
- Family Life Education – Certificate (p. 169)
- Gerontology – M.S. (p. 191)
- Marital and Family Therapy – M.S. (p. 171), D.M.F.T. (p. 170), Ph.D. (p. 170)
- Play Therapy – Certificate (p. 193)
- Psychology – Psy.D. (p. 183), Ph.D. (p. 181)
- School Counseling – Certificate (p. 177)
- Social Policy and Social Research – Ph.D. (p. 193)
- Social Work – M.S.W. (p. 195)
- Systems, Families and Couples – Ph.D. (p. 178)

## Department of Counseling and Family Sciences

The Department of Counseling and Family Sciences is one of the three academic departments housed in the School of Behavioral Health at Loma Linda University. This department administers three master's degree programs—child life specialist (M.S.), counseling (M.S.), and marital and family therapy (M.S.); and two doctoral programs—a Ph.D. degree in systems, families, and couples that offers a clinical specialty (MFT) and a nonclinical specialty (family studies), and a Doctor of Marital and Family Therapy (D.M.F.T.) degree.

In order to augment academic and professional preparation for future careers, certificate programs are offered to students as well—including: clinical mediation and drug and alcohol counseling.

The Department of Counseling and Family Sciences supports the mission of Loma Linda University, sharing its commitment to bring wholeness to individuals and families in near and far-away places. It values global outreach and seeks to provide opportunities for students to integrate knowledge and skills with diverse peoples in various life contexts. The department is proud of its well-qualified faculty who value teaching, research, and service; and who seek to build up their respective professions in tangible ways. The various academic programs have program accreditation and approvals and have been recognized for their outstanding work, high standards, and superior student outcomes.

### Academic writing support

Students who are found to need assistance can contact their program director to arrange individual support.

### Combined degrees

The department offers a combined M.S./M.A. (p. 462) degree in marital and family therapy with clinical ministry.

A complete list of program instructors can be viewed online at <llu.edu/behavioral-health/cfs>.

### Chair

Winetta A. Oloo

### Primary faculty

Bryan M. Cafferky

Ian P. Chand

Brian Distelberg

Douglas Huenergardt

Lena Lopez-Bradley

Michelle Minyard-Widmann

Mary Moline

Winetta Oloo

Alisha Saavedra

Cheryl Simpson

Randall Walker

Jackie Williams-Reade

### Secondary faculty

Siroj Sorajjakool

## Programs

- Child Life Specialist – M.S. (p. 163)
- Clinical Mediation – Certificate (p. 165)
- Counseling – M.S. (p. 165)
- Drug and Alcohol Counseling – Certificate (p. 168)
- Marital and Family Therapy – M.S. (p. 171), D.M.F.T. (p. 170)
- School Counseling (PPS) – Certificate (p. 177)
- Systems, Families, and Couples – Ph.D. (p. 178)
  - Family Studies Specialty
  - Marital and Family Therapy Specialty

## Child Life Specialist – M.S.

### Program director

Michelle Minyard-Widmann

### Clinical coordinator

Alisha Saavedra

The Department of Counseling and Family Sciences offers high-quality academic education and clinical training leading to a master's degree in the Child Life Specialist Program. This degree prepares individuals to provide child life services in a health-care setting. In addition, practice experiences within the United States and in other countries will provide students with child life practice in diverse environments.

## The child life profession

Child life specialists are professionals in the field of child development. They promote effective coping through play, preparation, education, and self-expression activities. Child life specialists provide emotional support for families and encourage optimum development of children facing a broad range of challenging experiences, particularly those related to health care and hospitalization. Understanding that a child's well-being depends on the support of the family, child life specialists provide information, support, and guidance to parents, siblings, and other family members. They also play a vital role in educating caregivers, administrators, and the general public about the needs of children under stress (Child Life Council <<http://www.childlife.org>>).

## The program

### Certification for the child life profession

Through the Child Life Council, the certified child life specialist (CCLS) credential was developed to increase the proficiency of child life professionals by identifying a body of knowledge, uniform and improved standards of practice, and ethical conduct while enhancing the status and credibility of the profession. The requirements for certification are based on academic and internship experience and successful completion of an examination process (Child Life Council <<http://www.childlife.org>>).

## Learning outcomes

Upon graduation, students will:

- Demonstrate the ability to represent and communicate child life practice and psychosocial issues of infants, children, youth, and families.
- Be knowledgeable of child development and family systems theory.
- Demonstrate the ability to work collaboratively in diverse settings.
- Be eligible to obtain the certified child life specialist (CCLS) credential administered by the Child Life Council.
- Be knowledgeable of legal and ethical standards of the profession.
- Be knowledgeable of the impact of health and health issues in the global setting.

## Professional experience

Students will participate in supervised clinical training at Loma Linda University Children's Hospital and various hospitals located in the United States. A 100-hour practicum and 600 hours of internship are required to complete the master's degree. These experiences will provide an opportunity to help students build on course work and put theory into practice.

## Financial assistance

Students accepted into the M.S. degree program may receive financial assistance through merit-based awards, such as teaching fellowships and a variety of research and student service assistantships; or through need-based financial aid, such as a loan or the University's work/study program. Students may apply for financial aid by writing to:

Student Financial Aid Office  
Student Services  
Loma Linda University  
Loma Linda, CA 92350  
909/558-4509

## Accreditation

Loma Linda University is regionally accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; Web site: <<http://www.wascsenior.org>> or <<http://www.wascsenior.org/contact>>.

## Admissions

Applicants must meet Loma Linda University (p. 24) and School of Behavioral Health (p. 156) admissions requirements; and give evidence of academic ability, professional comportment, and mature judgment. Those who meet these requirements, as well as the published deadlines, for any of the following terms may enroll during Autumn and Winter quarters.

Additional admission requirements include:

- Bachelor's degree in the social sciences or equivalent from a regionally accredited college or university.
- Minimum grade point average of 3.0 (on a 4.0 scale) in bachelor's course work for at least the final 45 units prior to graduation.
- Written statement of purpose for applying to the program.
- Interview with department faculty, as scheduled (on-campus group interviews are scheduled for January through March; other on-campus and telephone interviews are scheduled individually).

- Volunteer experience under the direction of a Certified Child Life Specialist is highly recommended.

Pre-entrance requirements (p. 25):

- A background check
- Health clearance

## Program requirements

Required

CFSG 584	Global Practice Experience	3
CHLS 501	Hospitalized Infant and Toddler Development	3
CHLS 502	Child Life Seminar	2
CHLS 503	Child Life Seminar	3
CHLS 504	Child Life Administration and Program Development	3
CHLS 505	Cross-Cultural Perspectives in Health Care	3
CHLS 506	Therapeutic Play for Children Affected by Illness and Injury	3
CHLS 507A	Aspects of Illness and Disease	3
CHLS 507B	Aspects of Illness and Disease	3
CHLS 508	Grief and Loss	3
CHLS 509	Child Life Assessment	3
CHLS 604	Child Life Internship and Supervision I	4
CHLS 605	Child Life Internship and Supervision II	4
CHLS 606	Parenting Medically Fragile Children	3
CHLS 607	Child Life Professional	3
CHLS 608	Child Life Practicum	1
COUN 576	Exceptional and Medically Challenged Children	3
COUN 584	Advanced Child and Adolescent Development	3
or MFAM 584	Advanced Child and Adolescent Problems	
MFAM 501	Research Tools and Methodology: Quantitative	3
MFAM 515	Crisis Intervention and Client-Centered Advocacy	3
MFAM 516	Play Therapy	2
MFAM 553	Family Systems Theory	3
MFAM 568	Groups: Process, and Practice	3
MFAM 644	Child Abuse and Family Violence	3
or COUN 644	Child Abuse and Family Violence	
RELR 568	Care of the Dying and Bereaved (or equivalent)	3
Total Units		73

## Other degree requirements

- Residence of at least two academic years.
- A minimum G.P.A. of 3.0.
- A minimum of 73 quarter units of graduate work, which includes credit received for core courses, writing course, and a 3-unit religion course.
- A minimum of 700 hours of clinical child life hours (CHLS 604, CHLS 605 and CHLS 608) completed within the degree program.
- A minimum of 20 hours of global practice experience.

- Successful completion of a written comprehensive examination (taken before advancement to candidacy) and a final oral and written examination at the end of the program.
- Background check passed prior to matriculation.
- If taken for elective credit, foreign language courses numbered 400 or higher.

### Normal time to complete the program

2 years (7 academic quarters) – full-time enrollment required

## Clinical Mediation – Certificate

### Program director

Ian P. Chand

The Clinical Mediation Program is designed to provide professional training in the mediation process involving courts, families, and work environments. This training leads toward becoming a practitioner member in the Association for Conflict Resolution. This program is especially designed for counselors, marital and family therapists, psychologists, social workers, attorneys, human resource administrators, pastors, and others whose professional responsibilities include the mediation process. Family systems theory is central to the training in clinical mediation. The academic and clinical requirements for the certificate include 27 quarter units and 150 clock hours of supervised clinical experience.

## Admissions

Applicants must meet Loma Linda University (p. 24) and School of Behavioral Health (p. 156) admissions requirements; and give evidence of academic ability, professional comportment, and mature judgment. The clinical mediation certificate can be a track in the M.S., D.M.F.T., or Ph.D. degrees in marital and family therapy; or an independent certificate. The admission requirements for the certificate program are as follows:

- A bachelor's (B.A. or B.S.) degree from an accredited university.
- Minimum G.P.A. of 3.0 in the undergraduate degree.
- Formal interview with department faculty.
- Three letters of recommendation (two letters if already admitted into the department).
- Fulfillment of the admission requirements for the chosen degree in order to pursue the track in clinical mediation.

Pre-entrance requirements (p. 25):

- A background check
- Health clearance

## Program requirements

### Required

FMST 528	Parenting	2
MFAM 515	Crisis Intervention and Client-Centered Advocacy	3
MFAM 538	Theory and Practice of Conflict Resolution	2
MFAM 544	Family and Divorce Mediation	4
MFAM 553	Family Systems Theory	3
MFAM 585	Internship in Family Mediation	4
MFAM 644	Child Abuse and Family Violence	3

MFAM 614	Law and Ethics	3
or MFTH 527	Advanced Legal and Ethical Issues	
<b>Religion</b>		
Select of the following:		3
RELR 564	Religion, Marriage, and the Family	
RELR 5__	Graduate-level relational	
Total Units		27

### Normal time to complete the program

2 years based on less than half-time enrollment

## Counseling – M.S.

### Program director

Cheryl Simpson

The M.S. degree program in counseling is housed in the Department of Counseling and Family Sciences within the School of Behavioral Health. Candidates have the option of preparing to become a licensed professional clinical counselor (LPCC) and/or a pupil personnel services (PPS) credentialed school counselor. Most students complete both specializations.

The M.S. degree curriculum in counseling is designed to give students a broad academic background in mental health counseling, advanced course work in one or more selected counseling specializations, and supervised field experience. Candidates must choose one (and may choose both) of the following specializations: licensed professional clinical counselor (LPCC) or pupil personnel services credential in school counseling (PPS). Degree requirements include completion of 90 quarter units of academic course work and field experience, as stipulated in the curriculum for the chosen specialization(s). Clinical placements range from working as a trainee in University clinics, such as the Behavioral Health Institute (BHI) and the Behavioral Medicine Center (BMC), to off-campus sites of various types. School placements range from elementary, middle, and high school levels.

Graduates who complete Loma Linda University's M.S. degree in counseling and LPCC specialization meet all educational requirements to treat individuals, couples, families, and groups. Graduates who complete the M.S. degree in counseling and PPS specialization meet all educational requirements for the school counseling credential.

## Licensed professional clinical counselor (LPCC) specialization

Professional clinical counseling (LPCC) is a broad-based mental health profession throughout the United States that qualifies LPCCs for work in a variety of settings. Loma Linda University graduates of the M.S. degree in counseling program with LPCC specialization are educationally qualified to treat individuals, couples, families, and groups of all ages.

They are also uniquely prepared to address education and career counseling issues and to work with families of children with special needs. When licensed, they may choose to set up a private practice or work in mental health clinics, substance abuse rehabilitation centers, in-patient and out-patient medical facilities, religious organizations, family court, employee assistance programs, retirement homes, higher education, and K-12 schools as mental health counselors.

The California Business and Professions Code Section 4999.20 defines professional clinical counseling as "the application of counseling

interventions and psychotherapeutic techniques to identify and remediate cognitive, mental, and emotional issues—including personal growth, adjustment to disability, crisis intervention, and psychosocial and environmental problems. Professional clinical counseling includes conducting assessment for the purpose of establishing counseling goals and objectives to empower individuals to deal adequately with life situations, reduce stress, experience growth, change behavior, and make well-informed rational decisions.”

The California Board of Behavioral Sciences (BBS) regulates all master’s-level licenses in mental health. State standards for LPCC are consistent with national standards, making it easier for graduates to be granted reciprocity throughout the country. Equivalent licensure in other states may be titled licensed professional counselor (LPC), licensed clinical mental health counselor (LCMHC), or similar titles. Complete information regarding scope of license for LPCC is located on the Board of Behavioral Sciences Web site <[http://bbs.ca.gov/pdf/forms/lpc/lpc\\_scope\\_practice.pdf](http://bbs.ca.gov/pdf/forms/lpc/lpc_scope_practice.pdf)>.

## Pupil personnel services credential (PPS): school counseling specialization

School counselors serve as leaders of counseling programs within the educational system that address academic, career, and personal/social needs of students. They serve as counselors and advocates for students, collaborators with parents and school personnel, and liaisons to the community. As articulated by the American School Counselor Association (ASCA), school counseling programs are preventive in design, developmental in nature, and integral to the total educational program. Combining the school counselor certification with clinical counselor licensure is an excellent professional path that enhances counseling competence and professional opportunities. Additional information about the pupil personnel services credential in school counseling is found at the California Commission on Teacher Credentialing Internet address <<http://www.ctc.ca.gov/>>.

## LPCC clinical training and PPS field experience

All LPCC and PPS school counseling candidates must complete field experience as advised throughout their program. LPCC completion requires 450 clock hours of clinical training, of which 300 must be face-to-face counseling with clients. PPS school counseling requires 600 clock hours of field experience, 400 of which must be completed in public schools at two different grade levels. Additional details related to hours and supervision will be available upon admission.

## Counseling and Family Sciences Clinic

Loma Linda University Counseling and Family Sciences (CFS) Clinic is operated by the Department of Counseling and Family Sciences. The clinic is located on the second floor of the Loma Linda University Behavioral Health Institute (BHI) as one of the participating academic clinics. The BHI is an innovative endeavor undertaken by Loma Linda University to offer community members easy access to all behavioral health disciplines in one location for an integrated, interdisciplinary clinic staffed by students and residents from child life, clinical counseling, marital and family therapy, psychiatry, psychology, and social work.

## Additional certification options

In addition to the clinical and school counseling specializations embedded within the M.S. degree in counseling, candidates may choose to become certified in clinical mediation or drug and alcohol counseling.

## Learning outcomes

Students in the M.S. degree program in counseling will:

1. Integrate counseling concepts and skills with a personal epistemology.
2. Demonstrate counseling interventions based upon a broad range of theoretical and legal/ethical frameworks through comprehensive written examination.
3. Develop identity as a professional counselor through membership and participation in professional organizations.
4. Satisfactorily complete supervised practicum in counseling.
5. Meet all University qualifications for the licensed professional clinical counselor (LPCC) credential and/or the pupil personnel services (PPS) credential in school counseling, which is issued by the California Commission on Teacher Credentialing (CTC).

## Financial assistance

For information regarding funding opportunities, see Student Aid (p. 42) in the financial polices section of this Catalog.

## Accreditation

The Counseling M.S. is accredited through the University by the Western Association of Schools and Colleges (WASC). The Licensed Professional Clinical Counseling (LPCC) program is approved by the California Board of Behavioral Sciences (BBS) which regulates and issues licenses. The Pupil Personnel Services Credential Program (PPS) in School Counseling is approved by the California Commission on Teacher Credentialing (CTC) which regulates and issues credentials.

Loma Linda University is regionally accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; Web site: <<http://www.wascsenior.org>> or <<http://www.wascsenior.org/contact>>.

## Admissions

Applicants must meet Loma Linda University (p. 24) and School of Behavioral Health (p. 156) admissions requirements; and give evidence of academic ability, professional comportsment, and mature judgment. Applicants, who meet these requirements, as well as the published deadlines for the following terms, may be admitted during Fall, Winter, Spring, or Summer quarters. Additional admission requirements include:

- Bachelor’s degree from a regionally accredited college or university.
- Minimum grade point average of 3.0 (on a 4.0 scale) in bachelor’s course work for at least the final 45 units prior to graduation.
- Special consideration may be given to applicants with grade point averages as low as 2.75 if the last part of their college work shows significant improvement.
- Applicants whose cumulative grade point average does not meet the minimum requirements stated above may receive further consideration for admission by demonstrating background experience(s) that provides evidence that the applicant has the potential to successfully complete the program. The applicant might



verify work or volunteer experience that demonstrates commitment to working in a counseling specialization.

- Official transcripts of all colleges and universities attended since high school.
- Three letters of recommendation as specified on the application.
- Written personal statement that addresses career objectives, personal interest in the counseling profession, rationale for choosing to attend Loma Linda University, how life experiences have influenced applicant's choice to enter the field, and additional thoughts the applicant deems important.
- If English is not the applicant's first language, a minimum score for the Test of English as a Foreign Language (TOEFL) of 213 on the computer administration of the test; or a score of 550 for the pencil/paper administration.
- If the applicant is not a citizen or permanent resident of the U.S., a valid student visa.
- Interview with department faculty, as scheduled (on-campus group interviews are scheduled for mid-March and mid-May; other on-campus and phone interviews are scheduled individually for applicants who are unable to attend the group interview).

The applicant should view "instruction for completing application for registration as a Licensed Professional Clinical Counselor (LPCC) intern and Pupil Personnel Service (PPS) Credentialed School Counselor to understand the California requirements for licensure and credentialing.

One should not apply to the program if s/he has any convictions or disciplinary actions cited by the organizations regulating licenses and credentials.

Pre-entrance requirements (p. 25):

- A background check
- Health clearance

## Program requirements

The curriculum for the M.S. degree in counseling offers the option of single or dual specialization in Licensed Professional Clinical Counseling (LPCC) and Pupil Personnel Services (PPS) Credential in School Counseling. Candidates must choose at least one specialization. The curriculum is divided into three domains, as outlined below: Core courses, specialization courses, and field experience courses related to selected specialization(s). Candidates choosing only one specialization may count courses from the other specialization as electives for their 90 academic credit requirement. Other electives must be advisor-approved.

### Core Courses Required for Both LPCC and PPS Specializations

COUN 501	Research Tools and Methodology: Quantitative	3.0
COUN 502	Research Tools and Methodology: Qualitative	3.0
COUN 515	Crisis Intervention and Client Advocacy	3.0
COUN 524	Psychopharmacology and Medical Issues	3.0
COUN 528	Culture, Socioeconomic Status and Therapy	3.0
COUN 540	Foundations of Counseling and Psychotherapy	3.0
COUN 547	Social Ecology of Individual and Family Development	3.0
COUN 556	Psychopathology and Diagnostic Procedures	3.0
COUN 568	Groups: Process and Practice	3.0
COUN 575	Counseling Theory and Applications	3.0
COUN 576	Exceptional and Medically Challenged Children	3.0
COUN 577	Assessment in Counseling	3.0

COUN 579	Career Theories and Applications	4.0
COUN 584	Advanced Child and Adolescent Development	3.0
COUN 604	Social Context in Clinical Practice: Gender, Class, and Race	3.0
COUN 614	Law and Ethics	3.0
COUN 624	Individual and Systems Assessment	3.0
COUN 638	Family Therapy and Chemical Abuse	3.0
COUN 644	Child Abuse and Family Violence	3.0
COUN 674	Human Sexual Behavior	3.0
COUN 675	Dynamics of Aging	1.0
COUN 678	Consultation and Program Evaluation	3.0

### Religion Requirement for LPCC and PPS Specializations: Select one of the following:

RELR 564	Religion, Marriage, and the Family	
RELR 568	Care of the Dying and Bereaved	
RELR 5__	Graduate-level Relational	

### Specialization Courses for Licensed Professional Clinical Counselor (LPCC)

COUN 682	Clinical Counseling Practicum and Seminar (must take at least five times)	23
COUN 691	Process Approaches to Counseling and Psychotherapy	
COUN 692	Cognitive Approaches to Counseling and Psychotherapy	
COUN 693	Systemic Approaches to Counseling and Psychotherapy	
Electives (12 units) <sup>1</sup>		

### Specialization Courses for Pupil Personnel Services (PPS) School Counselor

COUN 574	Educational Psychology	
COUN 679	Professional School Counseling	
COUN 681	School Counseling Practicum and Seminar (must take at least two times)	
Electives (15 units) <sup>1</sup>		

Total Units 91

### Field experience for LPCC and PPS dual specialization

COUN 781	School Counseling Field Experience (PPS)	4
COUN 782	School Counseling Field Experience (PPS)	4
COUN 791	Clinical Counseling Field Experience (LPCC)	3
COUN 792	Clinical Counseling Field Experience (LPCC)	3
COUN 793	Clinical Counseling Field Experience (LPCC)	3
Total Units		17

### Field experience for LPCC single specialization

COUN 791	Clinical Counseling Field Experience (LPCC)	3
COUN 792	Clinical Counseling Field Experience (LPCC)	3
COUN 793	Clinical Counseling Field Experience (LPCC)	3
Total Units		9

### Field Experience for PPS School Counseling Single Specialization

COUN 781	School Counseling Field Experience (PPS)	4
COUN 782	School Counseling Field Experience (PPS)	4

COUN 783	School Counseling Field Experience (PPS)	4
Total Units		12

<sup>1</sup> Advisor-approved electives may be chosen from relevant graduate courses in other programs, provided that the course is not restricted to students in that specific degree. A list of possible electives will be provided.

## Degree requirements

- A minimum of 90 quarter academic credits of graduate work, which includes credit received for core courses, elective courses, and a 3-unit religion course.

## Non-course requirements

- Residence of at least two academic years.
- A minimum grade point average of 3.0 with no course grade lower than C.
- Certificate of Clearance (COC) prerequisites: documentation of registration for California Basic Educational Skills Test (CBEST), Live Scan, and current negative TB test results.
- Certificate of Clearance (COC) prior to school counseling field experience PPS
- Dual Specialization: Registrations in COUN 791, 792, 793 and COUN 781, 782 and COUN 681x2 quarters and COUN 682x5 quarters are required.
- LPCC Single Specialization: Registrations in COUN 791, 792, 793 and COUN 682x5 quarters are required.
- PPS School Counselor Single Specialization: Registrations in COUN 781, 782, 783 and COUN 681x2 quarters are required.
- Successful completion of a written comprehensive examination (taken before advancement to candidacy) and a final oral examination at the end of the program.
- If taken for elective credit, foreign language courses numbered 400 or higher.

## Normal time to complete the program

2 years (7 academic quarters) based on full-time enrollment; part time permitted

# Drug and Alcohol Counseling – Certificate

### Program director

Randall Walker

The Drug and Alcohol Counseling Program is offered by the School of Behavioral Health through the Department of Counseling and Family Sciences.

## Objectives

The objectives of the Drug and Alcohol Counseling Program are to:

- Prepare master's degree and doctoral-level professionals to effectively counsel substance-using and substance-addicted adults and their families.
- Offer curriculum and experience for master's degree and doctoral-level professionals that meet the requirements for certification by national certification organizations.

- Integrate certificate requirements into the existing marital and family therapy curriculum.
- Allow hours of experience to be accrued concurrently to meet the requirements of the Board of Behavioral Sciences (BBS), the American Association for Marriage and Family Therapy (AAMFT), and other certifying organizations.

## Certificate examinations

Course work is developed to help students successfully take and pass certification examinations offered through the National Association of Alcoholism and Drug Abuse Counselors (NAADAC) and the American Academy of Health Care Providers in the Addictive Disorders (AAHCPAD).

## Field work

Students will complete three quarters of field work at an approved site dealing with addiction, alcoholics/addicts, and their families. Field work provides excellent opportunities to gain experience working with substance users and their families. Students will be evaluated quarterly. Possible placement sites include Matrix Institute on Addictions in Rancho Cucamonga, connected with the National Institute on Drug Addiction (NIDA) research system, and which participates in government-funded studies. MFI Recovery Center (My Family, Inc., Craig Lambdin) in Riverside offers a variety of opportunities to work with substance users in residential and outpatient settings. Inland Valley Recovery Services (IVRS, Roberta Reid) in Upland offers opportunities for students to work with substance users and their families in residential and outpatient treatment settings. The Loma Linda University Behavioral Medicine Center offers students opportunities to work with substance users in a hospital setting. The Betty Ford Hospital in Rancho Mirage, Cedar House in Bloomington, and Riverside County Office of Alcohol and Drug Programs may offer additional opportunities for students to gain experience. Numerous other programs offer substance-user services in San Bernardino and Riverside counties. In addition, with program coordinator approval, students may be able to work in other settings where services are not directly targeted toward substance users but where it is determined that addiction may be a significant focus of clinical attention.

## Admissions

Applicants must meet the School of Behavioral Health (p. 156) admission requirements outlined in this CATALOG and give evidence of academic ability, professional comportsment, and mature judgment.

The certificate program is open to currently enrolled marital and family therapy students or other master's degree-level students or graduates. Students in the Marital and Family Therapy Program must first complete the current core marital and family therapy curriculum. Applicants will be screened for appropriateness to complete the certificate program and for ability to work with addicted adults and their families. Additional admission requirements include:

- Applicants' reapplication to the University and meeting all requirements for application prior to admission into the certificate program.
- A completed program application stating how the applicant will integrate the substance abuse certificate into work as a marriage and family therapist or other clinical professional, and how the applicant will contribute to the addiction treatment field and professional field by completing the certificate.
- Two letters of reference.

- An interview composed of faculty and student(s) currently enrolled in the certificate program may be required.
- A critical essay examination after acceptance into the program (examination results to be used at the end of the Fall Quarter by the program director to determine if the writing course will be required).

Pre-entrance requirements (p. 25):

- A background check
- Health clearance

## Program requirements

Required

COUN 524	Psychopharmacology and Medical Issues	3
or MFAM 524	Psychopharmacology and Medical Issues	
COUN 568	Groups: Process and Practice	3
or MFAM 568	Groups: Process, and Practice	
COUN 638	Family Therapy and Chemical Abuse	3
or MFAM 638	Family Therapy and Chemical Abuse	
MFAM 515	Crisis Intervention and Client-Centered Advocacy	3
MFAM 645	Advanced Substance Abuse-Treatment Strategies	3
REL_ 5__	Graduate Level Religion	3
MFAM 635 & MFAM 636 & MFAM 637	Case Presentation Seminar and Legal Issues and Case Presentation Seminar and Client-Centered Advocacy and Case Presentation Seminar and Global Practices	9
or MFAM 694	Directed Study: Marriage and Family	
Total Units		27

### Normal time to complete the program

5 academic quarters based on half-time enrollment

## Family Life Education – Certificate

### Program director

Winetta Oloo

The certificate in family life education is designed for persons who wish to have basic knowledge and skills in the delivery of family services, using a family life education methodology instead of, or in addition to, a therapeutic methodology. This program is often sought by persons who do not wish to pursue a master's degree in family studies or a related field, but who wish to have academic qualifications to practice in that field. Students are provided with an understanding of the structure and functioning of the family as a social institution from a systems perspective and with the delivery skills required in a teaching format.

Historically, this certificate has been pursued by persons who are established professionals in their fields—for example, teachers, nurses, marital and family therapists, and pastors—who wish to have some academic emphasis in the area of family life education.

The Family Life Education Program meets the course requirements of the National Council on Family Relations for Certified Family Life Educator (CFLE). More information on becoming certified by the National Council on Family Relations can be found in the organization's official Web site at <<http://www.ncfr.org>>.

## Learning objectives

1. Students will meet professional standards in basic content areas for certification in family life education.
2. Students will know the difference between family life education and therapy and will be able to deliver services using family life education methodologies.
3. Students will establish ethical guidelines for the practice of family life education and will maintain professional identity as a family life educator.

## Financial assistance

This program is not independently eligible for federal financial aid. However, a student can complete the requirements for this certificate while concurrently enrolled in a School of Behavioral Health graduate degree program. For students enrolled in a graduate degree program at another school within Loma Linda University, acceptance into this certificate program is dependent on approval of the dean of the School of Behavioral Health.

## Admissions

Applicants must meet Loma Linda University (p. 24) and School of Behavioral Health (p. 156) admissions requirements; and give evidence of academic ability, professional comportment, and mature judgment. Additional admission requirements include:

- Four-year baccalaureate degree (B.A. or B.S., or equivalent) from an accredited college or university with a 3.0 G.P.A.
- Official transcripts of scholastic record showing appropriate preparation in grades and content.
- Personal interviews with two of the program faculty.

## Program requirements

Required

FMST 515	Professional Issues in Family Life Education	3
FMST 524	Family Resource Management	2
FMST 526	Marriage and the Family	3
FMST 528	Parenting	2
FMST 529	Family Life Education	3
MFAM 528	Culture, Socioeconomic Status in Therapy	3
MFAM 547	Social Ecology of Individual and Family Development	3
MFAM 553	Family Systems Theory	3
MFAM 674	Human Sexual Behavior	3
RELR 564	Religion, Marriage, and the Family	3
Total Units		28

### Normal time to complete the program

3 academic quarters based on full-time enrollment; part-time permitted

# Marital and Family Therapy – M.S., D.M.F.T.

## The marriage and family therapy profession

Marriage and family therapy is a distinct international mental health profession based on the premise that relationships are fundamental to the health and well-being of individuals, families, and communities. Marriage and family therapists (MFTs) evaluate and treat mental and emotional disorders and other health and behavioral problems; and address a wide array of relationship issues within the context of families and larger systems. The federal government has designated marital and family therapy a core mental health profession—along with psychiatry, psychology, social work, and psychiatric nursing. All fifty states also support and regulate the profession by licensing or certifying marriage and family therapists.

## Mission statement

The Ph.D. degree curriculum in marital and family therapy and the D.M.F.T. degree curriculum are consistent with Loma Linda University's vision of transforming lives through whole-person health care. The mission of these curricula is to bring health, healing, wholeness, and hope to individuals, families, and communities through education, research, clinical training, and community service. The Ph.D. degree curriculum accomplishes this by preparing scientist-practitioners who will advance the body of knowledge through which marital and family therapists promote the health and well-being of individuals, couples, families, and communities. The D.M.F.T. degree curriculum accomplishes this by focusing on developing, evaluating, and administering intervention programs that benefit individuals, couples, families, and communities.

## Ongoing program review

The Doctor of Marital and Family Therapy (D.M.F.T.) degree and the Ph.D. degree in marital and family therapy engage in ongoing review of student outcomes and use this information to improve program effectiveness. Data on student outcomes are collected through aggregate scores on the following: quarterly evaluations of clinical competency and results of qualifying examinations and clinical demonstrations, annual student activity reports on clinical and scholarly activities, client session and outcome data, and exit surveys and interviews of students at graduation. Alumni surveys are also conducted every two years to track graduates' attainment of marital and family therapy licensure, data on employment, and feedback regarding how well the program prepares graduates for their job responsibilities. The program faculty also maintains regular contact with community agencies and educational institutions in the region to obtain input into curriculum planning and improvements in clinical training.

## Core ideas guiding the marriage and family therapy doctoral programs

*Relational systems:* People are best understood within the cultural, spiritual, and relational systems in which they are embedded. Change, therefore, occurs in the context of family, community, and interpersonal relationships. This program focuses on both the structured relational patterns of communication and interaction and on the systems of meaning that define and shape these patterns.

*Wholeness:* The program encourages wholeness by attending to the physical, mental, social, and spiritual dimensions of human experience. These dimensions reciprocally interact at every level.

*Social forces:* The program is guided by a belief that social contexts and processes influence meanings, values, and people's understandings of self, family, and others. Particular emphasis is placed on:

- research focusing on social forces relevant to the distinctive multicultural mix of families in the Southern California region;
- the interrelationship between faith and family relationships throughout the world, and
- the effects of the changing health-care system and of medical technology; as well as
- collaboration among education, family, work, and legal systems.

*Healing power of relationships:* As people become more connected to each other and their communities, the potential for growth and healing are enhanced; and the opportunity for making positive contributions is maximized. Students are encouraged to develop their therapeutic relationship and community involvement skills such that they can cocreate an environment of safety, respect, compassion, openness, and community participation.

*Diversity:* Congruent with an appreciation of the importance of social forces is an interest in and respect for the diverse experiences and perceptions of human beings. Different social contexts—such as race, ethnicity, religion, gender, and socioeconomic status—result in a wide variety of meanings and behavior patterns in marriages, families, and intimate relationships. The program seeks to create a diverse mix of students and faculty, and to challenge all who are involved to learn from the richness of multiple perspectives.

*Empirical process:* The program encourages clinical work and theory development grounded in an empirical understanding of human experience. Students are offered the opportunity to develop their capacities to utilize inductive and deductive reasoning; as well as objectivity, subjectivity, and intersubjectivity in therapy, program development and evaluation, and research.

*Education and prevention:* Connections at family, school, and community levels are important components of resilience. The program emphasizes helping individuals and families access their relational competencies as an important part of prevention, as well as the resolution of their current difficulties.

*Spirituality:* This program sees spirituality as central to wholeness and healing. Students are encouraged to integrate their practices of faith with their professional work. The program places strong emphasis on active demonstration of moral and ethical principles as exemplified by, but not limited to, Judeo-Christian teachings.

*Global focus:* The mission of the program reaches beyond the local and national levels to the international community. This includes collaboration and experience with people from other nations and cultures to promote mutual understanding, resolve problems, and strengthen families.

## Advanced standing policy

National accreditation and certification processes ensure that degrees are comparable across institutional boundaries. This advanced standing policy recognizes the value of these professional review processes on the part of the Department of Counseling and Family Sciences and facilitates

cooperation in professional training within the marital and family therapy discipline. The policy assures that at least half of all interim master's degree units and 60 percent of doctoral academic credit will be earned at Loma Linda, while enabling cooperative relationships with other accredited programs.

### Guidelines

Advanced standing may be granted for previous course work equivalent in content and scope to required counseling and family sciences (CFS) courses. This reduces the number of units to be taken at LLU. Determination of advanced standing is based on the following guidelines:

1. Residency requirements
  - a. Interim master's degree. Advanced standing may not reduce total units below 45 units for an interim master's degree earned in combination with a CFS doctoral degree.
  - b. Doctoral degree. Advanced standing may not reduce total units below 60 units for a Ph.D. degree in marital and family therapy, Ph.D. degree in family studies, or Doctor of Marital and Family Therapy (D.M.F.T.) degree.
2. Determination of equivalency
  - a. Courses applied to advanced standing must be graduate-level courses earned at an accredited institution. No credit may be applied for grades lower than B-.
  - b. Courses completed in programs accredited by the Commission on Accreditation for Marital and Family Therapy Education (COAMFTE) or certified family life education (CLFE) programs approved by the National Council on Family Relations will be reviewed as a whole in relation to CFS program requirements. It is anticipated that comparable course content from these schools may be divided into different course configurations than that of LLU. Students wishing advanced standing based on units earned at other institutions will be evaluated on a case-by-case basis in accordance with COAMFTE or NCFR standards.
  - c. Advanced standing is not granted for religion courses.
  - d. Doctoral courses taken more than five years previously may be considered for advanced standing only if the content has been used professionally on a regular basis and the student can demonstrate current knowledge in the field.
  - e. Approved prior client contact hours may also be applied. See CFS doctoral handbook for approval process.
  - f. A master's degree in marital and family therapy is a prerequisite for the Ph.D. degree in MFT and the D.M.F.T. degree. Courses earned in completion of this degree are not eligible for advanced standing.
3. Approval process
 

Students seeking advanced standing should meet with their program director prior to admission or within the first two quarters of study and supply copies of each syllabus of prior course work. Following course review, the program director will write a letter to the School of Behavioral Health that outlines which courses from previous institutions qualify for advanced standing and which equivalent CFS courses will be waived. The letter will specify how many units and client contact hours the student will need to complete the degree. Rather than completing separate academic variances for each course, the student will submit one academic variance accompanied by the program director's letter outlining the advanced standing.

## Financial assistance

Students who are accepted into the Ph.D. or D.M.F.T. degree curriculum in marital and family therapy may apply for work-study and department-funded research, teaching, and administrative assistantships awarded by the Department of Counseling and Family Sciences. Departmental awards are contingent on the availability of funds. Students may also apply for need-based financial aid, such as a loan or other work-study programs on campus. Students accepted into the Ph.D. or D.M.F.T. degree curriculum in marital and family therapy are eligible for and encouraged to apply for the AAMFT minority fellowships. See <http://www.aamft.org/> for information.

Students may apply for financial aid by writing to:

Student Financial Aid Office  
 Student Services  
 Loma Linda University  
 Loma Linda, CA 92350  
 909/558-4509

## Accreditation

The Doctor of Marital and Family Therapy degree program and the Doctor of Philosophy degree in marital and family therapy are accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE), 112 South Alfred Street, Alexandria, Virginia 22314; telephone: 703/838-9808; e-mail: [coa@aamft.org](mailto:coa@aamft.org).

## Program Requirements

- Marital and Family Therapy—M.S. (p. 171), D.M.F.T. (p. 175),

## Marital and Family Therapy – M.S

**Program director**  
 Mary E. Moline

The Master of Science degree curriculum in marital and family therapy is designed to give students a broad academic background; as well as professional practice for working with individuals, couples, and families in a variety of settings. These include but are not limited to medical, legal, educational, mental health, managed care, church setting, and private practice.

## Mission, vision, and values

The program's mission: Educating MFT students to provide effective and competent care to diverse families in local, national, and international communities.

The program's vision: MFT students will learn how to "make diverse families whole." The definition, configuration, and experience of family vary widely; and students are trained to regard, respect, and value human difference and family types so as to work successfully with all those who seek the services of a marital and family therapist.

The program has adopted five Loma Linda University values as central to the values of this program:

*Compassion*—The sympathetic willingness to be engaged with the needs and sufferings of others. Among the most memorable depictions of compassion in Scripture is the story of the Good Samaritan.

**Integrity**—The quality of living a unified life in which one's convictions are well-considered and match one's actions. Integrity encompasses honesty, authenticity, and trustworthiness.

**Excellence**—The commitment to exceed minimum standards and expectations.

**Freedom**—The competency and privilege to make informed and accountable choices and to respect the freedom of others. God has called us not to slavery but to freedom.

**Justice**—The commitment to equality and to treat others fairly, renouncing all forms of unfair discrimination.

## Licensure and program accreditation

Marriage and family therapy is established in California by law as a profession requiring state licensure. Persons who desire to enter the profession must have the academic and clinical preparation and must pass required licensing examinations. Clinical license requirements vary by state and include additional hours of supervised clinical practice beyond those hours that are completed while studying for the graduate degree. The Board of Behavioral Sciences (BBS) determined that Loma Linda University's master's degree in marital and family therapy meets the Senate Bill statutory requirements for marriage and family therapy under Business and Professions Code (BPC) section 4980.36 and 4980.37 ([www.bbbs.ca.gov](http://www.bbbs.ca.gov)).

The program offered by Loma Linda University is fully accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COMAFTE), the accrediting body for the American Association for Marriage and Family Therapy (AAMFT). The national commission functions to ensure that academic and clinical training programs adhere to the highest standards of the profession.

## Conduct or disciplinary actions

The applicant should view "instruction for completing application for registration as a marriage and family intern" at the Board of Behavioral Science Examiner's Website for possible issues that may prevent someone from obtaining a marital and family therapy license in the state of California or any state in which a license is may be sought. A person who completes a graduate degree in MFT may be denied licensure due to prior convictions; and this has to be clearly considered before pursuing studies or such license.

## Clinical training

In addition to successful completion of 90 quarter units of academic course work, students in the Marital and Family Therapy Program must complete field experience at clinical placement sites. Upon completion of 18 quarter units, the student will be evaluated by all the teaching faculty to determine if s/he would be allowed to continue the program and/or be permitted to enter the clinical phase of the program. Students have numerous choices of placement sites across Southern California in which to gain required clinical experience. These sites include community mental health centers, private and public agencies, school and hospital settings, and the department's counseling and family sciences clinic. Some stipends are available for trainees. The clinical training includes a seven-quarter practicum sequence and supervision of trainees at a clinical site.

Students must take 18 units of practicum and complete a minimum of 500 clinical hours and 100 direct supervision hours. Of the direct client contact hours, at least 250 hours must be with couples and families. Of

the direct supervision hours, at least 50 hours must be with raw data (video, audio, and live supervision). For every week in which clients are seen, the student must have at least one hour of individual supervision. The ratio of supervision hours to treatment hours must not be less than one hour of supervision to five hours of clinical contact. Students enrolled in the program should consult the clinical training manual regarding clinical training requirements.

## Degree completion

The M.S. degree in marital and family therapy may be completed in either two years of full-time study or at least three years of part-time study. Students have up to five years to complete the degree. In order to maintain full-time status, students must take a minimum of 8 units during the Fall, Winter, Spring, and Summer quarters. Mostly, first-year students attend classes on Tuesday and Thursday; and second-year students attend classes on Monday and Wednesday. Full-time employment is discouraged when a student is enrolled for full-time study. Clinical traineeships are usually on days students are not in class. In order to participate in the June commencement exercises, students must complete all the required 500 clinical hours and the 90 units of required courses.

## Counseling and Family Sciences Clinic

Loma Linda University Counseling and Family Sciences (CFS) Clinic, formerly known as the Marriage and Family Therapy (MFAM) Clinic, is operated by the Department of Counseling and Family Sciences. Located on the second floor of the Loma Linda University Behavioral Health Institute (BHI), it is one of the participating academic clinics. The BHI is an innovative endeavor undertaken by Loma Linda University to offer community members easy access to all behavioral health disciplines in one location. The second floor is the location for an integrated, interdisciplinary clinic staffed by students and residents from psychiatry, psychology, social work, child life, counseling, and marriage and family therapy.

## Financial assistance

Students accepted into the Marital and Family Therapy Program may receive financial assistance through the MFT Stipends Award; merit-based awards, such as teaching fellowships and a variety of research and student service assistantships; or through need-based financial aid, such as a loan or the University's work-study program. On a limited basis, students receive financial assistance during their clinical traineeship. Students must apply for financial aid by writing to:

Student Financial Aid Office  
Student Services  
Loma Linda University  
Loma Linda, CA 92350  
909/558-4509

## Stipend award

Some students may benefit from a financial award provided to support graduate education in marital and family therapy. The MFT Stipend Program is intended to help support the training of persons to work in public mental health and to be able to integrate the values of wellness, recovery, and resilience promoted by the Mental Health Services Act. The purpose of the award is to increase a diverse, culturally sensitive, and competent public mental health workforce.

## Educational outcomes

The program's educational outcomes include program outcomes and student learning outcomes. These outcomes are congruent with the University's and program's missions and are appropriate to the profession of marriage and family therapy.

### 1. Program outcomes

Program outcomes integrate this University's commitment to diversity and quality training of health-care professionals with the need for diverse master's-level practitioners in the field of MFT.

These outcomes are as follows:

- Prepare students to engage in the MFT profession by being eligible for MFT licensure in California, with a 65-to-80 percent pass rate for students who sit for the examination; and by being eligible for membership in AAMFT.
- Maintain a 75-to-90 percent graduation rate.
- Provide a learning environment and resources that allow students to collaborate with other health-care providers and multiple community services (or contexts).
- Graduate a diverse student population who are prepared to practice in the field of marriage and family therapy.

### 2. Student learning outcomes

The University emphasizes whole person care. Each of the seven student learning outcomes for the M.S. degree in MFT supports this mission with a specific emphasis on advancing systems/relational theory and practice in diverse societal contexts. The student will learn to promote the emotional health and well-being of individuals, couples, families, organizations, and communities. Upon completion of the program, the student will have achieved and will be evaluated based on the following learning outcomes:

- Student will be able to identify as a systemic MFT therapist and apply systemic perspective in clinical practice.
- Student will be familiar with a variety of MFT therapies and demonstrate clinical language and practices that enable him/her to work with diverse populations within a multidisciplinary context.
- Student will be able to demonstrate the ability to analyze and present a clinical case using one of the major MFT models.
- Student will demonstrate awareness of contextual issues in therapy, such as gender, religion/spirituality, sexual orientation, age, and socioeconomic status.
- Student will be knowledgeable of the legal and ethical standards relevant to the field of marital and family therapy and apply his/her knowledge to their clinical practice.
- Student will be qualified to apply for internship status and subsequent licensure as an MFT professional aligned with practice standards.

The M.S. degree in marital and family therapy engages in ongoing review of student outcomes and uses this information to improve program effectiveness. Data on student outcomes are collected through aggregate scores on quarterly evaluations of clinical competency and results of final oral and comprehensive examinations; client session and outcome data; and exit surveys and interviews of students at graduation. Alumni surveys are also conducted every two years to track graduates' attainment of marital and family therapy licensure, data on employment, and feedback regarding how well the program prepared graduates for their job responsibilities. The program faculty also maintains regular contact with community agencies and educational institutions in the

region to obtain input into curriculum planning and improvements in clinical training.

## Accreditation

The program is fully accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COMAFTE), the accrediting body for the American Association for Marriage and Family Therapy (AAMFT).

The national commission functions to ensure that academic and clinical training programs adhere to the highest standards of the profession.

## Admissions

In addition to Loma Linda University (p. 24) admissions requirements, admission to the MS in Marital and Family Therapy Program is governed by the policies and procedures established by the School of Behavioral Health (p. 156).

Additional admission requirements include:

- Applicants must have a bachelor's degree from an accredited university or college. The department assesses the liberal arts preparation of each of its applicants in the balance of course work, in three liberal arts (see Liberal Arts Preparation).
- Applicants must submit at least three letters of recommendation (one from an academic source and one from a work supervisor).
- Applicants must meet the minimum academic and professional compatibility criteria established by the program.
- Applicants should have a cumulative grade point average of 3.0 or above (on a 4.0 scale) in bachelor's coursework for at least the final 45 units prior to graduation. Applicants with lower grade point averages will be considered if the last 45 quarter credits (30 semester units) of coursework shows significant improvement or if they have additional attributes that demonstrate preparedness and an appropriate fit for Marital and Family Therapy education. Work and volunteer experiences must be verified by employer/supervisor statements on official agency stationery. Further consideration will also be given to individuals who provide evidence of additional certifications and/or training that illustrate commitment to a career in Marriage and Family Therapy. Anyone who is admitted to the MS in Marital and Family Therapy program with a cumulative G.P.A. below 3.0 will be required to participate in individualized academic assessment and a targeted learning assistance program.
- Special consideration may be given to applicants with grade point averages as low as 2.75 if the last part of their college work shows significant improvement.
- Applicants whose cumulative grade point average does not meet the minimum requirements stated above may receive further consideration for admission by demonstrating background experience(s) that provide evidence that the applicant has the potential to successfully complete the program. The student might verify work or volunteer experience that demonstrates their commitment to working in a Marital and Family Therapy field.
- Interviews are scheduled with department faculty; on-campus group interviews are scheduled during Winter and Spring quarters; other on-campus and telephone interviews are scheduled individually.
- Applicants must show evidence of professional compatibility, personal qualifications, and motivation to complete a graduate program by obtaining a passing score on the admissions interview with the department's admissions committee. Evaluation criteria for the interview include:
  - verbal communication skills

- congruent with the values and mission of Loma Linda University
- critical thinking ability
- comfort/willingness to work with people from diverse backgrounds, language, culture and abilities
- intuitive judgment & skill, talent, and self-awareness
- understanding of the field
- commitment to the field

No academic credit is given for life experiences or previous work experience for any part for the Marriage and Family Therapy degree program.

Pre-entrance clearance (p. 25):

- A background check
- Health clearance

## Program requirements

### Theoretical foundations

MFAM 551	Family Therapy: Foundational Theories and Practice	3
MFAM 552	Couples Therapy: Theory and Practice	3
MFAM 553	Family Systems Theory	3
MFAM 564	Family Therapy: Advanced Foundational Theories and Practice	3

### Clinical knowledge

MFAM 515	Crisis Intervention and Client-Centered Advocacy	3
MFAM 524	Psychopharmacology and Medical Issues	3
MFAM 528	Culture, Socioeconomic Status in Therapy	3
MFAM 556	Psychopathology and Diagnostic Procedures	3
MFAM 567	Treating the Severely and Persistently Mentally Ill and the Recovery Process	3
MFAM 604	Social Context in Clinical Practice: Gender, Class, and Race	3
MFAM 624	Individual and Systems Assessment	3
MFAM 638	Family Therapy and Chemical Abuse	3
MFAM 644	Child Abuse and Family Violence	3
MFAM 674	Human Sexual Behavior	3

### Individual development and family relations

COUN 675	Dynamics of Aging	1
MFAM 547	Social Ecology of Individual and Family Development	3
MFAM 584	Advanced Child and Adolescent Problems	3

### Professional identity and ethics

MFAM 535	Case Presentation and Professional Studies	3
MFAM 614	Law and Ethics	3

### Supervised clinical practice

MFAM 536	Case Presentation Seminar and Documentation	3
MFAM 537	Case Presentation Seminar	3
MFAM 635	Case Presentation Seminar and Legal Issues	3
MFAM 636	Case Presentation Seminar and Client-Centered Advocacy	3
MFAM 637	Case Presentation Seminar and Global Practices	3

MFAM 731	Clinical Training <sup>1</sup>	6
MFAM 732	Clinical Training <sup>1</sup>	9
<b>Religion</b>		
RELR 564	Religion, Marriage, and the Family	3
<b>Group</b>		
MFAM 568	Groups: Process, and Practice	3
<b>Research</b>		
MFAM 501	Research Tools and Methodology: Quantitative	3
MFAM 502	Research Tools and Methodology: Qualitative	3
<b>Electives</b>		
One course in theory required. Select 8 units of the following:		8
COUN 574	Educational Psychology	
COUN 575	Counseling Theory and Applications	
COUN 576	Exceptional and Medically Challenged Children	
COUN 577	Assessment in Counseling	
COUN 578	College and Career Counseling	
COUN 678	Consultation and Program Evaluation	
COUN 680	Field Experience in Counseling	
FMST 524	Family Resource Management	
MFAM 516	Play Therapy	
MFAM 538	Theory and Practice of Conflict Resolution	
MFAM 539	Solution-Focused Family Therapy	
MFAM 544	Family and Divorce Mediation	
MFAM 549	Christian Counseling and Family Therapy	
MFAM 555	Narrative Family Therapy	
MFAM 559	Cognitive-Behavioral Couples Therapy	
MFAM 585	Internship in Family Mediation	
MFAM 605	Gestalt Family Therapy	
MFAM 606	Emotionally Focused Couples Therapy	
MFAM 615	Reflective Practice	
MFAM 665	Structural and Multidimensional Family Therapy	
MFAM 670	Seminar in Sex Therapy	
MFAM 694	Directed Study: Marriage and Family	
MFAM 695	Research Problems: Marriage and Family	
<b>Total Units</b>		<b>90</b>

<sup>1</sup> 700-numbered courses do not count toward total didactic units required for the degree

## Degree requirements

Requirements for the M.S. degree in marital and family therapy from Loma Linda University include the following:

- Residence of at least two academic years.
- A minimum of 90 quarter units of graduate work, which includes credit received for core courses, electives, and a 3-unit religion course.
- Clinical training in marriage and family counseling. At a minimum, 500 clinical hours and 100 direct supervision hours are required. Of the direct client contact hours, at least 250 hours must be with couples and families. Of the direct supervision hours, at least 50 hours must be with raw data (video, audio, and live supervision). For every week in which clients are seen, the student must have at least one hour of individual supervision. The ratio of supervision hours



to treatment hours must not be less than one hour of supervision to five hours of clinical contact. Students enrolled in the program should consult the clinical training manual regarding clinical training requirements.

- Successful completion of a written comprehensive examination (taken before advancement to candidacy) and an oral examination (taken at the end of the program).
- To be counted toward the graduate degree, foreign language courses must be numbered at 400 and above.

## Normal time to complete the program

2 years (7 academic quarters) based on full-time enrollment

## Post-master's course

MFAM 744	Clinical Internship	1
Total Units		1

# Marital and Family Therapy – D.M.F.T.

**Interim program director**  
Winetta Oloo

The Doctor of Marital and Family Therapy (D.M.F.T.) program is the only program in the United States that is accredited by the American Association for Marriage and Family Therapy (AAMFT). The degree curriculum adopts the practitioner-administrator-evaluator approach and focuses on applied skill development for use in clinical practice and administrative positions. The 121-unit\* D.M.F.T. degree curriculum requires a minimum of three years of full-time study for completion. This includes coursework, 1000 hours of direct client contact, a doctoral project, and supervised professional development experience. The goal of the curriculum is to prepare students to apply evidence-based standards to the systemic/relational principles of marriage and family therapy as they design, evaluate, and administer programs that impact a clinical population. The program is also designed to meet the requirements for California state licensure as a Marital and Family Therapist.

\*Students who have completed a M.S. degree from a COAMFTE-accredited program receive advanced standing of forty-three units, reducing the required time to complete the degree to a minimum of two years. Consideration for advanced standing will be given to students entering D.M.F.T. program with a M.A. or M.S. degree from a non-COAMFTE-accredited program on a course-by-course basis.

## Knowledge and skills promoted

### Theory and practice

Students study the work of the original thinkers in marital and family therapy, as well as the most recent developments in the field—such as social constructionism, evidence-based practice, and global perspectives. D.M.F.T. degree students will develop skills in applying marriage and family therapy principles and frameworks to public and private clinical practice settings. They will develop a critical understanding of the theoretical and philosophical foundations of marriage and family therapy, be conversant with the current issues in the field, and use this knowledge to develop programs and services.

### Personal development

The program encourages students to develop a clear understanding of themselves and invites reflection and consideration of the impact of their personal values, social positions, and contexts on their clinical, administrative, and program development practices. Students are supported in the development of their strengths as they create an epistemological framework and ethical consciousness that guide their approach to professional practice in their lives; and are encouraged to engage beyond their local communities to include experiences in wider cultural and global contexts.

### Practice and supervisory skills

Students will apply an in-depth understanding of theory to the practice of marital and family therapy interventions and program activities at the family, community, and societal levels—drawing on the core marriage and family therapy frameworks. They will develop sophistication in clinical, administrative, and supervisory skills necessary for multisystemic engagement. As it is COAMFTE-accredited, the DMFT program offers students the opportunity to become AAMFT-approved supervisors prior to graduation.

### Evaluation skills

Students will develop skills and understanding of the process of evaluation research related to marital and family therapy programs and services. This includes the ability to apply research findings to clinical practice and to utilize research findings in creative ways for the benefit of the general population. D.M.F.T. degree students will focus on evaluation of program performance and outcomes in practice-based settings.

## Student learning outcomes

1. Students will develop a professional identity as doctoral-level marital and family therapists aligned with national practice standards.
2. Students will become adept in systems/relational practice, demonstrating sophistication as therapists, program developers, evaluators, and administrators of marital and family therapy services.
3. Students will be able to use marital and family therapy, human development, and family science literature to design and evaluate programs, clinical protocols, organizational structures, and service-delivery processes.
4. To further benefit families and communities, students will demonstrate the ability to use research and evaluation methodologies to improve human service program performance and outcomes.
5. Students will be responsive to the societal, cultural, and spiritual contexts in which health and well-being are embedded.
6. Students will develop an ethical consciousness that guides their practice in all aspects of professional work.

## Accreditation

The Doctor of Marital and Family Therapy degree program and the Doctor of Philosophy degree in marital and family therapy are accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE), 112 South Alfred Street, Alexandria, Virginia 22314; telephone: 703/838-9808; e-mail: [coa@aamft.org](mailto:coa@aamft.org).

## Admissions

Applicants must meet Loma Linda University (p. 24) and School of Behavioral Health (p. 156) admissions requirements; and give evidence of academic ability, professional comportment, and mature judgment. The Doctor of Marital and Family Therapy degree curriculum represents

advanced study over and above a standard master's degree curriculum in the field. Admission is based on an integrated evaluation of the following criteria:

- Five-page personal essay (guidelines included in the online application).
- M.S. degree in Marital and Family Therapy, or equivalent.
- Grade point average (3.3 minimum).
- Structured oral interview with department (one day).
- Three letters of reference (two academic and one professional).
- Curriculum vitae.

Pre-entrance clearance (p. 25):

- A background check
- Health clearance

## Program requirements

### Corequisites

Students are expected to have basic academic preparation before entering the D.M.F.T. degree curriculum. If a student is deficient in courses, such as those listed below, a plan of study incorporating these courses will be developed to give the student a solid grounding in the foundations of the field. Transcripts will be evaluated to determine readiness or deficiency in previous course work. These courses will be regarded as corequisites in that the student will be able to incorporate them into his/her curriculum.

Theoretical knowledge in family systems/relational therapy	13
Clinical knowledge in marital and family therapy	13
Program development and administration	8.0
Research	19
California licensure-specific knowledge	43

### Corequisites required of students who have not completed a COMAFTE accredited master's degree

COUN 675	Dynamics of Aging	1
MFAM 515	Crisis Intervention and Client-Centered Advocacy	3
MFAM 524	Psychopharmacology and Medical Issues	3
MFAM 536	Case Presentation Seminar and Documentation	3
MFAM 537	Case Presentation Seminar	3
MFAM 547	Social Ecology of Individual and Family Development	3
MFAM 556	Psychopathology and Diagnostic Procedures	3
MFAM 567	Treating the Severely and Persistently Mentally Ill and the Recovery Process	3
MFAM 604	Social Context in Clinical Practice: Gender, Class, and Race	3
MFAM 614	Law and Ethics	3
MFAM 624	Individual and Systems Assessment	3
MFAM 635	Case Presentation Seminar and Legal Issues	3
MFAM 638	Family Therapy and Chemical Abuse	3
MFAM 644	Child Abuse and Family Violence	3
MFAM 674	Human Sexual Behavior	3
Total Units		43

## Curriculum

### Theory and practice

MFTH 504	Advanced Theory in Marital and Family Therapy	4
MFTH 506	Foundations of Systemic Practice	3
MFTH 546	Advances in Family Sciences	3

### Supervision

MFTH 501	Fundamentals of Supervision in Marital and Family Therapy	3
MFTH 502	Advanced Supervision in Marital and Family Therapy	1

### Program development and administration

MFTH 524	Administration in Marital and Family Therapy	3
MFTH 525	Advanced Marital and Family Therapy Assessment and Testing	3
MFTH 555	Organizational Development and Change	3
MFTH 624	Program Development for Families and Communities	3
MFTH 625	Grant Writing	3
MFTH 626	Program Evaluation and Monitoring	3

### Spirituality

RELE 505	Clinical Ethics (or RELE 5__ graduate-level ethics elective)	3
RELR 535	Spirituality and Mental Health	3
RELT 615	Seminar in Philosophy of Religion	3

### Research

MFTH 545	Research and Practice with Couples and Families	3
MFTH 601	Statistics I	4
MFTH 604	Advanced Qualitative Methods	4
MFTH 605	Advanced Quantitative Methods	4

### Dissertation/Doctoral project

MFTH 695	Project Research	12
Total Units		68

### Professional development and practice <sup>2</sup>

MFTH 634	Practicum in Marital and Family Therapy <sup>1</sup>	9
MFTH 785A	Begin Clinical Training in Couple, Marital, and Family Therapy	0
MFTH 785B	Clinical Training in Couple, Marital, and Family Therapy <sup>1,2,3</sup>	4
MFTH 786	Professional Development Proposal	0
MFTH 786A and 786B total combined units <sup>4</sup>		36
MFTH 786A	Professional Development in Marital and Family Therapy	
MFTH 786B	Professional Internship in Marital and Family Therapy—Clinical	
Total Units		49

<sup>1</sup> Course repeated to fulfill total unit requirement

<sup>2</sup> 700-numbered courses do not count in total didactic units required for the degree

<sup>3</sup> Clinical hours earned prior to entering program may be applied to meet this requirement upon approval of Director of Clinical Training.

<sup>4</sup> Those MFTH 786B Professional Internship in Marital and Family Therapy—Clinical units that are completed satisfactorily will reduce the number of MFTH 786A Professional Development in Marital and Family Therapy units needed to meet total requirement of 36 at a 1:1 ratio.

## Noncourse requirements

Doctoral degrees in Marital and Family Therapy will be awarded when students have completed all the required course work and the following noncourse requirements:

- 1000 approved client contact hours, and
- 200 approved hours of clinical supervision, and
- A written qualifying examination, and
- An oral defense of the doctoral dissertation or project.

## Normal time to complete the program

With a COAMFTE-accredited master's degree: **2 years (7 academic quarters)** based on full-time enrollment

With a non-COAMFTE-accredited master's degree: **3 years (11 academic quarters)** based on full-time enrollment

## School Counseling – Certificate

### Program director

Cheryl J. Simpson

The School Counseling Program certificate is one of two options in the Department of Counseling and Family Sciences that qualify a graduate for the California pupil personnel services (PPS) credential in school counseling. Students pursuing the M.S. degree curriculum in the Counseling Program may choose school counseling as a single specialization embedded in the degree program, or combine it with the licensed professional clinical counselor (LPCC) specialization. Students in the Marital and Family Therapy Program may add the School Counseling Program certificate to their M.S. degree curriculum. Successful completion of the certificate, including passing scores on all sections of the California Basic Educational Skills Test (CBEST), will qualify graduates for the California PPS credential in school counseling. As with all department programs, the School Counseling Program certificate is designed in accordance with the department's vision of transforming relationships. Faculty are committed to the mission of facilitating wholeness by promoting health, healing, and hope to individuals, families, and communities through education, research, professional training, community service, and global outreach.

## The call to service

In the heart of the campus, the University's commitment to service is memorialized in the Good Samaritan sculpture that contrasts human indifference and ethnic pride with empathy and service. As counseling needs are more openly recognized and accepted across cultures, students and faculty are called to serve together in local and global communities. Loma Linda University's relationships around the world continue to create unique opportunities for students to join in global partnership through field experience.

## Professional school counseling

Professional school counselors are leaders of counseling programs within the educational system. As articulated by the American School Counselor Association (ASCA), school counseling programs are

preventive in design, developmental in nature, and integral to the total educational program. Counselors address academic, career, and personal/social needs through their work as advocates for K-12 students, collaborators with parents and school personnel, and liaisons to the community. Employment as a school counselor in public schools requires the pupil personnel services credential in school counseling. Combining the school counselor certification with licensure in clinical mental health is an excellent professional path that enhances competence and professional opportunities. Additional information is located on the California Commission on Teacher Credentialing Web site at <<http://www.ctc.ca.gov>>.

## Degree and certificate requirements

The School Counseling Program certificate is paired with the M.S. degree at Loma Linda University. An approved master's degree is required for state credentialing. Therefore, it is not possible to complete the certificate and receive a University recommendation for the school counseling credential until all degree and certificate requirements are completed. This applies to students pursuing the M.S. degree in the Counseling Program (credential option) and the M.S. degree in the Marital and Family Therapy Program (school counseling certificate option). Required courses for the certificate/credential program are listed at the end of this narrative.

## Certificate of clearance prior to field placement

School Counseling Program students must obtain a certificate of clearance (COC) from the state of California before they are allowed to begin field experience. The COC requires verification of a current TB test and a LiveScan, in accordance with state guidelines. The process can take six-to-eight weeks.

## Practicum and field experience

Field experience requirements for the certificate program include 100 hours of prefield practicum followed by 600 hours of field experience. For students in a clinical master's degree, prefield hours are met earlier in the program through clinical placements. In addition, 200 of the required 600 hours of school counseling field experience can be elective hours from clinical training. The remaining 400 hours must be completed as a school counselor trainee in public schools, evenly divided between two different grade blocks (e.g., elementary school, middle school, or high school).

## California Test of Basic Skills (CBEST)

Candidates for the school counseling certificate must take the California Basic Educational Skills Test (CBEST) within the first two quarters following admission to the program and must pass all sections of the CBEST before the University can recommend them for the school counseling credential.

## Financial assistance

This program is not independently eligible for federal financial aid. However, a student can complete the requirements for this certificate while concurrently enrolled in a School of Behavioral Health graduate degree program as noted above (see degree and certificate requirements).

## Program learning outcomes

School Counseling Program students will:

1. Integrate counseling concepts and skills with a personal epistemology.
2. Demonstrate counseling interventions based upon a broad range of theoretical and legal/ethical frameworks through comprehensive written examination.
3. Develop identity as a professional school counselor through membership and participation in professional organizations.
4. Satisfactorily complete 600 clock hours of supervised practicum in counseling, 200 of which may be supervised clinical hours.
5. Meet all University qualifications for the California pupil personnel services credential in school counseling issued by the California Commission on Teacher Credentialing (CTC).

## Accreditation

Loma Linda University is regionally accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; Web site: <<http://www.wascsenior.org>> or <<http://www.wascsenior.org/contact>>. The pupil personnel services (PPS) credential curriculum in school counseling is accredited by the Committee on Accreditation, on behalf of the California Commission on Teacher Credentialing (CTC). Additional PPS information can be obtained by going to the CTC Web site at <<http://www.ctc.ca.gov/>>.

## Admissions

Students pursuing the M.S. degree in the Counseling Program do not need to apply to the School Counseling program (certificate) to qualify for the PPS credential because the curriculum is a specialization option within their degree program. Students pursuing the M.S. degree in the Marital and Family Therapy program must complete the standard online application to enroll in the School Counseling program (certificate) and are advised to consult with the certificate program director prior to initiating application submission. As with all programs in the School of Behavioral Health, applicants must meet Loma Linda University (p. 24) and School of Behavioral Health (p. 156) admissions requirements; and give evidence of academic ability, professional comportment, and mature judgment. Applicants, who meet these requirements as well as the published deadlines for the following terms, may be admitted during Summer, Autumn, Winter, or Spring quarters. Additional admission requirements include:

- Candidate or graduate with qualifying M.S. degree as specified above.
- Minimum grade point average of 3.0 (on a 4.0 scale) in bachelor's course work for at least the final 45 units prior to graduation, or minimum of 3.0 grade point average in master's degree program.
- Three letters of recommendation, as specified (two letters for students already admitted to department master's degree program).
- Written personal statement that addresses career objectives, personal interest in the school counseling profession, rationale for choosing to attend Loma Linda University, how life experiences have influenced applicant's choice to enter professional school counseling, and additional thoughts the applicant deems appropriate. (Will be uploaded as part of the online application process.)
- Interview with program director and department faculty as scheduled. On-campus group interviews are scheduled for early March and late April; other on-campus or telephone interviews are scheduled for individuals as indicated.

Pre-entrance clearance (p. 25):

- A background check
- Health clearance

## Program requirements

The curriculum for the School Counseling Program combines specialization courses for the California Pupil Personnel Services (PPS) credential in school counseling with the requirements for the M.S. degree in marital and family therapy outlined below. The PPS Credential program in school counseling is also offered in the M.S. in Counseling degree as a specialization option. Enrollment in the PPS program is restricted to candidates in one of these two master's degree programs at Loma Linda University.

### Course requirements

COUN 574	Educational Psychology	3
COUN 575	Counseling Theory and Applications	3
COUN 576	Exceptional and Medically Challenged Children	3
COUN 577	Assessment in Counseling	3
COUN 579	Career Theories and Applications	4
COUN 678	Consultation and Program Evaluation	3
COUN 679	Professional School Counseling	3
COUN 681	School Counseling Practicum and Seminar <sup>1</sup>	2
RELR 564	Religion, Marriage, and the Family	3
or RELR 568	Care of the Dying and Bereaved	

### Field experience <sup>2</sup>

COUN 781	School Counseling Field Experience (PPS)	4
COUN 782	School Counseling Field Experience (PPS)	4

Total Units		27
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<sup>1</sup> Course to be taken a minimum of two times

<sup>2</sup> When combining the PPS school counseling certificate/credential program with a clinical master's, only COUN 781 and COUN 782 are required. 700-numbered courses do not count toward minimum didactic units required for the certificate.

### Normal time to complete the program

1 year (4 academic quarters) – based on full-time enrollment; part time permitted

## Systems, Families and Couples—Ph.D.

### Interim program director

Mary E. Moline

The Ph.D. degree in systems, families, and couples follows the scientist-practitioner model in which students are expected to develop expertise in both research and state-of-the-art practice. The 103-unit curriculum requires a minimum of four years of full-time study for completion—including two to three years of course work, clinical practice leading to licensure or certification, a dissertation, and supervised professional development experiences. The purpose of the curriculum is to develop family life scholars and practitioners who will advance theory, research, practice, and teaching in the field of family social science. Students will be prepared for academic and clinical training positions in universities and postgraduate institutes. Ph.D. degree students develop expertise in

conducting original research using quantitative, qualitative, and mixed method approaches.

Students with an undergraduate degree may apply to both the M.S. in marital and family therapy and Ph.D. in systems, families, and couples at Loma Linda University simultaneously, thus, securing their acceptance into the Ph.D. program near the completion on their M.S. program in marital and family therapy or counseling. It should be noted that although individuals apply to both programs simultaneously, the degrees are earned sequentially. That is, the M.S. in MFT degree must be completed prior to beginning Ph.D. courses.

## Knowledge and skills promoted

### Theory and practice

Students study the work of the original thinkers in systems, families, and couples, as well as the most recent developments in the field—such as social constructionism, evidence-based practice, and global perspective. Students will develop a critical understanding of the theoretical and philosophical foundations of the field; critically examine the interrelationships between sociohistorical factors, transnational family structures and relationships, and clinical approaches; be conversant in the current issues in the field; and contribute to the discourse regarding them. They will use this knowledge to advance the field of family therapy.

### Personal development

The program encourages students to develop a clear understanding of themselves; and it invites reflection and consideration of the impact of their personal values, social positions, and contexts on their clinical and scholarly practices. Students are supported in the development of their strengths as they create an epistemological framework and ethical consciousness to guide their research and practice, and are encouraged to engage beyond their local communities to include experiences in wider cultural and global contexts.

### Practice and supervisory skills

Students will apply a critical understanding of theory to work with couples and families, community, and societal levels drawing on the core modalities of the field. They will develop sophistication in their personal and professional skills, supervisory skills, and skills for active multi-systemic involvement.

### Research skills

Students will develop skills and a critical understanding of the process of research and evaluation related to families and intervention work. This includes the ability to apply research findings to clinical practice and to utilize research findings in creative ways for the benefit of the general population. Ph.D. degree students will develop expertise in quantitative, qualitative, and mixed methods research approaches, leading to publication in scholarly journals and presentations at professional conferences.

### Teaching Skills

The program provide experiential and didactic training for teaching in higher educational settings. Through didactic training students will be exposed to various teaching and learning paradigms and will ultimately select their own epistemology. They will test and grow this epistemology through experiential training as they lead a course (develop syllabi, tests, assignments etc.), under the supervision of a faculty member. Advanced students will also be given opportunities to facilitate, or co-facilitate a course on their own.

## Student learning outcomes

1. Students will develop a professional identity as doctoral scholars and practitioners aligned with national practice standards.
2. Students will become adept in systems/relational practice, demonstrating sophistication as a scientist-practitioner.
3. Students will be able assess, synthesize, and critique theory, research, and family science literature to advance and integrate research, theory, and practice in the field.
4. Students will demonstrate knowledge and skills as researchers in the field of family social science.
5. Students will be responsive to the societal, cultural, and spiritual contexts in which health and well-being are embedded.
6. Students will develop an ethical consciousness that guides their practice in aspects of professional work.

## Ph.D. program specialty

Students in the Ph.D. program in systems, families, and couples will choose one of two specialties – 1. Family Studies. 2. Couples and Family Therapy. These specialties include required courses totaling 22 units of coursework and undergirds the whole doctoral program of study.

The Ph.D. program with the couples and family therapy specialty is fully accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COMAFTE), the accrediting body for the American Association for Marriage and Family Therapy (AAMFT). The national commission functions to ensure that academic and clinical training programs adhere to the highest standards of the profession.

## Admissions

Applicants must meet Loma Linda University (p. 24) and School of Behavioral Health (p. 156) admissions requirements; and give evidence of academic ability, professional comportment, and mature judgment. The Ph.D. degree curriculum represents advanced study over and above a standard master's degree curriculum in the field. Admission is based on an integrated evaluation of the following criteria:

- Five-page personal essay (guidelines included in the online application)
- M.S. degree in marital and family therapy, family studies or related field
- Grade point average (3.3 minimum)
- Structured oral interview with department (one day)
- Three letters of reference (two academic and one professional)
- Curriculum vitae (preferred but not required)
- GRE scores (taken within the past five years)

The admissions committee uses the above criteria to evaluate applicants on each of the following equally weighted criteria:

1. Academic preparedness
2. Professional preparedness for doctoral study
3. Research potential
4. Ability to work with diversity
5. Clinical skills

Pre-entrance clearance (p. 25):

- A background check

- Health clearance

## Program requirements

### Corequisites

Student transcripts will be evaluated on a course-by-course basis for the following areas of corequisite study. A plan of study incorporating these standard master's degree-level courses is available for students who have not completed these corequisites. See required master level courses.

Theoretical knowledge in family systems/relational therapy	8
Clinical knowledge in marital and family therapy	16
Individual development and family relations	8
Additional study in the three areas above	4
Professional issues and ethics in marital and family therapy	4
Research	4
Additional related study	4
<b>Total Units</b>	<b>48</b>

### Curriculum

#### Theory and practice

MFTH 504	Advanced Theory in Marital and Family Therapy	4
MFTH 505	Advanced Family Studies	4
MFTH 506	Foundations of Systemic Practice	3
MFTH 544	Health and Illness in Families	3
MFTH 546	Advances in Family Sciences	3

#### Specialty

Choose one of the following specialty areas

##### Couples and family therapy

MFTH 501	Fundamentals of Supervision in Marital and Family Therapy	
MFTH 502	Advanced Supervision in Marital and Family Therapy	
MFTH 519	Teaching in Higher Education	
MFTH 520	Practicum in Teaching	
MFTH 540	Medical Family Therapy	
MFTH 634	Practicum in Marital and Family Therapy <sup>1</sup>	

##### Family studies

FMST 526	Marriage and the Family	
FMST 534	Family Life Education Module 1	
FMST 535	Family Life Education Module 2	
FMST 694	Directed Study: Family Studies	
MFAM 528	Culture, Socioeconomic Status in Therapy	
MFAM 547	Social Ecology of Individual and Family Development	
MFAM 553	Family Systems Theory	
MFAM 674	Human Sexual Behavior	

##### Spirituality

RELE 505	Clinical Ethics (or RELE 5__ or above)	3
RELR 535	Spirituality and Mental Health	3
RELT 615	Seminar in Philosophy of Religion	3

##### Research

MFTH 545	Research and Practice with Couples and Families	3
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MFTH 601	Statistics I	4
MFTH 602	Statistics II	4
MFTH 603	Statistics III	4
MFTH 604	Advanced Qualitative Methods	4
MFTH 605	Advanced Quantitative Methods	4
MFTH 606	Issues in MFT Research	4
MFTH 668	Qualitative Research Practicum	3
<b>Dissertation/Doctoral project</b>		
MFTH 698	Dissertation Research <sup>1</sup>	24
<b>Total Units</b>		<b>102</b>

#### Professional development for specialty in couples and family therapy

MFTH 785A	Begin Clinical Training in Couple, Marital, and Family Therapy	0
MFTH 785B	Clinical Training in Couple, Marital, and Family Therapy <sup>1</sup>	20
MFTH 786	Professional Development Proposal	0
MFTH 786A and 786B total combined units		36
MFTH 786A	Professional Development in Marital and Family Therapy <sup>1</sup>	
MFTH 786B	Professional Internship in Marital and Family Therapy—Clinical	

**Total Units** 56

#### Professional development for speciality in family studies

MFTH 786	Professional Development Proposal	0
MFTH 786A	Professional Development in Marital and Family Therapy <sup>1</sup>	36

<sup>1</sup> Course repeated to fulfill total unit requirement

<sup>2</sup> 700-numbered courses do not count in total didactic units required for the degree

### Noncourse requirements

Doctoral degrees in systems, families and couples will be awarded when students have completed all the required course work and the following noncourse requirements:

- 1000 approved client contact hours, and
- 200 approved hours of clinical supervision, and
- A written qualifying examination, and
- An oral defense of the doctoral dissertation or project.

### Normal time to complete the program

4 years (15 academic quarters) based on full-time enrollment

### Additional required courses for MFT licensure in California

Students entering the PhD program without a COAMFTE accredited master's degree, who wish to obtain licensure in California, will be required to meet the course requirements of the M.S. in Marital & Family Therapy (p. 174) program. A course-by-course evaluation will be done to determine which courses in the student's previous master's degree program fulfill specific course requirements for California licensure.

## Department of Psychology

The Department of Psychology offers a combination of innovative training opportunities in clinical psychology. Both the Doctor of Psychology (Psy.D.) and the Doctor of Philosophy (Ph.D.) degrees in clinical psychology are APA-accredited.

### Mission statement

The mission and motto of Loma Linda University and Loma Linda University Medical Center are "to continue the teaching and healing ministry of Jesus Christ to make man whole." This mission and motto, combined with the University's values of compassion, integrity, excellence, freedom, justice, purity, and humility are central to the Department of Psychology and its programs. The Department of Psychology seeks to advance the institutional mission, both nationally and internationally, through academic, research, and practice activities related to behavioral health.

Loma Linda is part of a worldwide network of health-care systems and is uniquely connected and poised to participate globally through its numerous clinics, hospitals, health-care facilities, and educational institutions throughout the world. This globalized health-care orientation provides expanded training opportunities for students who have a passion for a broader life experience in assisting with the health-care needs of diverse peoples both nationally and internationally.

### Academic writing support

Students who are found to need assistance can contact their program director to arrange individual support.

### Psychology M.A. degree eligibility

As part of the overall doctoral program, a master's degree in psychology—based on the successful completion of course work for the degree—is available to students enrolled in the Ph.D. or Psy.D. degree program. Eligibility for the M.A. degree requires the student to complete 51 units of course work and to formally apply (submit a petition to graduate) for the degree. The Department of Psychology does not admit students to an M.A.-only degree program; and the M.A. degree is not formally awarded at commencement (i.e., students do not participate in the graduation exercise).

A complete list of part-time and voluntary faculty can be viewed on the department web site: <<http://www.llu.edu/behavioral-health/psychology/>>.

#### Interim chair

David A. Vermeersch

#### Primary faculty

Adam L. Arechiga

Hector M. Betancourt

Kendal C. Boyd

Colleen A. Brenner

Paul E. Haerich

Richard E. Hartman

Sylvia M. Herbozo

Grace J. Lee

Holly E.R. Morrell

Cameron L. Neece

David A. Vermeersch

#### Secondary and adjunct faculty

Helen Hopp Marshak

Kelly R. Morton

Jason E. Owen

Janet Sonne

#### Emeritus faculty

Louis E. Jenkins

Alvin J. Straatmeyer

#### Associated faculty

Jerry W. Lee

## Programs

- Psychology – Psy.D. (p. 183), Ph.D. (p. 181), Comparison (p. 186)

## Psychology – Ph.D.

#### Director of clinical training

David A. Vermeersch

The APA-accredited Ph.D. degree program in clinical psychology has been informed by the traditional scientist-practitioner model, which emphasizes training in research and clinical practice. The Ph.D. degree program is designed to be completed in six years (or approximately twenty-four quarters of full-time enrollment).

The specific objective of the Ph.D. degree program is to provide students:

- a solid academic foundation (with a minimum accepted grade of B or Satisfactory (S)),
- high-level training in the empirical methods of science so that they are capable of conducting independent and original research,
- the skills to be highly competent clinicians for whom research and practice constantly inform each other, and
- preparation for academic careers involving research as a significant component.

Among the outcomes measures used to determine the Ph.D. degree program's success in achieving the above-mentioned objectives are the following:

1. Psychological science foundation and clinical course performance, as well as successful completion of the comprehensive examination.
2. Training in empirical methods of science—performance in research methods and statistics courses, thesis, and dissertation; presentations, publications, and grants; research and teaching assistantships; teaching positions in area colleges/universities; and membership in scientific/professional organizations.
3. Clinical skills—performance in general clinical, assessment, and treatment courses; ongoing clinical evaluations from practicum

placements and internship; and successful completion of the comprehensive examination.

## Curriculum

The clinical Ph.D. degree program requires completion of course work in the following areas: psychological science foundations, quantitative/research foundations, wholeness, general and elective courses, psychological assessment and treatment, clinical practice, and research.

The specific course requirements are predicated on the training model (i.e., scientist-practitioner). The specific curriculum requirements associated with the Ph.D. degree program are indicated below.

With regard to elective courses, all students are required to complete a specified number of elective units for the completion of their degree. The department offers elective course work in specialty areas such as clinical health psychology, neuroscience and neuropsychology, clinical child psychology, and social/cultural health psychology, among other areas.

Students have the option (but are not required) to utilize 12 units of their total elective unit requirement to fulfill a professional concentration.

In order to complete a professional concentration, students must submit a formal proposal to the Department Academic Affairs Committee indicating the 12 elective units they propose to use toward the completion of their professional concentration, as well as the proposed title of the professional concentration. The Department Academic Affairs Committee will consider each proposal individually in making a recommendation to support/not support the proposed concentration.

## Accreditation

The Doctor of Philosophy degree in clinical psychology is accredited by the Commission on Accreditation of the American Psychological Association. Questions related to the program's accreditation status should be directed to the Commission on Accreditation:

Office of Program Consultation and Accreditation  
American Psychological Association  
750 1<sup>st</sup> Street, NE, Washington, DC 20002  
telephone: 202/336-5979; e-mail: [apaaccred@apa.org](mailto:apaaccred@apa.org); Web site: <http://www.apa.org/ed/accreditation>

## Admissions

In addition to Loma Linda University (p. 24) and School of Behavioral Health (p. 156) and the Faculty of Graduate Studies admissions requirements, the following minimum criteria are preferable to be considered for a pre-admission interview:

- A bachelor's degree in psychology or a related discipline.
- An undergraduate G.P.A. of 3.0 or higher on a 4.0 scale **or** a master's degree G.P.A. of **3.3** or higher from a regionally accredited graduate program
- *Verbal and quantitative scores, Graduate Record Examination (GRE) general test:* The sum of the GRE verbal and quantitative percentile rankings must equal or exceed 100, and neither percentile ranks can be below the 35<sup>th</sup> percentile. Only the most current GRE scores are admissible (exam must have been taken within the last 5 years and the most recent dated exam will be considered). The GRE psychology subject examination is not required.
- *Writing assessment, GRE general test:* The GRE analytical writing section score must equal 4.0 or higher.

- *Structured pre-admission interview by invitation:* The psychology department requires a structured pre-admissions interview.
- *Recommendation letters:* Three letters of recommendation from professionals unrelated to the applicant and qualified to assess the applicant's potential for graduate education. A minimum of two letters are preferred from current or previous professors.

Any exceptions to the established G.P.A. and GRE minimum criteria, or any other admissions criteria, are made at faculty discretion and grounded on faculty's overall assessment of the applicant and his/her credentials (e.g., demonstrated record of scholarship and/or specialized research training, strength of the applicant's prior academic training / institution, strength of applicant's letters of recommendation, and previous clinical experience).

## Program requirements

### Core Curriculum I: Foundations of psychological science

PSYC 524	History, Systems, and Philosophy of Psychology	2
PSYC 545	Cognitive Foundations	4
PSYC 551	Psychobiological Foundations	4
PSYC 564	Foundations of Social and Cultural Psychology	4
PSYC 575	Foundations of Human Development	4
PSYC 591	Colloquia (One unit each year for three years) <sup>5</sup>	3

### Core Curriculum II: Quantitative psychology research methodology

PSYC 501	Advanced Statistics I	4
PSYC 502	Advanced Statistics II	4
PSYC 503	Advanced Multivariate Statistics (required only for M.A. of students pursuing the Ph.D.)	4
PSYC 505	Research Methods in Psychological Science	4
PSYC 511	Psychometric Foundations	3

### Core Curriculum III: Wholeness

PSYC 526	Ethics and Legal Issues in Clinical Psychology	3
PSYC 554	Health Psychology	4
PSYC 567	Human Diversity	3
Choose one course from each prefix		9
RELE 5__	Graduate-level Ethics <sup>1</sup>	
RELR 535	Spirituality and Mental Health (or another RELR graduate-level relational elective)	
RELT 5__	Graduate-level Theological <sup>1</sup>	

### Clinical psychology: General

PSYC 555	Psychopharmacology	2
PSYC 571	Adult Psychopathology	4
PSYC 681	Clinical Supervision and Consultation	2

### Psychological assessment

PSYC 512	Cognitive/Intellectual Assessment	2
PSYC 512L	Cognitive/Intellectual Practice Laboratory	1
PSYC 513	Objective Personality Assessment	2
PSYC 513L	Objective Personality Practice Laboratory	1
PSYC 516	Neuropsychological Assessment	2
PSYC 516L	Neuropsychological Assessment Practice Laboratory	1

### Psychological treatment

PSYC 581	Evidence-Based Psychological Practice I	2
PSYC 581L	Evidence-Based Psychological Practice I (Laboratory)	1



PSYC 582	Evidence-Based Psychological Practice II	2
PSYC 582L	Evidence-Based Psychological Practice II (Laboratory)	1
PSYC 583	Evidence-Based Psychological Practice III	2
PSYC 583L	Evidence-Based Psychological Practice III (Laboratory)	1
PSYC 584	Evidence-Based Psychological Practice IV	2
PSYC 584L	Evidence-Based Psychological Practice IV (Laboratory)	1

**Elective**

Possible electives include, but are not limited to: <sup>2</sup> 18

PSYC 566	Cultural Psychology	
PSYC 604	Advanced Topics in Multivariate Analyses	
PSYC 676	Geropsychology <sup>3</sup>	
PSYC 681L	Clinical Supervision and Consultation Laboratory	
PSYC 683	Management and Professional Practice	
PSYC 684	Human Sexual Behavior and Treatment <sup>3</sup>	
PSYC 685	Drug Addiction and Therapy <sup>3</sup>	
PSYC 686	Child, Partner, and Elder Abuse <sup>3</sup>	
PSYC 795	Directed Clinical Experience <sup>4</sup>	

**Research**

PSYC 597	Supervised Research <sup>5</sup>	8
PSYC 697	Doctoral Research <sup>5</sup>	43
Total Units		157

**Clinical practice <sup>4</sup>**

PSYC 721	Practicum Preparation I	3
PSYC 781	Internal Practicum <sup>5</sup>	8
PSYC 782	External Practicum I	4
PSYC 783	External Practicum II	4
PSYC 784	External Practicum III	4
PSYC 785	External Practicum IV	4
PSYC 798	Pre-Internship <sup>5</sup>	16
PSYC 799B	Internship (10 units per quarters [2000 hours]) <sup>5</sup>	40
Total Units		83

<sup>1</sup> RELE 600 level courses will also be accepted

<sup>2</sup> Students may meet their elective-unit requirement through any of the following: 1) any elective course chosen from this list, 2) any other elective course offered by the Department of Psychology that is not being used to meet another requirement, 3) any graduate-level course offered in any other department in the School of Behavioral Health, or 4) any graduate-level course offered in any other school other than the School of Behavioral Health with department approval.

<sup>3</sup> California licensure

<sup>4</sup> 700-numbered courses do not count toward total graduate units required for the degree

<sup>5</sup> Multiple registrations required to fulfill total required units.

**Minimum required grade point average**

Students must maintain a minimum grade point average of B (3.0) in all courses taken for the degree.

**Comprehensive examination**

Students in the Ph.D. program must successfully pass the comprehensive examination. The comprehensive examination is taken after completing the core curriculum. Though the specific format of the comprehensive examination is subject to change, the department currently utilizes the Examination for Professional Practice in Psychology (EPPP) as the comprehensive examination. This examination covers the following domains:

- Biological bases of behavior
- Cognitive— affective bases of behavior
- Social and multicultural bases of behavior
- Growth and lifespan development
- Assessment and diagnosis
- Treatment/Intervention
- Research Methods
- Ethical/Legal/Professional issues

**Doctoral research**

Students in the Clinical Ph.D. program are expected to meet specified research requirements, among which are a thesis and a dissertation. The requirements for the thesis and dissertation are delineated by the Department in accordance with standards established by the School of Behavioral Health (SBH) and the Faculty of Graduate Studies (FGS).

For both the thesis and doctoral dissertation, a formal proposal must be submitted to and approved by a faculty supervisory committee. Furthermore, upon completion of each project, a public defense before the supervisory committee is required.

**Advancement to candidacy**

Students may apply for doctoral candidacy upon successful completion of:

- the core curriculum
- required practicum experiences
- the comprehensive examination
- the thesis
- the doctoral dissertation proposal

**Normal time to complete the program**

6 years – full-time enrollment required

**Psychology – Psy.D.****Director of clinical training**

Adam L. Aréchiga

The APA-accredited Psy.D. degree program, influenced by the practitioner-scholar model, emphasizes training in clinical practice based on the understanding and application of scientific psychological principles and research. The Psy.D. degree program is designed to be completed in five years (or approximately 20 quarters of full-time enrollment).

The specific objectives of the Psy.D. degree program are to provide students:

- a solid academic foundation (with a minimum accepted grade of B or Satisfactory [S]),
- the highest level of clinical skills, and

- the ability to apply research relevant to clinical issues and cases.

Among the outcomes measures used to determine the Psy.D. degree program's success in achieving the above-mentioned objectives are the following:

1. Psychological science foundation and clinical course performance, as well as successful completion of the comprehensive examination.
2. Clinical skills development as evidenced by performance in general clinical, assessment, and treatment courses; ongoing clinical evaluations from practicum placements and internship; and successful completion of the comprehensive examination.
3. Application of research design and methods appropriate to the doctoral project; involvement in community-based program development, evaluation, and consultation; membership in professional organizations; and passing the national licensing examination.

The Psy.D. degree program makes a systematic attempt to promote an understanding of human behavior in relation to psychological, physical, spiritual, and social/cultural dimensions. For this purpose, the program provides a positive environment for the study of psychological, biological, cultural, social, and spiritual issues relevant to psychological research and practice.

## Curriculum

The clinical Psy.D. degree program requires completion of course work in the following areas: psychological science foundations, quantitative/research foundations, wholeness, general and elective courses, psychological assessment and treatment, clinical practice, and research.

The specific course requirements are predicated on the training model (i.e., practitioner-scholar). The specific curriculum requirements associated with the Psy.D. degree program are indicated below.

With regard to elective courses, all students are required to complete a specified number of elective units for the completion of their degree. The department offers elective course work in specialty areas such as clinical health psychology, neuroscience and neuropsychology, clinical child psychology, and social/cultural health psychology, among other areas.

Students have the option (but are not required) to utilize 12 units of their total elective unit requirement to fulfill a professional concentration.

In order to complete a professional concentration, students must submit a formal proposal to the Department Academic Affairs Committee indicating the 12 elective units they propose to use toward the completion of their professional concentration, as well as the proposed title of the professional concentration. The Department Academic Affairs Committee will consider each proposal individually in making a recommendation to support/not support the proposed concentration.

## Accreditation

The Doctor of Psychology degree in clinical psychology is accredited by the Commission on Accreditation of the American Psychological Association. Questions related to the program's accreditation status should be directed to the Commission on Accreditation:

Office of Program Consultation and Accreditation  
American Psychological Association  
750 1<sup>st</sup> Street, NE, Washington, DC 20002

telephone: 202/336-5979; e-mail: apaaccred@apa.org; Web site: <http://www.apa.org/ed/accreditation>

## Admissions

In addition to Loma Linda University (p. 24) and School of Behavioral Health (p. 156) and the Faculty of Graduate Studies admissions requirements, the following minimum criteria are preferable to be considered for a pre-admission interview:

- A bachelor's degree in psychology or a related discipline.
- An undergraduate G.P.A. of 3.0 or higher on a 4.0 scale **or** a master's degree G.P.A. of 3.3 or higher from a regionally accredited graduate program
- *Verbal and quantitative scores, Graduate Record Examination (GRE) general test:* The sum of the GRE verbal and quantitative percentile rankings must equal or exceed 100, and neither percentile ranks can be below the 35<sup>th</sup> percentile. Only the most current GRE scores are admissible (exam must have been taken within the last 5 years and the most recent dated exam will be considered). The GRE psychology subject examination is not required.
- *Writing assessment, GRE general test:* The GRE analytical writing section score must equal 4.0 or higher.
- Structured pre-admission interview by invitation: The psychology department requires a structured pre-admissions interview.
- *Recommendation letters:* Three letters of recommendation from professionals unrelated to the applicant and qualified to assess the applicant's potential for graduate education. A minimum of two letters are preferred from current or previous professors.

Any exceptions to the established G.P.A. and GRE minimum criteria, or any other admissions criteria, are made at faculty discretion and grounded on faculty's overall assessment of the applicant and his/her credentials (e.g., demonstrated record of scholarship and/or specialized research training, strength of the applicant's prior academic training / institution, strength of applicant's letters of recommendation, and previous clinical experience).

## Degree requirements

### Core Curriculum I: Foundations of psychological science

PSYC 524	History, Systems, and Philosophy of Psychology	2
PSYC 545	Cognitive Foundations	4
PSYC 551	Psychobiological Foundations	4
PSYC 564	Foundations of Social and Cultural Psychology	4
PSYC 575	Foundations of Human Development	4
PSYC 591	Colloquia (one unit each year for three years) <sup>5</sup>	3

### Core Curriculum II: Quantitative psychology research methodology

PSYC 501	Advanced Statistics I	4
PSYC 502	Advanced Statistics II	4
PSYC 505	Research Methods in Psychological Science	4
PSYC 511	Psychometric Foundations	3

### Core Curriculum III: Wholeness

PSYC 526	Ethics and Legal Issues in Clinical Psychology	3
PSYC 554	Health Psychology	4
PSYC 567	Human Diversity	3
Choose one course from each prefix		9
RELE 5__	Graduate-level ethics	

RELR 535	Spirituality and Mental Health (or another RELR graduate-level relational elective)	
RELT 5__	Graduate-level theological <sup>1</sup>	
<b>Clinical psychology: General</b>		
PSYC 555	Psychopharmacology	2
PSYC 571	Adult Psychopathology	4
PSYC 681	Clinical Supervision and Consultation	2
PSYC 681L	Clinical Supervision and Consultation Laboratory	1
PSYC 683	Management and Professional Practice	1
<b>Psychological assessment</b>		
PSYC 512	Cognitive/Intellectual Assessment	2
PSYC 512L	Cognitive/Intellectual Practice Laboratory	1
PSYC 513	Objective Personality Assessment	2
PSYC 513L	Objective Personality Practice Laboratory	1
PSYC 516	Neuropsychological Assessment	2
PSYC 516L	Neuropsychological Assessment Practice Laboratory	1
<b>Psychological treatment</b>		
PSYC 581	Evidence-Based Psychological Practice I	2
PSYC 581L	Evidence-Based Psychological Practice I (Laboratory)	1
PSYC 582	Evidence-Based Psychological Practice II	2
PSYC 582L	Evidence-Based Psychological Practice II (Laboratory)	1
PSYC 583	Evidence-Based Psychological Practice III	2
PSYC 583L	Evidence-Based Psychological Practice III (Laboratory)	1
PSYC 584	Evidence-Based Psychological Practice IV	2
PSYC 584L	Evidence-Based Psychological Practice IV (Laboratory)	1
<b>Electives</b>		19
Electives include, but are not limited to: <sup>2</sup>		
PSYC 566	Cultural Psychology	
PSYC 604	Advanced Topics in Multivariate Analyses	
PSYC 676	Geropsychology	
PSYC 684	Human Sexual Behavior and Treatment <sup>3</sup>	
PSYC 685	Drug Addiction and Therapy <sup>3</sup>	
PSYC 686	Child, Partner, and Elder Abuse <sup>3</sup>	
<b>Research</b>		
PSYC 696	Psy.D. Doctoral Research <sup>5</sup>	16
<b>Total Units</b>		121
<b>Clinical practice<sup>4</sup></b>		
PSYC 721	Practicum Preparation I	3
PSYC 781	Internal Practicum <sup>5</sup>	8
PSYC 782	External Practicum I	4
PSYC 783	External Practicum II	4
PSYC 784	External Practicum III	4
PSYC 785	External Practicum IV	4
PSYC 798	Pre-Internship <sup>5</sup>	16
PSYC 799B	Internship (10 units per quarters [2000 hours]) <sup>5</sup>	40
<b>Total Units</b>		83

<sup>2</sup> Students may meet their elective-unit requirement through any of the following: 1) any elective course chosen from this list, 2) any other elective course offered by the Department of Psychology that is not being used to meet another requirement, 3) any graduate-level course offered in any other department in the School of Behavioral Health, or 4) any graduate-level course offered in any other school other than the School of Behavioral Health with department approval.

<sup>3</sup> California licensure

<sup>4</sup> 700-numbered courses do not count toward total didactic units required for the degree

<sup>5</sup> Multiple registrations required to fulfill total required units.

## Minimum required grade point average

Students must maintain a minimum grade point average of B (3.0) in all courses taken for the degree.

## Comprehensive examination

Students in the Psy.D. program must successfully pass the comprehensive examination. The comprehensive examination is taken after completing the core curriculum. Though the specific format of the comprehensive examination is subject to change, the department currently utilizes the Examination for Professional Practice in Psychology (EPPP) as the comprehensive examination. This examination covers the following domains:

- Biological bases of behavior
- Cognitive— affective bases of behavior
- Social and multicultural bases of behavior
- Growth and lifespan development
- Assessment and diagnosis
- Treatment/Intervention
- Research Methods
- Ethical/Legal/Professional issues

## Doctoral research

Students in the Psy.D. programs are expected to complete specified research requirements, among which is the doctoral project, the requirements of which are delineated by the Department in accordance with standards established by the School of Behavioral Health (SBH).

For the doctoral project, a formal proposal must be submitted to and approved by a faculty supervisory committee. Furthermore, upon completion of the project, a public defense before the supervisory committee is required.

## Advancement to candidacy

Students may apply for doctoral candidacy upon successful completion of:

- the core curriculum (Parts I, II, III);
- required practicum experiences
- the comprehensive examination
- the doctoral project proposal

## Normal time to complete the program

5 years – full-time enrollment required

<sup>1</sup> RELE 600 level courses will also be accepted

## Psychology - Ph.D., Psy.D. Comparison

Course Title		PsyD	PhD
<b>Core Curriculum I: Foundations of Psychological Science</b>			
PSYC 524	History, Systems, and Philosophy of Psychology	2.0	2.0
PSYC 545	Cognitive Foundations	4.0	4.0
PSYC 551	Psychobiological Foundations	4.0	4.0
PSYC 564	Foundations of Social and Cultural Psychology	4.0	4.0
PSYC 575	Foundations of Human Development	4.0	4.0
PSYC 591	Colloquia (One unit each year for three years)	3.0	3.0
Totals		21.0	21.0
Course Title		PsyD	PhD
<b>Core Curriculum II: Quantitative Psychology Research Methodology</b>			
PSYC 501	Advanced Statistics I	4.0	4.0
PSYC 502	Advanced Statistics II	4.0	4.0
PSYC 505	Research Methods in Psychological Science	4.0	4.0
PSYC 511	Psychometric Foundations	3.0	3.0
PSYC 503	Advanced Multivariate Statistics (required only for MA of students pursuing the PhD)		4.0
Totals		15.0	19.0
Course Title		PsyD	PhD
<b>Core Curriculum III: Wholeness</b>			
Choose one course from each prefix		9.0	9.0
RELE 5_ Graduate-level ethics			
RELR 535	Spirituality and Mental Health		
RELT 5_ Graduate-level theological <sup>1</sup>			
PSYC 526	Ethics and Legal Issues in Clinical Psychology	3.0	3.0
PSYC 554	Health Psychology	4.0	4.0
PSYC 567	Human Diversity	3.0	3.0
Totals		19.0	19.0
Course Title		PsyD	PhD
<b>Clinical Psychology: General</b>			
PSYC 571	Adult Psychopathology	4.0	4.0
PSYC 555	Psychopharmacology	2.0	2.0
PSYC 681	Clinical Supervision and Consultation	2.0	2.0
PSYC 681L	Clinical Supervision and Consultation Laboratory	1.0	
PSYC 683	Management and Professional Practice	1.0	
Totals		10.0	8.0
Course Title		PsyD	PhD
<b>Psychological Assessment</b>			
PSYC 512	Cognitive/Intellectual Assessment	2.0	2.0
PSYC 512L	Cognitive/Intellectual Practice Laboratory	1.0	1.0
PSYC 513	Objective Personality Assessment	2.0	2.0
PSYC 513L	Objective Personality Practice Laboratory	1.0	1.0
PSYC 516	Neuropsychological Assessment	2.0	2.0
PSYC 516L	Neuropsychological Assessment Practice Laboratory	1.0	1.0
Totals		9.0	9.0
Course Title		PsyD	PhD
<b>Psychological Treatment</b>			
PSYC 581	Evidence-Based Psychological Practice I	2.0	2.0
PSYC 581L	Evidence-Based Psychological Practice I	1.0	1.0
PSYC 582	Evidence-Based Psychological Practice II	2.0	2.0

PSYC 582L	Evidence-Based Psychological Practice II	1.0	1.0
PSYC 583	Evidence-Based Psychological Practice III	2.0	2.0
PSYC 583L	Evidence-Based Psychological Practice III	1.0	1.0
PSYC 584	Evidence-Based Psychological Practice IV	2.0	2.0
PSYC 584L	Evidence-Based Psychological Practice IV	1.0	1.0
Totals		12.0	12.0

	Course Title	PsyD	PhD
<b>Electives</b>			
Other options available for Psy.D. electives <sup>3</sup>		19.0	

PSYC 566	Cultural Psychology		
PSYC 604	Advanced Topics in Multivariate Analyses		
PSYC 676	Geropsychology		
PSYC 684	Human Sexual Behavior and Treatment		
PSYC 685	Drug Addiction and Therapy		
PSYC 686	Child, Partner, and Elder Abuse		

Other options available for Ph.D. electives <sup>3</sup>			18.0
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PSYC 566	Cultural Psychology		
PSYC 604	Advanced Topics in Multivariate Analyses		
PSYC 676	Geropsychology		
PSYC 681L	Clinical Supervision and Consultation Laboratory		
PSYC 683	Management and Professional Practice		
PSYC 684	Human Sexual Behavior and Treatment		
PSYC 685	Drug Addiction and Therapy		
PSYC 686	Child, Partner, and Elder Abuse		
PSYC 795	Directed Clinical Experience		

Totals		19.0	18.0
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	Course Title	PsyD	PhD
<b>Research</b>			
PSYC 696	Psy.D. Doctoral Research	16.0	
PSYC 597	Supervised Research		8.0
PSYC 697	Doctoral Research		43.0
Totals		16.0	51.0
Overall Totals		121.0	157.0

	Course Title	PsyD	PhD
<b>Clinical practice</b>			
PSYC 721	Practicum Preparation I <sup>4</sup>	3.0	3.0
PSYC 781	Internal Practicum <sup>4</sup>	8.0	8.0
PSYC 782	External Practicum I <sup>4</sup>	4.0	4.0
PSYC 783	External Practicum II <sup>4</sup>	4.0	4.0
PSYC 784	External Practicum III <sup>4</sup>	4.0	4.0
PSYC 785	External Practicum IV <sup>4</sup>	4.0	4.0
PSYC 798	Pre-Internship <sup>4</sup>	16.0	16.0
PSYC 799B	Internship (10 units per quarter, total 40 units [2000 hours]) <sup>4</sup>	40.0	40.0
Totals		83.0	83.0

PSYC 696	Psy.D. Doctoral Research	16.0	
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PSYC 597	Supervised Research		8.0
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PSYC 697	Doctoral Research		43.0
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Totals		16.0	51.0
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Overall Totals		121.0	157.0
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	Course Title	PsyD	PhD
<b>Clinical practice</b>			
PSYC 721	Practicum Preparation I <sup>4</sup>	3.0	3.0
PSYC 781	Internal Practicum <sup>4</sup>	8.0	8.0
PSYC 782	External Practicum I <sup>4</sup>	4.0	4.0
PSYC 783	External Practicum II <sup>4</sup>	4.0	4.0
PSYC 784	External Practicum III <sup>4</sup>	4.0	4.0
PSYC 785	External Practicum IV <sup>4</sup>	4.0	4.0
PSYC 798	Pre-Internship <sup>4</sup>	16.0	16.0
PSYC 799B	Internship (10 units per quarter, total 40 units [2000 hours]) <sup>4</sup>	40.0	40.0
Totals		83.0	83.0

PSYC 721	Practicum Preparation I <sup>4</sup>	3.0	3.0
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PSYC 781	Internal Practicum <sup>4</sup>	8.0	8.0
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PSYC 782	External Practicum I <sup>4</sup>	4.0	4.0
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PSYC 783	External Practicum II <sup>4</sup>	4.0	4.0
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PSYC 784	External Practicum III <sup>4</sup>	4.0	4.0
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PSYC 785	External Practicum IV <sup>4</sup>	4.0	4.0
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PSYC 798	Pre-Internship <sup>4</sup>	16.0	16.0
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PSYC 799B	Internship (10 units per quarter, total 40 units [2000 hours]) <sup>4</sup>	40.0	40.0
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Totals		83.0	83.0
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Totals		83.0	83.0
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<sup>1</sup> RELE 500- or 600-level courses will also be accepted

<sup>2</sup> RELT 500- or 600-level courses will also be accepted

<sup>3</sup> Students may meet their elective-unit requirement through any of the following: 1) any elective course chosen from this list, 2) any other elective course offered by the Department of Psychology that is not being used to meet another requirement, 3) any graduate-level course offered in any other department in the School of Behavioral Health, or 4) any graduate-level course offered in any other school other than the School of Behavioral Health with department approval.

<sup>4</sup> 700-numbered courses do not count toward total didactic units required for the degree



## Department of Social Work and Social Ecology

The Department of Social Work and Social Ecology is an interdisciplinary academic unit that supports the institution's commitment to human wholeness and its belief that one's fullest development is achieved when all subsystems affecting the individual are understood and in balance. Both conceptually and pragmatically, the programs in the Department of Social Work and Social Ecology are guided by an overarching ecological (bio-psycho-social-spiritual) perspective and methodological framework that supports the use of scientific methods of problem analysis and program design.

A key component in this framework is the importance of interdisciplinary scholarship when studying the interrelated aspects of behavioral, sociopolitical, economic, and environmental problems. The result is an interdisciplinary teaching, learning, and practice environment brought together for the purpose of creating sustainable interventions directed toward improving the functioning of individuals, families, groups, organizations, institutions, and communities. As such, priority has been given to creating an academic milieu favorable to educating competent, ethical, and compassionate professionals and scholars for advanced practice roles—capable of respecting and addressing the needs of diverse populations.

### Academic writing support

Students who need writing support can contact their program director to arrange for individual assistance.

### Combined degrees

The department offers three dual degrees: social work with criminal justice (M.S.W / M.S.), social work with gerontology (M.S.W / M.S.), and an M.S.W. with Ph.D in social policy and social research. See the *Combined Degrees Programs of the University* on the sidebar for additional information regarding our dual degree programs.

A complete list of part-time and voluntary faculty can be viewed on the department web site: <<http://www.llu.edu/behavioral-health/socialwork/>>.

### Chair

Beverly J. Buckles

### Executive associate chair

Kimberly Freeman

### Primary faculty

Qais Alemi

Beverly J. Buckles

Monte Butler

Kimberly Freeman

G. Victoria Jackson

Sigrid James

Viola Lindsey

Allison Maxwell

Susanne Montgomery

Larry Ortiz

### Secondary faculty

Neil Driscoll

Craig R. Jackson

Veronica Kelley

William Murdoch

Martha Parra

Allan Rawland

Sally Richter

Kristen Slagter

### Emeritus faculty

Dianna Simon

Ignatius Yacoub

## Programs

- Criminal Justice – M.S. (p. 189)
- Gerontology – M.S. (p. 191)
- Play Therapy – Certificate (p. 193)
- Social Policy and Social Research – Ph.D. (p. 193)
- Social Work – M.S.W. (p. 195)

## Criminal Justice – M.S.

### Program director

Froylana Heredia-Miller

Loma Linda University's motto, "To make man whole," provides a powerful and much-needed context in which criminal justice, within a mental health framework, can be addressed on the basis of healing and restoration.

An interdisciplinary approach to this course of study considers the biological, psychological, social, and spiritual well-being of victims, offenders, and communities. The curriculum provides a deeper understanding of crime and the struggle of the modern criminal justice system within a forensic mental health specialization.

## Mission

The mission of the Criminal Justice Program is to prepare students to think critically and analytically about the problems of crime and social control in contemporary society and to work with the legal system as it relates to a forensic mental health framework.

## Program objectives

Students will demonstrate:

- The ability to integrate and utilize knowledge of social science and theories of criminology as these apply to criminal justice issues within mental health settings.

- An understanding of the dimensions and causes of crime and delinquency.
- An understanding of the structure of the American criminal justice system.
- An understanding of the ethical principles that guide the concepts of justice and fairness within professional criminal justice/forensic mental health practice.
- An understanding of major mental illness and treatment interventions within a forensic mental health framework.
- An understanding of the differences between retributive and restorative justice approaches in addressing the effects of crime.

## General overview

The 48-quarter unit program begins with 16 units of core course work. The curriculum is divided into three professional areas of study, which include: criminal justice, religion and ethics, and social research methods. During the final year of study, students complete the forensic mental health specialization along with specialized selectives. Forensic mental health is a specialized branch of professional practice in which the clinical and criminal justice worlds overlap. Students will focus on the needs of individuals in the criminal or juvenile justice systems that have serious emotional disorders and/or severe mental illness, and may also present with co-occurring substance abuse. Students will gain knowledge and skills in treatment programming. In addition, students will be prepared to assess and provide expert testimony regarding continued institutionalization versus readiness for outpatient psychosocial rehabilitation, including the development and implementation of assertive community treatment plans.

Students have two options to complete the program:

1. Nonthesis: Professional practica (540 hours of integrated practicum and seminar) and 9 units of didactic selectives; OR
2. Thesis: 6 units of academic thesis and 3 units of didactic selectives.

## Liberal arts preparation

The M.S.W. and criminal justice curricula are built on a liberal arts perspective. Individual applicants whose undergraduate degree does not reflect this perspective may be asked to enroll in additional courses, which must be completed before advancement to candidacy (prior to beginning the advanced curriculum).

Unit values represent the quarter system of measurement. Content from multiple courses may be used to meet most requirements.

## Admissions

In addition to Loma Linda University (p. 24) admission requirements, this program follows the admission requirements of the School of Behavioral Health (p. 156), as follows:

1. Applicants must meet the minimum academic and professional compatibility criteria established by the program. These criteria include:
  - A cumulative undergraduate grade point average of 3.0 or above (on a 4.0 scale). Applicants with lower grade point averages will be considered if the last 45-quarter credits (30 semester units) of non-field practica coursework shows significant improvement or if they have additional attributes that demonstrate preparedness and an appropriate fit for graduate education in the area of Criminal Justice. Work and volunteer experiences must be verified by employer/supervisor statements on official agency stationery.

Further consideration will also be given to individuals who provide evidence of additional graduate coursework, certifications, and/or training that illustrate preliminary preparation for a career in Criminal Justice. Students who are admitted to the Criminal Justice Program with a cumulative G.P.A. below 3.0 may be required to participate in individualized academic assessment and a targeted learning assistance program.

- Demonstration, through the application and interview processes, of compatibility with professional standards set by the program including the ability to develop and nurture interpersonal relationships, communication skills, self-awareness, professional comportment, critical thinking skills, fit with the mission and values of Loma Linda University and the Department of Social Work and Social Ecology, and the capacity to successfully complete the Master of Science in Criminal Justice curriculum.

2. Submission of three letters of recommendation (one from an academic source and one from a work supervisor preferred).

## Program requirements

The 48-unit curriculum for the M.S. degree in criminal justice provides the mix of academic, experiential, and research activities essential for M.S. degree students.

Students must maintain a grade point average of 3.0 (or a letter grade of B on a 4.0 scale) in order to progress successfully through the program and complete the degree. In addition students must meet the knowledge, skills, and professional performance competencies outlined by the program.

All course grades should meet the minimum B (3.0) standard, which by university policy indicates satisfactory performance. Courses in which a student earns a grade below a B (3.0) may need to be repeated (or may not apply to the degree) if competency in the subject area is related to practice performance with clients, and a grade less than a 3.0 represents marginal or unsatisfactory practice performance.

### Core

CRMJ 515	Crime and Society	3
CRMJ 517	Criminal Procedure and Rules of Evidence	3
CRMJ 520	Restorative Justice	3
CRMJ 574	Criminological Theory	4
SOWK 682	Legal and Ethical Aspects in Health and Mental Health Services	3

### Religion, philosophy, and ethics

Select of the following:		
RELE 524	Bioethics and Society	
REL_5__	Graduate-level Religion. An approved 3-unit course within subject area, in consultation with advisor	

### Social research methods

SOWK 548	Research Methods	5
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### Forensic Mental Health Specialization

CRMJ 620	Forensic Mental Health	3
CRMJ 630	Criminal Justice Planning and Administration	3
SOWK 662	Behavioral and Cognitive Therapies	4
SOWK 662L	Behavioral and Cognitive Therapies Practice	1
Select 4 units from the following:		

MFAM 644	Child Abuse and Family Violence	
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PSYC 685	Drug Addiction and Therapy	
SOWK 648	Co-occurring Processes and Interventions	
SOWK 659	Recovery in Behavioral Health	
SOWK 681	Behavioral Health Policies and Systems	
<b>Degree completion options</b>		<b>9</b>
Nonthesis option:		
Selectives (9 units) <sup>1</sup>		
CRMJ 519	Expert Testimony: Procedure and Practice	
CRMJ 599	Directed Study/Special Project	
GLBH 550	Women in Development	
SOWK 514	Social Welfare Policies and Services	
SOWK 659	Recovery in Behavioral Health	
SOWK 683	Advanced Policy Analysis	
SOWK 684	Advanced Policy Projects	
<b>Professional Practicum</b> <sup>2</sup>		
CRMJ 757A	Professional Practicum and Seminar	
CRMJ 757B	Professional Practicum and Seminar	
CRMJ 757C	Professional Practicum and Seminar	
SOWK 578	Field Orientation	
Thesis option:		
Selective (3 units from nonthesis option above)		
SOWK 697	Applied Research (4 units)	
SOWK 698	Thesis (2 units)	
Total Units		48

<sup>1</sup> Other courses may be approved for elective credits in consultation with the faculty advisor and in accordance with University policies for academic variances

<sup>2</sup> Professional practicum and seminar units are not calculated into total didactic units required for the degree. Students pay program fees for professional practicum units instead of tuition. Practicum and seminar hours: 480 + 60.

## Normal time to complete the program

2 years (7 quarters) based on full-time enrollment; part time permitted

# Gerontology – M.S.

## Program director

Kimberly Freeman

Gerontology is the multidisciplinary-multidimensional study of aging and the aging processes. It combines the study of physical, mental, social, and spiritual changes that affect individuals as they age. Emphasis is placed on the knowledge and skills required for competent practice, with considerable attention given to understanding the social, cultural, and economic factors that affect services for this population.

The study of older adults has become increasingly important with the aging of the general population. In the next twenty years, the older adult population is projected to double—resulting in a wide spectrum of needs facing this population, which necessitates competently educated professionals.

## Mission

The mission of the Gerontology Program is to provide graduate-level education for future and current professionals who are dedicated to

enhancing the lives of older adults through advanced, evidenced-based interventions at the micro, macro, and mezzo levels of practice.

## Program objectives

- Students will demonstrate the ability to integrate human behavior and developmental theories of aging, incorporating a bio-psycho-social-spiritual orientation to geriatric practice.
- Students will demonstrate the ability to use research in evaluating the effectiveness of practice and programs in achieving intended outcomes for older adults.
- Students will demonstrate the ability to integrate into practice an understanding of the life experiences and unique needs of older adults belonging to specific racial, ethnic, socioeconomic groups; of men and women; and of those with different sexual orientations.
- Students will demonstrate knowledge of professional ethics to assist older adults who have diverse cultural, spiritual, and ethnic values and beliefs.
- Students will demonstrate the ability to complete a comprehensive assessment of bio-psycho-social-spiritual factors that affect older adults' well-being.
- Students will demonstrate knowledge of the policies that shape and regulate the continuum of care and services available to older adults.
- Students will demonstrate knowledge of the importance of current issues in gerontology and the importance of the relationship of gerontology to other disciplines and professions, such as social work, psychology, medicine, nursing, and public health.
- Students will demonstrate the ability to utilize and integrate a strengths-based perspective, acknowledging the unique and special gifts and talents present in the older adult population.

## General overview

The 48-unit program begins with 22 units of core course work required for all students. Courses during the first year of study are divided into four professional areas: social science theory, religion and ethics, clinical practice, and research methods. During the final year of study, students complete a clinical services concentration along with specialized selectives.

In addition to the above, students are given either a thesis or a nonthesis (professional practicum) option.

1. Thesis: Students who choose the thesis option complete 6 research-related units and 5 units of selectives.
2. Nonthesis: Students choosing the internship option complete a practical orientation, 540 hours of integrated practicum and seminar, and 11 units of didactic selectives.

## Concentration description

*Clinical services:* Students in the clinical services concentration develop knowledge and skills in locating and providing resources, services, and opportunities for older adults and their families; as well as acquiring knowledge that supports enhancing the problem-solving and coping skills of older adults and their caregivers. Students gain an appreciation for the social support factors and community systems that create opportunities or exacerbate problems in daily living. Further, students develop an understanding of the issues that impact the creation of effective systems of care and responsive social policies.

## Liberal arts preparation

The gerontology curriculum is built on a liberal arts perspective. Individual applicants whose undergraduate degree does not reflect this perspective may be asked to enroll in additional courses, which must be completed before advancement to candidacy (prior to beginning the advanced curriculum).

Unit values represent the quarter system of measurement. Content from multiple courses may be used to meet most requirements.

## Admissions

In addition to Loma Linda University (p. 24) admission requirements, this program follows the admission requirements of the School of Behavioral Health (p. 156), as follows:

1. The applicant must demonstrate satisfactory performance on a critical essay examination (CEE) administered by the Department of Social Work and Social Ecology under the guidance of the School of Behavioral Health. For admission with regular status, satisfactory performance for the CEE is defined as a minimum pass rate of 75 percent.
2. Applicants must meet the minimum academic and professional compatibility criteria established by the program. These criteria include:
  - A cumulative undergraduate grade point average of 3.0 or above (on a 4.0 scale). Applicants with lower grade point averages will be considered if the last 45-quarter credits (30 semester units) of non-field practica coursework shows significant improvement or if they have additional attributes that demonstrate preparedness and an appropriate fit for graduate education in the area of Gerontology. Work and volunteer experiences must be verified by employer/supervisor statements on official agency stationery. Further consideration will also be given to individuals who provide evidence of additional graduate coursework, certifications, and/or training that illustrate preliminary preparation for a career in Gerontology. Students who are admitted to the Gerontology Program with a cumulative G.P.A. below 3.0 may be required to participate in individualized academic assessment and a targeted learning assistance program.
  - Demonstration, through the application and interview processes, of compatibility with professional standards set by the program including the ability to develop and nurture interpersonal relationships, communication skills, self-awareness, professional comportment, critical thinking skills, fit with the mission and values of Loma Linda University and the Department of Social Work and Social Ecology, and the capacity to successfully complete the Master of Science in Gerontology curriculum.
3. Submission of three letters of recommendation (one from an academic source and one from a work supervisor preferred).

## Program requirements

The 48-unit curriculum for the Master of Science degree in gerontology provides the mix of academic, experiential, and research activities essential for M.S. degree students.

Students must maintain a grade point average of 3.0 (or a letter grade of B on a 4.0 scale) in order to progress successfully through the program and complete the degree. In addition students must meet the knowledge,

skills, and professional performance competencies outlined by the program.

All course grades should meet the minimum B (3.0) standard, which by university policy indicates satisfactory performance. Courses in which a student earns a grade below a B (3.0) may need to be repeated (or may not apply to the degree) if competency in the subject area is related to practice performance with clients, and a grade less than a 3.0 represents marginal or unsatisfactory practice performance.

### Social science theory

GERO 615	Economics and Management Issues of Older Adult Services	4
GERO 617	Bio-psycho-social-spiritual Theories of Aging	4

### Clinical practice

GERO 515	Diversity and Aging	3
SOWK 682	Legal and Ethical Aspects in Health and Mental Health Services	3

### Religion, philosophy, and ethics

RELE 524	Bioethics and Society	3
or RELR 568	Care of the Dying and Bereaved	

### Social research methods

SOWK 548	Research Methods	5
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### Clinical Services Concentration

GERO 654A	Therapeutic Interventions with Older Adults I	3
GERO 654B	Therapeutic Interventions with Older Adults II	3

Select 9 units from the following		9
PSYC 685	Drug Addiction and Therapy	
PSYC 686	Child, Partner, and Elder Abuse	
SOWK 648	Co-occurring Processes and Interventions	
SOWK 659	Recovery in Behavioral Health	

### Degree completion options

Nonthesis option:

#### Selectives (11 units)

GERO 599	Directed Study/Special Project	
SOWK 681	Behavioral Health Policies and Systems	
SOWK 683	Advanced Policy Analysis	
SOWK 684	Advanced Policy Projects	

#### Professional Practicum<sup>1</sup>

GERO 757A	Professional Practicum and Seminar	
GERO 757B	Professional Practicum and Seminar	
GERO 757C	Professional Practicum and Seminar	
SOWK 578	Field Orientation	

Thesis option:

Selective (5 units from selectives listed above)		
SOWK 697	Applied Research (4 units)	
SOWK 698	Thesis (2 units)	

Total Units		48
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<sup>1</sup> Professional practicum and seminar units are not calculated into total didactic units required for the degree.

## Normal time to complete the program

2 years (7 academic quarters) based on full-time enrollment; part time permitted

## Play Therapy – Certificate

### Interim program director

Kimberly Freeman

Play therapy is a recognized, theoretically-based approach for working with children and adolescents presenting with a number of behavioral health issues. This approach utilizes toys and other expressive activities as forms of communication and as an intervention method for problem solving and promoting well-being.

The Play Therapy Program certificate is designed to meet the educational requirements of the Association of Play Therapy (APT) to become a registered play therapist (RPT). It also provides students with 50 hours of supervised play therapy experience, which can also be counted toward becoming an RPT.

### Objectives

- Students will understand the history of play therapy and its application in the assessment and treatment of children and youth.
- Students will understand the theories that inform play therapy with children and adolescents, including those guiding assessment, diagnosis, and specialized interventions.
- Students will understand the methods and techniques used in play therapy with children and adolescents, including those applicable in specialized interventions.
- Students will be able to correctly apply play therapy methods and techniques with children and adolescents.

The Play Therapy Program certificate is housed under the Division of Interdisciplinary Studies in the School of Behavioral Health. Programs under the Division of Interdisciplinary Studies are considered areas of study that are applicable to all of the behavioral health professions. As such, these programs bring together the collective academic and clinical expertise of all of the departments in the School of Behavioral Health.

Students concurrently enrolled in a degree program in the School of Behavioral Health need to work with their respective programs to determine if any of the courses in the Play Therapy Program may also count toward electives. University policies regarding double credits for courses apply.

### Admissions

Priority in admissions to the Play Therapy Program certificate curriculum is given to students concurrently enrolled in a master's or doctoral degree program in the School of Behavioral Health. These applicants must:

1. Already have been accepted in a master's or doctoral program in the School of Behavioral Health.
2. Be in good behavioral and academic standing (G.P.A. of 3.0 or higher) in their degree program.
3. Submit an abbreviated application—including a personal statement regarding their interest in play therapy, application fee, and two letters of recommendation (one from a faculty member and one from their program director or department chair approving their concurrent enrollment in the Play Therapy Certificate Program).

Applicants who are not concurrently enrolled in a degree program in the School of Behavioral Health must meet Loma Linda University (p. 24) and the School of Behavioral Health (p. 156) admission requirements as follows:

1. Have a licensable graduate degree from an accredited university or college. (Official transcripts are evidence of degrees and courses completed.)
2. Submit at least three letters of recommendation (one from an academic source and one from a work supervisor).
3. Have a cumulative grade point average of 3.0 or above (on a 4.0 scale).
4. If already licensed as a mental health professional, must provide evidence of good standing with the relevant licensing board.
5. Show evidence of personal qualifications and motivation to complete the Play Therapy Program certificate through:
  - Submission of a completed application (as outlined above).
  - Completion of an admissions interview with the Play Therapy Program admissions committee that evaluates applicants' compatibility with the values of the University and the School of Behavioral Health (including verbal communication skills; critical thinking ability; appreciation of human diversity; evidence of practice maturity, reflective learning, professional comportment, and values congruent with behavioral health professions in the delivery of services).

### Program requirements

#### Required foundation courses

PLTH 513	Introduction to Play Therapy	3
PLTH 515	Play Therapy III: Assessment and Diagnosis	2
PLTH 516	Child-Centered Play Therapy	3
PLTH 517	Sandplay: A Therapeutic Process	3
REL_ 5__ <sup>1</sup>		3

#### Required advanced courses

PLTH 547	Play Therapy Approaches for Treating Developmental and Behavioral Disorders	2
or PLTH 548	Child Psychosocial Play Therapy	
PLTH 546	Child-Parent Relationship Therapy-CPRT (Filial Therapy)	3
PLTH 549	Therapeutic Play for Children Affected by Illness and Injury	3
PLTH 550	Trauma Focused Play Therapy	3
PLTH 650	Play Therapy with Adolescents and Adults	3
PLTH 700	Practicum in Play Therapy	2

Total Units		30
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<sup>1</sup> Students concurrently enrolled in a degree program in the School of Behavioral Health may apply 3 units of religion taken at Loma Linda University toward the religion requirement in the Play Therapy Program. Students who are not concurrently enrolled in another degree program are required to take 3 units of religion. Students select the religion course to be taken in consultation with their advisor.

### Normal time to complete the program

7 academic quarters based on less than half-time enrollment

## Social Policy and Social Research – Ph.D.

Program director

Larry Ortiz

The mission of the Social Policy and Research Program is to extend the distinctive principles of whole person care beyond the individual to include the care of communities and social institutions. The program's emphasis on an integrative approach to an advanced curriculum in social science, social policy, Christian ethics, and social research provides students with the theoretical and methodological knowledge and professional skills needed to conduct innovative and interdisciplinary research. Graduates of the program are prepared for advanced administrative and research roles in national and international health and human services, policy development and analysis, and education. Graduates of the Loma Linda University Social Policy and Social Research Program will demonstrate:

- Ability to integrate advanced concepts from social science theories, social ethics, and philosophy.
- Ability to utilize critical thinking to distinguish between the moral, ethical, and political differences that affect policies and their consequences.
- Understanding of the conceptual and analytical requirements of policy analysis through the integration of behavioral, political, economic, and social frameworks for understanding human conditions.
- Understanding of the process of defining policy problems, establishing criteria for policy choices, mapping alternative strategies, and applying appropriate analytical and research methods to policy questions.
- Ability to independently define research problems and formulate appropriate questions and hypotheses.
- Understanding of the rationale for particular qualitative and quantitative research methods, and ability to select appropriate strategies for independent research and/or evaluation.
- Competence in utilizing different methods of collecting, recording, analyzing, and interpreting data.

## Policy and research specialization

Students admitted to the program have demonstrated evidence of policy and research interests that are compatible with the areas of expertise supported by program faculty. Information regarding faculty areas of expertise is available by contacting the program director. During the first year of study, students further define their interests through advisement. During the second year of study, after passing a comprehensive examination, students are assigned a research mentor who guides them in the development of an individualized program of applied research and policy activities. An applied research product is the result of this year-long activity. This applied activity provides the experience needed for beginning the dissertation process.

During the third year of the program, students are assigned a dissertation committee chair with whom they work closely to develop and defend a dissertation proposal following University guidelines. During the final year of study, students actively engage in dissertation research, culminating in the successful defense of their dissertation.

## Combined degrees

Students interested in completing a combined degrees curriculum with social policy and social research and bioethics or social policy and social research and social work should refer to the Combined Degrees Programs

section of the CATALOG or contact the Department of Social Work and Social Ecology directly.

## Admissions

In addition Loma Linda University (p. 24) admission requirements, admission to the program is governed by the policies and procedures established by the School of Behavioral Health (p. 156). Admission requirements include:

1. Master's degree from an accredited institution of higher education. Examples would include such disciplines as social work (M.S.W.), nursing (M.S.), business (M.B.A.), public health (M.P.H.), education (M.Ed.), and theology (M.Div.).
2. Evidence of adequate academic preparation in graduate education. This includes a minimum cumulative G.P.A. of 3.5 (on a 4.0 scale) for graduate/postgraduate work.
3. Strong intellectual abilities, including background in social sciences and statistics.
4. Evidence of research and policy interests that are compatible with the specialized emphases supported by the program faculty.
5. Professional experience and achievement that demonstrate the competence, motivation, organization, and leadership to complete doctoral education in a timely manner.
6. Personal interview.
7. Sample of writing in the form of a published article, academic or professional paper prepared for a research purpose, or an essay prepared for admission to the program.
8. Satisfactory performance on the Graduate Record Examination (GRE).
9. Curriculum vitae or other description of education and employment history.
10. Three letters of recommendation (including one from an academic source and one from a work supervisor.)

In addition to the above criteria, the application process for the Ph.D. degree in Social Policy and Social Research utilizes a pooled application process by which the top candidates meeting the admissions criteria are selected. The number of new candidates admitted each year ranges from three-to-four students, depending on the total number of students completing the program and the program's ability to support potential candidates in their area of interest.

## Program requirements

### Social science theory and policy

SPOL 600	Colloquium	0
SPOL 610	Diversity Theory in Practice and Research	3
SPOL 613	Social Science Concepts I	4
SPOL 614	Social Science Concepts II	4
SPOL 615	Economic Theory and Social Policy	4
SPOL 656	Organizational Theory and Policy	4
SPOL 658	Methods of Policy Analysis and Research	4

### Religion

RELE 588	Explorers of the Moral Life (required of all Ph.D. degree students)	3
RELR 525	Health Care and the Dynamics of Christian Leadership	3
RELT 557	Theology of Human Suffering	3

### Research methods, statistics, and information technology

SPOL 588	Special Topics in Social Policy and Social Research (Statistical Analysis Practicum) <sup>1</sup>	2
SPOL 654	Research Methods I	4
SPOL 655	Research Methods II	4
Choose one statistical sequence in consultation with advisor:		12
Sequence 1:		
PSYC 501	Advanced Statistics I	
PSYC 502	Advanced Statistics II	
PSYC 503	Advanced Multivariate Statistics	
Sequence 2		
MFTH 601	Statistics I	
MFTH 602	Statistics II	
MFTH 603	Statistics III	
STAT __	Advanced Course in statistics or methods	4
<b>Applied/structured research and specialized electives</b>		22
Applied/Structured research (6 - 10)		
SPOL 671	Applied/Structured Research I	
SPOL 672	Applied/Structured Research II	
SPOL 673	Applied/Structured Research III	
Electives (10 - 16)		
<b>Dissertation research</b>		
SPOL 681	Dissertation Proposal I	2
SPOL 682	Dissertation Proposal II	2
SPOL 683	Dissertation Proposal III	2
SPOL 697	Research	18
Total Units		104

<sup>1</sup> Under the guidance of faculty, students collectively conceptualize and analyze a research question from a data set. A scholarly product is a required outcome.

## Noncourse requirements

### Comprehensive examination

Students must pass a comprehensive examination consisting of three separate tests in: Social Concepts, Statistical Analysis, and Statistical Methods. Concepts and Analysis are sit down exams, administered at the completion of the core curriculum (typically during the Autumn Quarter of the second year of the full-time curriculum). The Methods examination consists of submission of a publishable paper after students have completed SPOL 673, typically following the conclusion of the second year of full time study.

### Concept Paper

Prior to the beginning of SPOL 681, Dissertation Proposal I, students submit to the Doctoral Faculty a short concept paper, 3 to 5 pages, briefly describing their plan for dissertation research.

### Candidacy

Students must successfully complete:

1. required course work,
2. the comprehensive examination,
3. the applied research requirements, and

4. the defense of the dissertation proposal before advancing to candidacy.

## Dissertation

The PhD degree candidacy is spent in full-time dissertation research, culminating in the successful defense of the completed dissertation. Dissertation research for Ph.D. degree candidates follows University guidelines. Details regarding these requirements can be obtained from the program director.

## Normal time to complete the program

5 years based on full-time enrollment; part time permitted

# Social Work – M.S.W.

## Program director

Kimberly Freeman

The profession of social work centers on improvement of the quality of life for people and the enhancement of human potential for full, productive participation in society. With this philosophy at its core, the master's degree offered by the Social Work Program (M.S.W.) in the School of Behavioral Health emphasizes an ecological perspective that focuses on the interaction of a person or system in relation to his/her environment. Reflecting this stance is Loma Linda University's motto, "To make man whole"; and its heritage as an international leader in the delivery of services in health care and related facilities. It is the combination of these influences that has guided the development of the generalist curriculum, clinical practice specialization, and selection of practicum sites for the Social Work Program.

## Mission

The mission of the Master of Social Work degree program at Loma Linda University is to prepare competent, ethical, and compassionate advanced social work practitioners who possess the knowledge, values, attitudes, and skills necessary for a life dedicated to whole person care in advanced practice and leadership roles within behavioral health institutions and agencies.

## Goals

The goals of the Social Work Program (M.S.W. degree) are to:

- Instill in graduates the knowledge, ethics, values, and skills expected of professional social workers.
- Prepare students for advanced practice with diverse populations and the advancement of social and economic justice in local, national, and international communities.
- Equip students to integrate research and practice for advancing the profession of social work.
- Prepare advanced social work practitioners for work in behavioral health institutions and agencies.
- Transition students into professional roles with a commitment to life-long-learning.

## Competencies

Reflected in the above goals are the following nine social work competencies that describe the knowledge, values, skills, and the cognitive and affective processes that define and inform generalist and advanced practice.

1. Demonstrate ethical and professional behavior.
2. Engage diversity and difference in practice.
3. Advance human rights and social, economic, and environmental justice.
4. Engage in practice-informed research and research-informed practice.
5. Engage in policy practice.
6. Engage with individuals, families, groups, organizations, and communities.
7. Assess individuals, families, groups, organizations, and communities.
8. Intervene with individuals, families, groups, organizations, and communities.
9. Evaluate practice with individuals, families, groups, organizations, and communities.

## Liberal arts preparation

The M.S.W. degree curriculum is built on a liberal arts perspective. Individual applicants whose undergraduate degree does not reflect this perspective may be asked to enroll in additional courses.

Please note: Any prerequisite requirements must be completed before admission to the M.S.W. degree program.

## General overview

The program begins with the professional foundation content (first-year courses) common to all graduate social work education. Courses during the first year of study are divided into: human behavior in a cross-cultural environment, social welfare policy and services, practice theory and skills, social research, global social work practice, and field practicum. These areas are strengthened by the integration of social work values and ethics, as well as knowledge of special populations (i.e., issues of gender, race, class, disability, and oppression). The advanced curriculum of the program is divided into four subdivisions:

1. Conjoining curriculum and processes—further integrating the foundational first year with the program's advanced curriculum;
2. Advanced curriculum nucleus—includes course work common to all second-year students;
3. Core courses in the area of specialization—clinical practice
4. Culminating curriculum and processes—a capstone academic experience that facilitates the final stage of reflection and review in the development of the scholar-practitioner.

Each of these four curricular subdivisions articulates through the progressive presentation and integration of knowledge, practice roles, and intervention modes to develop the depth and breadth of proficiency expected in advanced practice within health and mental health.

## Program options

Alternate program options have been designed to address the varying needs of students. As such, the program offers a two-year option; a three-year option; and a four-year option. Students completing the two-year option cannot be engaged in regular full-time employment. An advanced standing option is also available to eligible B.S.W. degree students (see below).

Beginning Fall 2016, an online hybrid (online and onsite) M.S.W. program will be offered for full-time employees of Riverside County only, as a result of a cost-shared agreement. All program requirements for the Riverside

County cohort are the same as those required for the on-campus cohorts for the three-year part-time option. A separate application portal has been created for the Riverside County cohort, that requires verification of full-time employment with Riverside County. Courses for the onsite portion of this hybrid program will be taught at:

Riverside County Innovation Center  
3450 Fourteenth Street  
Riverside CA 92501

Inquiries about this program should be directed to the Dr. Kimberly Freeman, MSW Program Director.

## Advanced standing for B.S.W. degree students

Students who have earned a B.S.W. degree from a CSWE-accredited program within the past five years have the opportunity to remove areas of redundancy in their education through consideration for advanced standing. In their personal statement, which is part of the application for admission to the M.S.W. degree program, B.S.W. degree students can request advanced standing status and thus have the opportunity to complete their M.S.W. degree in twelve months. Students completing the advanced standing track must begin the M.S.W. degree program during the Summer Quarter, which requires individuals to submit all components of their application packet by January 15 of the enrollment year (exceptions to this date will be reviewed on a case-by-case basis). Advanced standing students enrolling as part of the summer cohort receive a scholarship covering up to 13 units, not including living expenses. Information on scholarships is updated annually. See the M.S.W. Handbook on department website for more specific information: <http://www.llu.edu/behavioral-health/socialwork/advstandfacts.page>

## Transfer students

Transfer students who have taken courses in an M.S.W. degree program accredited by the Council on Social Work Education may transfer up to 20 percent of the 78 units required for the M.S.W. degree at Loma Linda University, unless otherwise approved. Evaluation of all courses is conducted on a case-by-case basis using course outlines, transcripts, and course catalog entries to review and assure adequate equivalency. The Academic Standards Committee evaluates these equivalencies. The 20 percent transfer of units is limited to credits that have not already been applied to a degree and for which a B (3.0) or better has been recorded. Note: The grades of courses transferred do not calculate into a student's earned G.P.A. earned while matriculating through the program at Loma Linda University.

A maximum of 9 quarter units that have been previously applied to another master's degree may be accepted as transfer credits in the areas of research methods and statistics. Individuals wishing to transfer research methods and/or statistics courses must first pass the program's competency examination/s in these areas. Consideration is given to other course transfers on a case-by-case basis.

Professional (field) practica grades/credits are not typically transferable—review is made on a case-by-case basis. Consideration may be given if there is clear evidence that the student has met the practice competencies of the M.S.W. degree program.

No academic credit is given for life experience and/or previous work experience for any part for the M.S.W. degree program (i.e., professional

(field) practicum, courses in the professional foundation, or advanced curricula).

## Clinical practice specialization

The Social Work Program offers one area of specialization for professional practice, which is the focus of the second-year study. The clinical practice specialization requires mastery of advanced practice roles, modalities of intervention, and methods used in clinical social work. Study is required regarding the integration of advanced practice theories, diagnostic assessment, problem-solving skills and techniques; as well as the impact of policy upon the availability of treatment, treatment modalities, and expectation of outcomes. Students' experiences and knowledge are expanded through the selection of practicum sites and selectives.

## Central academic processes and cognates

### Professional practica

Professional practica experiences (field practica) are regarded as an integral part of the Social Work Program because these offer students opportunities to integrate and apply theoretical and research knowledge with social work practice and intervention skills in institutional or agency settings. Practica are designed (and selected) to provide maximum learning opportunities under the supervision of a qualified field instructor. As such, experiences are patterned to build upon one another—presenting the increasing challenges present in the continuum of generalist to advanced social work practice. Students complete 1,080 hours of field work in a qualified setting and 120 hours of concurrent integrated seminar for a total of 1,200 hours.

The emphasis of SOWK 757A Professional Foundation Practicum and Seminar, SOWK 757B Professional Foundation Practicum and Seminar, and SOWK 757C Professional Foundation Practicum and Seminar (480 hours of practicum and 60 hours of seminar or 9 professional practica units) is on achieving generalist social work knowledge, values, and skills—including developing rapport with agency personnel and clients, acquiring interviewing skills, and obtaining beginning-level psychosocial assessment and intervention capabilities. The content of the concurrent seminar further supports this perspective as it provides students with opportunities to integrate their practicum experiences with their developing professional identity.

The emphasis of SOWK 787A Advanced Professional Practicum and Seminar, SOWK 787B Advanced Professional Practicum and Seminar, and SOWK 787C Advanced Professional Practicum and Seminar (600 hours of practicum and 60 hours of seminar or 12 professional practica units) reflects the clinical practice specialization and provides the depth and breadth of learning opportunities that underpin the acquisition of advanced practice capabilities. More specifically, advanced professional practica experiences are expected to promote increased insight and understanding of agency and/or client systems as these build on the generalist skills achieved during the first year of study.

### Research

The program includes completion of course work in applied research. An individually authored thesis option is available for students meeting program criteria. These study options aim to develop knowledge for the advancement of social work practice and provide guided experiences in the conduct of research applicable to a variety of professional and academic settings. Guidelines for these options are provided by the program.

## Professional processes and cognates

Three academic review processes take place during the first year of the Social Work Program. These are:

1. M.S.W. degree advancement G.P.A.  
The M.S.W. degree advancement G.P.A. provides an initial predictor used for gatekeeping. The first 12 units completed toward the M.S.W. degree, including units acquired during nonmatriculation, must be completed with a G.P.A. of 3.0. Students who fail to achieve this level may be dismissed from school. Students receive orientation to the process and requirements of the M.S.W. degree advancement G.P.A. during the student orientation conducted prior to the Fall Quarter.
2. Qualifying review  
When all foundation course work is completed, students are required to pass the program's qualifying review. The intent of this process is to:
  - assist faculty and students in assessment of strengths and areas for improvement,
  - provide feedback,
  - foster an environment of self-evaluation, and
  - encourage heightened participation in individualized academic development.
3. Wholeness portfolio  
All students complete a wholeness portfolio during the professional practicum and seminar experience. This review of the student's individualized objectives and professional development begins during the first year of study and culminates during the second year of study as the student completes the final quarter of SOWK 787A Advanced Professional Practicum and Seminar, SOWK 787B Advanced Professional Practicum and Seminar, and SOWK 787C Advanced Professional Practicum and Seminar. This experience emphasizes the student's plans for employment, lifelong learning, and integration of the core values of Loma Linda University; and is seen as a capstone academic experience that facilitates closure and the final stage of reflection and review in the development of the transitioning professional.

## Combined degrees

Students interested in completing a combined degrees curriculum with the Social Work and Gerontology programs, the Social Work and Criminal Justice programs, or the Social Work and Social Policy and Social Research programs should contact the Social Work Department directly.

## Accreditation

The Master of Social Work Program is fully accredited by the Council of Social Work Education to provide master's degree-level education, with the next reaffirmation to be completed in 2018.

## Admissions

In addition to Loma Linda University (p. 24) admission requirements, admission to the Social Work Program is governed by the policies and procedures established by the School of Behavioral Health (p. 156). Admission requirements include:

Following are the admission requirements for the Social Work Program:

1. The MSW curriculum is built on a liberal arts perspective. Individual applicants whose undergraduate degree does not reflect this perspective may be asked to enroll in additional courses.
2. Applicants must submit a completed application, including a personal statement; application fee; all college and/or university transcripts; and at least three letters of recommendation—preferably one of which is from an academic source and one from a work supervisor.
3. Applicants must meet the minimum academic and professional compatibility criteria established by the program. These criteria include:
  - A cumulative undergraduate grade point average of 3.0 or above (on a 4.0 scale). Applicants with lower grade point averages will be considered if the last 45-quarter credits (30 semester units) of non-field practica course work shows significant improvement or if they have additional attributes that demonstrate preparedness and an appropriate fit for graduate social work education. Work and volunteer experiences must be verified by employer/supervisor statements on official agency stationery. Further consideration will also be given to individuals who provide evidence of additional graduate coursework, certifications, and/or training that illustrate preliminary preparation for a career in social work. Students who are admitted to the Social Work Program with a cumulative G.P.A. below 3.0 may be required to participate in individualized academic assessment and a targeted learning assistance program.
  - Demonstration, through the application and interview processes, of compatibility with the profession of social work, ability to develop and nurture interpersonal relationships, communication skills, self-awareness, professional comportment, critical thinking skills, fit with the mission and values of Loma Linda University and the Department of Social Work and Social Ecology, and the capacity to successfully complete the Master of Social Work curriculum.

## Program requirements

The M.S.W. degree consists of 78 units of didactic course work and 21 units of professional practica experience. Students must maintain a program grade point average of 3.0 (or a letter grade of B on a 4.0 scale) and meet the knowledge, skills, and professional performance competencies outlined by the program.

All course grades should meet the minimum B (3.0) standard, which by university policy indicates satisfactory performance. Courses in which a student earns a grade below a B (3.0) may need to be repeated (or may not apply to the degree) if competency in the subject area is related to practice performance with clients, and a grade less than a 3.0 represents marginal or unsatisfactory practice performance.

### Required cognate

RELE 522	Bioethical Issues in Social Work	3
or RELE 524	Bioethics and Society	

### Professional foundation courses

SOWK 513	Human Behavior and Cross-Cultural Environment	5
SOWK 514	Social Welfare Policies and Services	5
SOWK 517	Practice I: Individuals	3
SOWK 518	Practice II: Groups	3
SOWK 519	Practice III: Organizations and Communities	3

SOWK 520	Practice IV: Families <sup>1</sup>	3
SOWK 521	Global Practice	3
SOWK 548	Research Methods	5
SOWK 682	Legal and Ethical Aspects in Health and Mental Health Services	3
SOWK 578	Field Orientation <sup>1</sup>	0
<b>Conjoining curriculum and processes</b>		
SOWK 610	Diversity Theory in Practice and Research	3
SOWK 613	Psychopathology, Psychopharmacology, and Diagnosis of Behavioral Health Conditions	4
SOWK 671	Social Work Administration	3
<b>Advanced curriculum nucleus</b>		
SOWK 681	Behavioral Health Policies and Systems	2
SOWK 695A	Advanced Research Methods <sup>3</sup>	2
SOWK 695B	Advanced Research Methods <sup>3</sup>	2
SOWK 695C	Advanced Research Methods <sup>3</sup>	2
<b>Clinical practice specialization</b>		
SOWK 648	Co-occurring Processes and Interventions	3
SOWK 661	Psychodynamic Therapies	3
SOWK 661L	Psychodynamic Practice Lab	1
SOWK 662	Behavioral and Cognitive Therapies	4
SOWK 662L	Behavioral and Cognitive Therapies Practice	1
SOWK 663	Crisis and Trauma Interventions	3
<b>Culminating curriculum and processes</b>		
SOWK 675	Supervision	3
<b>General selectives</b>		
Select 6 units from one of the following lists: <sup>6</sup>		6
<b>Population groups</b>		
GERO 515	Diversity and Aging	
GERO 654A	Therapeutic Interventions with Older Adults I	
GERO 654B	Therapeutic Interventions with Older Adults II	
MFAM 516	Play Therapy	
MFAM 545	Gender Perspectives	
MFAM 638	Family Therapy and Chemical Abuse	
MFAM 644	Child Abuse and Family Violence	
PLTH 650	Play Therapy with Adolescents and Adults	
PSYC 686	Child, Partner, and Elder Abuse	
SOWK 651	Medical Social Work	
SOWK 653	Child Welfare Practice	
SOWK 658	Children's Psychotherapy	
SOWK 680	Children and Families Policies and Services	
<b>Problem areas</b>		
CRMJ 519	Expert Testimony: Procedure and Practice	
CRMJ 520	Restorative Justice	
MFAM 516	Play Therapy	
MFAM 665	Structural and Multidimensional Family Therapy	
PSYC 685	Drug Addiction and Therapy	
SOWK 659	Recovery in Behavioral Health	
SOWK 684	Advanced Policy Projects	
Total Units		78

### Professional practica experience



SOWK 757A	Professional Foundation Practicum and Seminar 2,5	3
SOWK 757B	Professional Foundation Practicum and Seminar 2,5	3
SOWK 757C	Professional Foundation Practicum and Seminar 2,5	3
SOWK 787A	Advanced Professional Practicum and Seminar <sup>4,5</sup>	4
SOWK 787B	Advanced Professional Practicum and Seminar <sup>4,5</sup>	4
SOWK 787C	Advanced Professional Practicum and Seminar <sup>4,5</sup>	4
Total Units		21

<sup>1</sup> Not eligible for waiver.

<sup>2</sup> Hours: 160 + 20; Not eligible for waiver

<sup>3</sup> Thesis option is available for students meeting program criteria.  
Once approved students will take SOWK 697 (4 units) and SOWK 698 (2 units) in place of SOWK 695ABC(6 units).

<sup>4</sup> Hours: 200 + 20

<sup>5</sup> 700-numbered courses are not calculated into the total didactic units required for the degree.

<sup>6</sup> Students wishing to take courses that are not included in this list of approved selectives must obtain an academic variance through the department's Academic Standards Committee prior to enrolling in the course.

### Normal time to complete the program

2 years (6 academic quarters) based on full-time enrollment; part time permitted

# SCHOOL OF DENTISTRY

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## Dean's welcome



You will receive an excellent contemporary education filled with rich clinical experience. However, it is the people who have been drawn to this unique environment of Christian education that make Loma Linda University a special place. I invite you to learn more about our clinical services; our programs; and our exceptional family of students, faculty, and staff.

Ronald J. Dailey, Ph.D.  
Dean, School of Dentistry

Dentistry is a strategic component of overall health; and Loma Linda University School of Dentistry is a vibrant center of education where you will acquire knowledge, technical skills, management expertise, and the ability to exceed patients' expectations—thereby providing you with the capacity to thrive in your dental career.

Our faculty are committed to providing you an evidence-based education that incorporates the most advanced electronic education resources available. We continue to increase the hands-on experience our students receive related to technology during their basic science preclinical dental education. With our new Innovation Center, students now have the opportunity to gain experience with the most contemporary equipment and techniques that enhance the practice of dentistry and the care we provide our patients. You will also receive abundant experience in patient care, both in the School of Dentistry and at extramural clinics that help meet the dental health needs of individuals with limited or no access to dental care.

Our ongoing commitment to clinical and foundational research provides you with rich opportunities to work with outstanding faculty in a wide variety of investigative activities.

## School foundations

### History

A small but determined group of dentists met during the summer of 1943 in Grand Ledge, Michigan. Their purpose was to establish an organization that would serve as a catalyst, urging the Seventh-day Adventist Church to sponsor a dental school where young adults could learn the dental profession in an environment consistent with their religious beliefs. These men were the founders of the National Association of Seventh-day Adventist Dentists (NASDAD).

Under the leadership of Dr. J. Russell Mitchell, the organization's first president, the goal of a Christian dental school began taking conceptual form. NASDAD expanded in membership and objectives through men such as Dr. C. C. Ray, who toured the country on his own time in search of fellow Seventh-day Adventist dentists who were willing to pursue NASDAD's goals.

Dr. M. Webster Prince served as president of NASDAD in 1948 and 1949. At a meeting in San Francisco in 1949, NASDAD members voted unanimously to support the dental school project. Later that year at a NASDAD session in Hinsdale, Illinois, the members pledged a strong financial base in support of their goals.

The momentum of the effort became evident in the early 1950s. The General Conference of Seventh-day Adventists, under the guidance of President W. H. Branson, asked Dr. Prince to conduct a feasibility study. Official action was taken in 1951 to authorize establishment of the School of Dentistry as a unit of Loma Linda University's School of Medicine. Dr. Prince was selected as the first dean of the School of Dentistry. His leadership in organizing and eventually administering the new School of Dentistry was facilitated by his prior experience as president of the Michigan Dental Association and as chair of the American Dental Association Council on Dental Education. Forty-two students comprised the inaugural class in the late fall of 1953.

A dental hygiene curriculum leading to a Bachelor of Science degree was developed in 1959 under the direction of Dr. Gerald A. Mitchell, chair of the Department of Periodontics. Violet Bates became chair of the new department, and the first class of ten dental hygienists graduated in 1961.

In 1960, Dr. Charles T. Smith became dean. During this period, the school experienced positive growth in many areas. A dental assisting curriculum was developed in 1968 under the leadership of Betty Zendner. The first class graduated in 1969, receiving the Associate in Science degree. A dental auxiliary utilization (DAU) program was initiated to provide enhanced learning for dental students. The Monument Valley Dental Clinic for Navajo Indians was started in 1966, and Dean Smith succeeded in finding from public sources fiscal support for the clinic building and for faculty housing. New advanced education (postdoctoral) programs were initiated in five clinical disciplines: orthodontics, oral surgery, periodontics, endodontics, and oral pathology.

During the 1970s, the School of Dentistry continued its evolution into one of the premier clinical programs in the United States. Dr. Judson Klooster became dean in 1971. One of his major contributions was the expansion of Prince Hall, which was completed in May 1976. The new building more than doubled the number of clinical units; provided facilities for specialized areas of clinical instruction; and included eight new research laboratories, new classrooms, seminar rooms, amphitheatres, urgently needed teacher office space, and a commensurate expansion of support facilities and services. The Oral and Maxillofacial Surgery Clinic was

remodeled, and an outpatient surgicenter was developed to meet the needs of patients requiring general anesthesia for dental treatment.

The School of Dentistry became an important regional resource for providing dental care for developmentally disabled children and adults, many of whom require such a treatment setting. The Biomaterials Research Laboratory was constructed; and new advanced education programs were initiated in pediatric dentistry, implant dentistry, dental anesthesiology, and prosthodontics. A new program was established in 1985 to provide a U.S. dental education for internationally trained dentists. An increasing number of dental professionals from other countries were seeking an American education and the opportunity to practice dentistry in the United States or to gain advanced knowledge to share in their own countries. The International Dentist Program continues to offer an intensive, twenty-four-month course of study leading to a D.D.S. degree. The program has added a six-month certificate program limited to dental missionaries from other countries who sense the need for updated continuing education.

Beginning with the nineteen-year deanship of Dr. Charles Goodacre in 1994, the School of Dentistry focused particularly on research, service learning, and technology that included the development of electronic learning materials and the acquisition and utilization of 3D computed tomography (3DCT) and computer-aided manufacture (CAD/CAM) technology.

In 2000, the first major expansion of the School of Dentistry in more than twenty years added 15,000 square feet to Prince Hall on the east side and provided two new patient entrances. The expanded Special Care Dentistry Clinic and the enlarged Pediatric Dentistry Clinic were relocated to the ground floor. An additional student laboratory was also included on that level. On the second floor, the new space allowed for expansion of the predoctoral clinic, with thirty-six additional operatories.

A preclinical laboratory was remodeled into a simulation laboratory in 2008. The laboratory included flat-panel monitors with access to faculty presentations and the clinical management system.

The Department of Dental Hygiene added two programs to meet changing professional needs. In 2008, the B.S. Online Degree Completion Program accepted the first cohort, allowing licensed hygienists to complete a B.S. degree online in six quarters.

In the autumn of 2010, the LLU Center for Dentistry and Orthodontics was opened in San Bernardino, three miles from the school. The three-story treatment, research, and teaching facility brought together the University's Advanced Education Program in orthodontics and dentofacial orthopedics and the School of Dentistry's faculty practices—creating the most comprehensive oral health care center in the Inland Empire.

In September 2011, the Department of Dental Hygiene accepted the inaugural class at the off-campus Associate in Science degree program in Palm Desert, California.

A year later (August 2012), another opening featured the school's groundbreaking for the Hugh Love Center for Research and Education in Technology. Comprising six operatories and a three-chair open clinic, the 3,000-square-foot center enables qualified students, under faculty supervision, the opportunity to treat patients using the very latest in dental technology.

Dr. Ronald J. Dailey was named School of Dentistry dean in July of 2013. Having led the school through all of its academic challenges as an

associate dean since 1993, Dr. Dailey is well prepared to pilot the school's programs through revisions that accommodate new accreditation standards; as well as the Joint Commission on National Dental Board Examination's integration of basic, clinical, and behavioral sciences into a single national board examination.

The School of Dentistry continues to regularly expand the opportunities for enhanced student learning by improving physical facilities; making regular curricular modifications; and reinforcing the excellence of its clinical practices in light of its motto, "Service Is Our Calling."

## Our mission

Loma Linda University School of Dentistry seeks to further the teaching and healing ministry of Jesus Christ as:

- Students learn to provide high-quality oral health care based on sound biologic principles.
- Patients receive competent care that is preventive in purpose, comprehensive in scope, and provided with compassion and respect.
- Faculty, students, and staff value patient relationship; respect diversity; and share responsibility by working together toward academic, professional, spiritual, and personal growth.
- Scholarly activity and research provide a foundation for evidence-based learning and enhance whole person care.
- The workplace environment attracts and retains a superior and diverse faculty and staff who motivate, educate, and serve.
- Our communities (local, global, and professional) benefit from our service, stewardship, and commitment to lifelong learning.

## Vision

Loma Linda University School of Dentistry is a preeminent health-care organization seeking to represent God in all we do. We are enthusiastically committed to excellent, innovative, comprehensive education of our students; and to whole person care of our patients.

Our students, staff, and faculty are empowered through an enabling environment that honors the dignity, diversity, and worth of everyone.

Our graduates are exemplary professionals and progressive clinicians of integrity.

Our Lord's example inspires us to enrich our local and global communities through service. This is our calling.

## Core values

- Belief in God
- Respect for the individual
- Principled spirituality
- Focus on students
- Empathic care
- Commitment to service
- Pursuit of truth
- Progressive excellence
- Analytical thinking
- Effective communication

## General information

Students of the University are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. This section of the CATALOG provides

the general setting for the programs of the School of Dentistry and outlines the subject and unit requirements for admission to individual professional programs. It is important to review specific program requirements in the context of the general requirements applicable to all programs.

## Specific program requirements

Information on the preceding pages pertains to general requirements governing all students. The student is reminded of individual responsibility to be fully informed not only of these general requirements but also of the specific requirements in the following pages, which govern the curriculum of the chosen program.

## Programs and degrees

The School of Dentistry offers a comprehensive range of programs. Each of the school's six programs draws on the curricula of the various departments.

1. The undergraduate curriculum, the DENTAL HYGIENE program and the DENTAL HYGIENE DEGREE COMPLETION program, leads to the Bachelor of Science degree and prepares the dental hygienist to enter a variety of careers. Dental hygiene is a four-year college curriculum; the junior and senior years are taken in the Loma Linda University School of Dentistry. The DENTAL HYGIENE ASSOCIATE IN SCIENCE degree is a three-year college curriculum in which the first year prerequisites are taken at a regionally accredited college, and the remaining two years are taken at the Loma Linda University School of Dentistry off-campus site.
2. The four-year professional curriculum, the GENERAL DENTISTRY program, leads to the Doctor of Dental Surgery degree and equips the general dentist to meet the needs of a diverse patient population.
3. The INTERNATIONAL DENTIST program, a two-academic-year curriculum, leads to a Doctor of Dental Surgery degree from Loma Linda University. The program is designed for the dentist who has earned a dental degree outside the United States.
4. The POSTBACCALAUREATE BIOMEDICAL SCIENCE DENTAL TRACK program is designed for students who are unsuccessful in their application to the Doctor of Dental Surgery program at Loma Linda University. The students in this program participate in some first-year dental courses. Successful completion of this program leads to a postbaccalaureate certificate in biomedical science.
5. The ADVANCED DENTAL EDUCATION programs lead to postdoctoral certificates in eight specialty and nonspecialty areas of dentistry and, at the student's option, additionally to a Master of Science or a Master of Science in Dentistry degree.
6. The COMBINED DEGREES programs lead to the Doctor of Dental Surgery degree (through the School of Dentistry) earned concurrently with a Master of Science degree or Doctor of Philosophy degree—D.D.S./M.S. or D.D.S./Ph.D.; or to the Doctor of Dental Surgery degree (through the School of Dentistry) earned concurrently with a Master of Arts degree in Bioethics (through the School of Religion)—D.D.S./M.A.

## Combined degrees programs

### D.D.S. / M.S. / M.A.

A combined degrees program leading to the Doctor of Dental Surgery and the Master of Science degree is open to qualified students of dentistry. The student who is interested in establishing a broader professional base in science or who is looking toward a career in teaching or research may take an interim leave from the School of Dentistry after the second or third professional year and fulfill professional degree requirements

subsequent to or concurrent with completing course work and research for the Master of Science degree.

The combined degrees program leading to the Doctor of Dental Surgery and the Master of Arts in bioethics is designed to fit the schedule of Doctor of Dental Surgery degree students. Ethics in dentistry is an emerging academic interest, and this program aims to evolve the Loma Linda University dental school into one of a very select few in the nation known for their expertise in ethical issues. This program requires 48 units of credit. This degree is offered cooperatively by the School of Religion and the School of Dentistry.

### **D.D.S. / Ph.D.**

The biomedical sciences program provides opportunity for well-qualified and motivated students to pursue both a professional and a graduate education and to prepare for careers in clinical specialization, teaching, or investigation in health and human disease. The student who has a baccalaureate degree and the approval of the School of Dentistry Office of Academic Affairs may enter the combined degrees program and work concurrently toward the Doctor of Dental Surgery and the Doctor of Philosophy degrees. A minimum of six years is required to complete a combined degrees program, offered cooperatively by the School of Dentistry and the School of Medicine.

## **Awards**

All School of Dentistry students are eligible to receive awards of various kinds for demonstrated excellence, scholastic attainment, leadership ability, technical ability, professional proficiency, initiative, and other accomplishments or achievements, according to the bases established by the donors. Awards are given through various organizations, associations, and school and university departments. The names of all award recipients are printed in the University commencement program.

## **Student life**

### **School of Dentistry technical standards**

In harmony with its own didactic, clinical, research, and service objectives, and using the American Dental Education Association suggested guidelines, Loma Linda University School of Dentistry has identified the following technical standards for entry into all its programs.

#### **Cognition**

Students must have the cognitive abilities that allow the accurate and effective ability to measure, verify, calculate, reason, analyze, synthesize, and critically problem solve. Effective dental education requires the capacity to gather, organize, and assess relevant information in order to arrive at integrated solutions. Students must be able to comprehend three-dimensional relationships and understand the spatial relationships of structures in order to fully solve clinical problems.

#### **Sensation and perception**

For learning to occur, students must be able to visualize and comprehend physical demonstrations in the classroom, laboratory, and clinic. Such observation requires the functional use of vision, touch, hearing, smell, and somatic sensation.

Specifically, students must be able to acquire information from written documents and to visualize information presented in images from papers, videos, and digital media—including interpretation of radiographic and other graphic images, with or without the use of assistive devices. Sufficient visual acuity is required to read charts, records, small print, and handwritten notations.

Adequate visual and tactile skills are also necessary to perform dental examinations and provide treatment. Visual acuity, accommodation, and color vision are necessary to discern variations in color, shape, and general appearance between normal and abnormal hard and soft tissues.

Students must be able to observe and describe changes in mood, activity, and posture in their patients, possessing skills in effective perception and understanding of nonverbal communications. Accurately noting verbal and nonverbal communication is essential when performing dental operations or administering medications.

#### **Communication skills**

Students must be fluent in the use of standard written and spoken English. They must be able to communicate effectively and sensitively with patients, faculty, staff, and other students. Specifically, students must be able to observe, hear, and speak to patients in order to elicit and provide information. In addition, they must have the ability to read and understand written communications and generate effective oral and written communications with all members of the health-care team. This includes the ability to discern when a matter is of a confidential nature in order to maintain confidentiality. Students may be required to remediate written and/or verbal language skills before admission or during their program. This remediation may include accent modification.

#### **Fine and gross motor skills**

Students need sufficient motor and sensory capability in both hands to provide general dental care to perform palpation, percussion, auscultation and other diagnostic maneuvers; basic laboratory tests; and diagnostic procedures. These actions require fine and gross muscular movements, coordination, and equilibrium. Individuals must be able to operate foot controls utilizing fine movements, operating high- or low-speed dental instruments to achieve accurate movements of less than one-half millimeter.

Students must be able to perform basic life support (e.g., CPR), transfer and position disabled patients, physically restrain patients who lack motor control, and position themselves around the patient and dental chair.

#### **Behavioral and psychosocial attributes**

Students must possess the emotional stability and demonstrate the resilience required by a challenging educational program. Success requires use of good judgment, insight, self-motivation, self-assessment and self-control, high achievement striving, and the development of a mature, sensitive, and effective personal relationship style.

It is imperative that students be able to tolerate physically taxing workloads and to function effectively under stress. Students must be able to adapt to changing environments, demonstrate flexibility, and learn to function in the face of uncertainties inherent in the clinical issues of many patients. Compassion, integrity, honesty, concern for others, and cultural sensitivity are required personal qualities.

#### **Disabled applicants and students**

LLU School of Dentistry provides reasonable and appropriate accommodations in accordance with the Americans with Disabilities Act for individuals with documented disabilities who demonstrate a need for accommodation.

The Americans with Disabilities Act defines a person with a disability as an individual with a physical or mental impairment that substantially limits one or more major life activities. Problems such as English as a second language, test anxiety, or slow reading without an identified

underlying physical or mental deficit, or failure to achieve a desired outcome are generally not covered by the Americans with Disabilities Act.

To be considered for an accommodation based on a learning disability, a student must experience marked difficulty when compared with the average person in the general population, not just other dental school students, in one or more basic academic areas as a result of a significant information processing or attentional disorder.

Students requesting accommodations must provide supporting documentation for the disability requiring accommodation, including:

- A report from a licensed professional approved by Loma Linda University School of Dentistry identifying the diagnosed disability and the recommended accommodations.
- Record of any previous accommodations provided by educational institutions or other testing agencies.
- If no prior accommodations were provided, the licensed professional should include a detailed explanation as to why no accommodations were given in the past and why they are needed now.

Documentation needs to be reviewed by the associate dean for admissions and student affairs, before accommodation is formally implemented. While awaiting assessment and documentation, temporary accommodation may be granted. The temporary accommodation will not exceed ninety (90) days.

Students requesting accommodation are responsible for:

- Reporting their request for accommodation to the Office of Admissions and Student Affairs
- Providing the supporting documentation

## Policies for this school

The information on student life contained in this CATALOG is brief. The *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies; and is available to each registered student. Students need to familiarize themselves with the contents of the *Student Handbook* at <<http://www.llu.edu/assets/central/handbook/documents/Student-Handbook.pdf>>.

## Professional ethics

Successful students should demonstrate behaviors and attributes in harmony with School of Dentistry's core values. The school seeks students who openly and enthusiastically align themselves with the following core values:

- Belief in God
- Spiritual maturity
- Demonstrated compassion
- Service to others
- Commitment to excellence
- Critical thinking
- Respect for self and others
- Ethical integrity
- Principled care
- Pursuit of knowledge
- Conscientiousness and industry
- Effective communication

The school code of ethics expands and elaborates Loma Linda University's standards of ethical conduct.

Organized dentistry is proud of its reputation for honesty and integrity. These virtues are essential if dentistry is to continue to maintain its position of trust in society. The establishment of peer review committees, ethics committees, codes of ethics, and other regulatory and/or advisory processes and standards within the profession indicate a vital and continuing concern for maintaining high standards of integrity.

The School of Dentistry is a partner in this process where future professionals are selected and trained in the development of professional and ethical attitudes consistent with the highest goals of the profession.

The school seeks to broaden students' ethical perceptions by including a religious perspective not always found in ethical codes. By adding a spiritual foundation to the professions' ethical frameworks, it is anticipated that the dental professionals' ethic will be more completely informed and not only will reflect concern for his or her fellows, but also will reflect an intimate relationship with the Creator God.

The code contains specific admonitions that are limited in number but comprehensive in nature. It is anticipated that the values of honesty, integrity, and altruism will be enhanced during professional training so that, following graduation, these virtues will be second nature in the service provided to patients. Thus, the relationship of trust between dental professional and patient can develop to benefit both the profession and the public. This is a goal the school feels it must meet as it seeks to train dental professionals to become competent in all aspects of patient care.

The School of Dentistry code of ethics applies to all students (associate and baccalaureate dental hygiene; predoctoral, including international dentist students; graduate, certificate, residents, fellows, preceptors, research scholars; and exchange students).

The School of Dentistry code of professional ethics with its specific guidelines is available for review in Section VII of the *LLU Student Handbook*.

## Student leadership

### Student Government

Loma Linda University American Student Dental Association (LLU ASDA) is composed of peer voted student officials who are charged by administration to carry out the actions necessary for a successful student government, as well as serving as a representation for the ASDA chapter at regional and national meetings and events. LLU ASDA's central body is the Executive Council (EC) comprised of the First Delegate/President, Second Delegate/President-elect, two class representatives, secretary and treasurer.

The EC has the authority to appoint members to other designated offices to fulfill the work of the local chapter as needed and delegate duties to subcommittees as needed in governing the student body, including representation for other state and national professional organizations (CDA, ADEA, AGD) and class leadership. The EC oversees the utilization of all funds paid by student dues and obtained through fundraising.

Elections for all positions of LLU ASDA occur in the spring quarter.

### Class leadership

Class leaders are elected annually during the Autumn term for the first year and Spring term thereafter. Leaders are elected by confidential peer

vote to work as a team to coordinate class events—including academic, spiritual, and social experiences. Class leadership consists of:

DDS - President and four vice presidents serving in various capacities.

IDP - Two class representatives

DH BS - President and three vice presidents.

DH AS - President and one vice president.

### Committee representation

Students are invited to serve on school standing committees. The Office of Admissions and Student Affairs consults with LLU ASDA and class leadership to select students to serve on committees, including the Admissions Committees, Academic Review Committees, Curriculum Committee, and Professional Standards Committee.

To maintain a leadership position, a minimum 2.7 GPA must be maintained by the president, vice presidents and professional organization representatives.

## Special opportunities

### Alumni-Student Convention

The annual Alumni-Student Convention, sponsored since 1960 by the Alumni Association, gives opportunity for students to meet alumni and listen to presentations by prominent guest lecturers in the dental profession.

### Research presentation

Students have the opportunity to give research presentations in the form of table clinics. The winners are invited to present their table clinics at state and national conventions.

### Dedication service

A dedication service is held during the Alumni-Student Convention, giving students an opportunity to dedicate their professional lives to Christ. Incoming students are presented with personalized Bibles and graduating students are given personalized white coats embroidered with the School logo.

## Academic information

### General policies

#### Registration

The student must register on or before the dates designated by the Office of University Records. Early registration is encouraged. Registration is completed online at the myLLU registration portal <<https://ssweb.llu.edu/login>>. Once at the portal, a student must clear registration holds—student health, transcript, housing and finance. At the beginning of the first year of attendance, a student is required to have a picture taken for the student identification badge. International students must also register with the International Student Affairs office as required by law.

Late registration is permissible only in case of a compelling reason. A charge is applied if registration is not completed by the designated dates. The student may not attend class without being registered. A change in registration after the second week affects the grade record. A student may not concurrently register for courses in another school of the University without permission from the associate dean for academic affairs.

### Attendance

Regular attendance at lectures, clinics, and other assemblies is required of all students. All lectures and laboratories provide information essential for successful completion of the program. Each student is responsible for all material covered and assignments made. *Absences in excess of 15 percent may be sufficient cause for a failing or unsatisfactory grade to be recorded.* Clinics and individual courses/instructors may have more stringent requirements.

### Length of academic residence

To fulfill the requirement pertaining to length of academic residence, the student must be registered for a full course load at the University for the entire junior year for the Associate in Science degree; and the entire senior year for the Bachelor of Science degree; and the entire third (D3) and fourth (D4) years for the Doctor of Dental Surgery degree.

### Dean's list

Outstanding academic performance will be rewarded by publication of the Dean's List each review period. The eligibility requirements are:

- Complete at least 12 units of graded course work during the term.
- Achieve a term grade point average of at least 3.5 with no grade lower than a B-.
- Receive no incomplete (I) grades on the grade report.

### Course waiver

A course requirement may be waived if the applicant has previously taken the course and earned a grade of B or above, but no credit results. Evaluation for waiver of courses will be completed only after an applicant has been accepted to the program, and must be approved by the course director at this University and the school's associate dean for academic affairs. Tuition is not reduced if courses are waived or if a student takes less than a full load.

### Special examination

It is the policy of the school that all students are expected to take examinations at the scheduled time. The only acceptable excuse for not taking an examination on time is major illness (documented by the Student Health Service and conveyed to the course director). The consequences of missing an examination under the circumstances of documented illness are determined by the course director. If a student appears late for an examination, s/he may be denied admission to the examination site. If a student arrives late for an examination and is allowed to take it, s/he will be required to finish the examination at the same time as students who arrive on time.

### Repeating/remediating a course (predoctoral, IDP, and dental hygiene programs)

If a student receives an unsatisfactory or failing grade in a required course, it will be necessary for him/her to do additional work. Based on the original grade earned by the student, and upon the recommendation of the Academic Review Committee, one of the following plans will be pursued:

1. For courses with unsatisfactory performance (D+/D/U grades), the student must reregister for the course, review the course work independently, repeat required assignments or quizzes, and take any or all course examinations as required by the course director. The highest grade allowed for a remediated course is C. At the discretion of the Academic Review Committee and course director, the student may be required to repeat the course at the next course offering.

- For courses with failing performance (F grades), the student must reregister for the course, attend the class and/or laboratory, and take all course examinations at the next regular course offering.
- Both the original and repeat grades are entered into the student's permanent academic record, but only the repeat grade units are computed in the grade point average.

## Academic criteria for promotion (predoctoral, IDP, and dental hygiene programs)

### Academic criteria for academic advancement and program completion

#### Predoctoral

##### Level D1 to Level D2

- Cumulative didactic and preclinical laboratory G.P.A. at or above 2.0.
- Successful completion of all courses in the D1 curriculum.

##### Level D2 to Level D3

- Cumulative didactic and preclinical laboratory G.P.A. at or above 2.0.
- Successful completion of National Board Examination, Part I.
- Successful completion of all courses in the D2 curriculum.

##### Level D3 to Level D4

- Cumulative didactic and preclinical laboratory G.P.A. at or above 2.0.
- Successful completion of all courses in the D3 curriculum.

#### IDP

##### Level 3 to Level 4

- Cumulative didactic and clinical course G.P.A. at or above 2.0.
- Successful completion of all courses in the IDP3 curriculum.

### Dental hygiene (B.S. degree)

#### Junior to senior

- Cumulative didactic and preclinical G.P.A. at or above 2.0.
- Successful completion of junior clinic promotion OSCE.
- Successful completion of all courses in the junior curriculum.

### Dental hygiene (A.S. degree)

#### Sophomore to junior

- Cumulative didactic and preclinical G.P.A. at or above 2.0.
- Successful completion of sophomore clinic promotion OSCE.
- Successful completion of all courses in the sophomore curriculum.

### Graduate students/residents

- Cumulative didactic and laboratory G.P.A. at or above 3.0 (B).
- Successful completion of all evaluations.
- Successful completion of annual student evaluation (includes a review of entire academic record).
- Selection for advancement to Master of Science degree candidacy (for those on M.S. degree track only).

## School of Dentistry academic requirements for graduation

### Dentistry

A candidate for the Doctor of Dental Surgery degree must be at least twenty-one years of age and must have:

- Satisfactorily completed all the requirements of the curriculum—including specified attendance, level of scholarship, length of academic residence, number of credit units, and service-learning requirements.
- Completed special examinations, as required by the faculty.

- Successfully completed Parts I and II of the National Board Examination.
- Demonstrated evidence of satisfactory moral and professional conduct, of due regard for Christian citizenship, and of consistent responsiveness to the established aims of the University.
- Discharged financial obligations to the University.
- Been certified by the faculty as approved for graduation.

### Dental hygiene (B.S. degree)

In order to be eligible for graduation, the student must have:

- Completed the Undergraduate Intent to Graduate form.
- Completed all the requirements for admission to the chosen curriculum.
- Satisfactorily completed all chosen requirements of the curriculum—including specified attendance, level of scholarship, length of academic residence, and number of credit units.
- Attended a regionally accredited college for the first two years, and Loma Linda University School of Dentistry for the junior and senior years.
- Achieved no lower than a C- grade in all core courses and a minimum grade point average of 2.0.
- Completed special examinations as required by faculty.
- Passed the Dental Hygiene National Board Examination.
- Demonstrated evidence of satisfactory moral and professional conduct, of due regard for Christian citizenship, and of consistent responsiveness to the established aims of the University.
- Discharged financial obligations to the University.
- Been certified by the faculty as approved for graduation.
- Completed dental hygiene training with an Associate in Science degree or certificate from an accredited college, and completed the Degree Completion Program at the School of Dentistry (pertains to Degree Completion Program graduates only).

### Dental hygiene (A.S. degree)

In order to be eligible for graduation, the student must have:

- Completed the Undergraduate Intent to Graduate form.
- Completed all the requirements for admission to the chosen curriculum.
- Satisfactorily completed all the chosen requirements of the curriculum—including specified attendance, level of scholarship, length of academic residence, and number of credit units.
- Attended a regionally accredited college for one year, and Loma Linda University School of Dentistry for two years (minimum of seven quarters).
- Achieved no lower than a C- grade in all core courses and a minimum grade point average of 2.0.
- Completed special examinations, as required by faculty.
- Passed the Dental Hygiene National Board Examination.
- Demonstrated evidence of satisfactory moral and professional conduct, of due regard for Christian citizenship, and of consistent responsiveness to the established aims of the University.
- Discharged financial obligations to the University.
- Been certified by the faculty as approved for graduation.

## National Dental Board Examinations

Successful completion of the National Board Dental Examination, Parts I and II (NBDE-I and NBDE-II) is a requirement for graduation. The



National Board Dental Examinations are designed to assess cognitive knowledge of the basic, behavioral, and clinical sciences. Eligibility to sit for either part of the National Board Dental Examination is determined by successful completion of the curriculum leading up to the examination. In addition, students are required to pass a comprehensive examination that assesses mastery of the test specifications prior to each National Board Dental Examination. The eligibility requirements and timetable for passing the National Board Dental Examination are as follows:

## Part I

### First attempt

Part I examination should be taken prior to commencing the third year of dental school and is normally scheduled during June following completion of the second year. If upon first attempt the examination is not successfully completed, the student will be given an opportunity to retake the examination. During this interim period of time, students will be required to study for a re-examination, and sit for a second attempt no later than December.

### Second attempt

Students must be successful in the second attempt prior to December of the third year to remain with the cohort. If a student does not successfully complete the second attempt of the Part I examination by the end of December in their third year, s/he will be required to take a leave of absence to prepare for re-examination with an anticipated reengagement in the Summer quarter of the subsequent year.

### Third attempt

Upon successful completion of Part I the student will be readmitted as stated above. If the student does not successfully complete the National Board Dental Examination, Part I on the third attempt, s/he will be discontinued from the program.

## Part II

Part II examination is scheduled in the fourth year. If the examination is not successfully completed, the student will be given an opportunity to retake the examination per the National Board Dental Examination policies. A candidate for the Doctor of Dental Surgery degree must have successfully completed Parts I and II of the National Board Dental Examination before being awarded the D.D.S. degree.

## Procedures for academic review (predoctoral, IDP, and dental hygiene programs)

There are six academic review committees: D1, D2, D3, D4, IDP, and Dental Hygiene. Membership of each committee consists of the associate dean, academic affairs; the associate dean, admissions and student affairs; and the department representative/course directors of all courses required of the respective class in the academic year. The associate dean, clinic administration, the clinic director, and primary attending faculty are members of the D3/D4 academic review committees. In addition, each committee has two student members appointed by the dean in consultation with the associate dean, admissions and student affairs and DSA officers. Student committee members will be in the class one year ahead of the class being reviewed.

The academic review committees meet a minimum of two times annually to evaluate student academic and clinical performance and progress records. Students whose performance does not meet the stated academic standards and students who are being considered for academic sanctions may be scheduled for a hearing with the committee.

The committee also recommends to the dean all appropriate candidates for promotion, academic probation, repeat, or other appropriate actions; as well as students who should receive special recognition for academic excellence.

The process for evaluation of academic performance is as follows:

1. The academic review committee—by reviewing grades, reports, and other pertinent information—identifies students whose academic and/or clinical performance is below acceptable levels.
2. The associate dean for student affairs notifies a student facing possible academic sanctions regarding the time and place for a hearing called for the purpose of allowing the student to appear before the committee to present reasons why action should not be taken. The academic review committee considers the student's presentation and all available information before making a recommendation.
3. The dean may enforce one or more of four academic sanction options:
  - Academic probation
  - Remedial action
  - Academic leave of absence
  - Academic discontinuation
 Please refer to the academic disciplinary policy for more specific descriptions regarding each academic sanction.
4. A student may appeal the recommendation of the academic review committee to the dean. Such appeals are not expected to be routine and should be considered only in circumstances where new and relevant information exists that was not available for consideration by the academic review committee. The dean will review the matter and either render a decision or appoint a three-member ad hoc committee. Members of this committee will not have been involved in the academic review committee decision process. The ad hoc committee will determine whether the process was appropriately followed, review new information, and judge whether the record supports the recommendation. They will report their findings and recommendation to the dean, who will decide if the appealing student will be permitted to continue participating in classes and/or clinical assignments during the appeal proceedings.

## Academic disciplinary policy (predoctoral, IDP, and dental hygiene programs)

### Academic probation

Academic probation is a specified period of time during which the student is given an opportunity to comply with specific academic standards. Such action must be confirmed by letter to the student.

### Criteria for placement on academic probation

A student will be placed on academic probation if s/he meets one or more of the following conditions:

1. Term or cumulative grade point average (G.P.A.) below 2.0.
2. Failing or unsatisfactory (U/F/D+/D) grades in any course required for the degree.
3. Social/behavioral/ethical problems that significantly impact academic and/or clinical performance.

### Level of academic probation

The level of academic probation indicates the seriousness of the cumulative academic deficiency. However, depending on the seriousness

or nature of the academic deficiency, a student may be considered for academic leave of absence or discontinuation at any level of probation.

Level I	First term on academic probation
Level II	Second term on academic probation, consecutive or nonconsecutive.  EXCEPTION: Continued academic probation due to failing grade in a course that cannot be repeated until a later term or failure to reregister in the succeeding year.
Level III	Third term on academic probation, consecutive or nonconsecutive. If a student is unable to remove academic probationary status within the following term, s/he will be considered for academic discontinuation.  EXCEPTION: Continued academic probation due to failing grade in a course that cannot be repeated until a later term or failure to reregister in the succeeding year.
Level IV	If a student meets the criteria for academic probation for a fourth term, consecutive or nonconsecutive, s/he will be considered for academic discontinuation.

### Restrictions for a student on academic probation

A student on academic probation:

1. May not serve as an officer for any class, school, or extracurricular organization.
2. May not take any elective courses.
3. May not participate in any elective off-campus, service-learning, or mission activities.
4. Remains on academic probation until all the terms of the probation sanctions have been fulfilled, unless the student is discontinued.

### Remedial action or remediation

As a condition for continued enrollment, remedial action for the student may consist of:

1. Counseling, tutoring, and/or repeating assignments or course work; or completing additional assignments or course work, possibly including repeating an academic year or portion thereof.
2. Other specified requirements.

### Academic leave of absence

Academic leave of absence is a specified period of time during which the student is withdrawn from the academic program. Upon request to and approval by the academic review committee, the student may return to the program at a year/term level specified by the committee. The student may be requested to fulfill specific requirements prior to re-entering the academic program.

The following guidelines pertain to when an academic leave of absence may be considered for a student who is in one or more of the following situations:

- Student has a serious academic deficit that cannot be removed while continuing with current course work.
- At the end of the academic year, student does not meet the criteria for promotion to the next academic year.
- Student has three consecutive reviews or terms on academic probation.
- Student has not passed the National Board Dental Examination on schedule after two attempts and needs full study time to prepare for the National Board Dental Examination.

- Student fulfills criteria for academic discontinuation, yet shows promise for future success despite current deficiencies.

Return from an academic leave of absence requires that the student reapply for admission by written request to the associate dean for academic affairs. The student must meet the requirements for readmission specified by the academic review committee at the time the leave of absence was granted. The requirements for readmission may also be reviewed by the academic review committee.

### Academic discontinuation

Guidelines for academic discontinuation are indicated below for predoctoral, IDP, and dental hygiene students:

#### D1 Year

- Any term with one or more failing grades, regardless of term or cumulative G.P.A.
- Three or more unsatisfactory or failing grades within the academic year, regardless of term or cumulative G.P.A.
- Three consecutive reviews or terms on academic probation.
- Failure to fulfill terms of academic probation within the specified time period.
- Failure to meet criteria for promotion to D2 year by the end of the D1 year.

#### D2 Year

- Any term with one or more failing grades, regardless of term or cumulative G.P.A.
- Four or more unsatisfactory or failing grades since enrollment in the program, regardless of term or cumulative G.P.A.
- Failure to fulfill terms of academic probation within the specified time period.
- Level IV academic probation.
- Failure to meet criteria for promotion to D3 year by the end of the D2 year.

#### D3 Year

- Any term with one or more failing grades, regardless of term or cumulative G.P.A.
- Five or more unsatisfactory or failing grades since enrollment in the program, regardless of term or cumulative G.P.A.
- Failure to fulfill terms of academic probation within the specified time period.
- Level IV academic probation.
- Failure to meet criteria for promotion to D4 year by the end of the D3 year.

#### D4 Year

- Failure to pass either section of the National Board Dental Examination within three attempts.
- Failure to achieve eligibility for graduation within five full academic years of enrollment in the dental program. *Exception: Students who are required to repeat an academic year or who are on a revised program. These students must achieve eligibility for graduation within one year of the new graduation date assigned at the time of change to an alternate program.*

### Dental hygiene A.S. degree sophomores or B.S. degree juniors

- Any term with one or more failing grades, regardless of term or cumulative G.P.A.

- Three or more unsatisfactory or failing grades within the academic year, regardless of term or cumulative G.P.A.
- Failure to fulfill terms of academic probation within the specified time period.
- Failure to meet criteria for promotion to dental hygiene A.S. junior or dental hygiene B.S. senior year by the end of the dental hygiene A.S. sophomore or dental hygiene B.S. junior year.

#### Dental hygiene A.S. degree juniors or B.S. degree seniors

- Any term with one or more failing grades, regardless of term or cumulative G.P.A.
- Three or more unsatisfactory or failing grades within the academic year, regardless of term or cumulative G.P.A.
- Failure to fulfill terms of academic probation within the specified time period.
- Failure to pass the National Board Dental Hygiene Examination within three attempts.
- Failure to achieve eligibility for graduation within three full academic years of enrollment in the dental hygiene program.

In some situations, the academic review committee may recommend that a student repeat an academic year (or portion thereof) as an alternative to discontinuation.

#### Scholastic standing

Grades and grade points for the predoctoral, IDP, and dental hygiene programs may be found in Section II of this catalog, with the following exceptions:

- Satisfactory (S)—grade if the student exceeded the minimum requirements for overall performance.
- Marginal Satisfactory (MS)—grade if the student met but did not exceed the minimum requirements for overall performance.
- Unsatisfactory (U)—grade if the student did not meet the minimum requirements for overall performance.

#### Student-initiated academic grievance procedure

If a student wishes to contest a grade, s/he should discuss the grade first with the instructor, where appropriate; then with the course director, if applicable; and finally with the department chair. If the student is not satisfied, s/he may then appeal to the associate dean for academic affairs (for further discussion of the academic grievance process, see Loma Linda University *Student Handbook*, Section V—University Policies).

#### Service-learning

Service-learning at Loma Linda University School of Dentistry continues the original purpose of the school—to train dental health professionals to provide service to underserved populations, both locally and abroad.

Field experience for students of dentistry and dental hygiene includes extramural opportunities within the U.S. and in foreign countries. In addition to providing clinical treatment, service-learning experiences include local health fairs and elementary school dental health presentations. Service experiences may last from one day to several weeks.

All students are required to complete assigned service-learning rotations and minimum clock hours, as described in each program. Predoctoral dental students are required to complete a minimum of 120 service-learning hours. Forty hours must be completed doing local community service dentistry. Up to thirty of the remaining eighty hours may be completed doing nondental service. Dental hygiene students must

complete seventy-five service-learning hours. Thirty-five hours of local service are required, and up to fifteen nondental service hours may be credited. International Dentist Program students must complete sixty hours of service. Of the sixty hours, forty will be assigned by the program. Up to ten hours of nondental service may be completed as part of the sixty hours total requirement. In addition, a didactic component is included within the service-learning program. Lectures are embedded within existing courses and occur throughout the curricula.

Students are required to be in good and regular standing to be eligible to participate in elective international service-learning experiences.

#### Learning environment

Because the study of dental sciences and arts is based on a foundation in essentially the same science subjects as are studied in medicine and allied health curricula, the School of Dentistry shares with the School of Medicine the facilities for teaching basic sciences.

Classrooms, laboratories, student lounges, teachers' offices, and clinical facilities related solely to dentistry occupy the School of Dentistry building, named in honor of M. Webster Prince, the first dean. Prince Hall is on the University mall facing the University Church and adjacent to the Medical Center. The facilities effectively accommodate collaboration with the Medical Center in ongoing research and service programs.

The total resources of the University constitute a wealth of opportunity for the student with initiative and willingness to develop individual capacity to the fullest extent. Students find varied opportunities for serving and learning in the immediate University community, in school-sponsored service-learning clinics, in clinical and research electives, and in diverse volunteer programs.

#### Basic sciences

The Loma Linda University departments of basic sciences include anatomy, biochemistry, microbiology, and physiology and pharmacology. The basic sciences serve as the foundation for the dental sciences by leading toward an understanding of normal structure and function, as well as introducing the basis for pathology in the practice of dentistry.

Subjects are taught in the first year of the dental hygiene and the first two years of the general dentistry curricula as part of three conceptually integrated sequences of courses—sequences in physiology, in anatomy, and in applied science. Throughout the basic sciences, an appreciation of God's creation and His wisdom is reinforced through the study of human biology. Students are encouraged to extend their knowledge and apply it for their own well-being and for the well-being of their patients.

The purpose of the basic science curriculum is to provide a foundation of knowledge that is essential for the practice of dentistry and dental hygiene. The faculty are dedicated to providing students with tools that expand their thinking and challenge them to ask probing questions and to earnestly search for answers. Their aim is to prepare students to excel scientifically. The higher aim is, through the Christian atmosphere of this University, to prepare students to become truly compassionate dentists.

## Financial information

#### Financial policies

The Office of the Dean is the final authority in all financial matters and is charged with the interpretation of all financial policies. Any exceptions to published policy in regard to reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members,

program directors, or department chairs in regard to these matters is not binding on the school or the University unless approved by the dean.

Registration is not complete until tuition and fees on the required installment are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic year. There may be adjustments in tuition and fees as economic conditions warrant.

### General financial practices

The student is expected to arrange for financial resources to cover all expenses before the beginning of each school year. Previous accounts with other schools or this University must be settled.

### Satisfactory academic progress policy (all programs)

To be eligible for federal, state, and University financial aid, students are required by the U.S. Department of Education and the state of California to maintain satisfactory progress toward their degree objectives. In compliance with prescribed regulations, the University and School of Dentistry have established guidelines that are designed to ensure that students successfully complete courses to promote timely advancement toward a specific degree objective.

### Definition of satisfactory academic progress

The School of Dentistry defines satisfactory academic progress by the following three criteria:

1. Meeting a minimum grade point average requirement
2. Making yearly progress by completing the academic requirements defined for a program
3. Completing the degree objective within the maximum time allowed

### Grade point average requirement

To maintain satisfactory academic progress, students in the predoctoral, IDP, and dental hygiene programs must maintain a minimum cumulative grade point average of 2.0. In addition, dental hygiene students must achieve no grade lower than a C- in all core courses.

## Schedule of charges (2016-2017)

### Dentistry

All tuition, enrollment fees and technology fees are set for one academic year.

	1st Year	2nd Year	3rd Year	4th Year
Tuition	\$61,284	\$74,956	\$74,956	\$74,956
Enrollment Fees				
University	\$2,289	\$3,052	\$3,052	\$3,052
SD	\$132	\$148	\$128	\$44
Technology fees (Computer set-up, technical support)	\$1,584	\$780	\$780	\$780
The following are estimates based on the information available at this time and are subject to change.				
Instrument issue (Includes usage fees)	\$9,396	\$6,148	\$326	\$96
Computer (Budget revised at purchase with financial aid)	\$2,200	\$0	\$0	\$0
CPR (Mandatory on-campus training)	\$40	\$0	\$0	\$0
Optics (Loupes and light)	\$1,750	\$0	\$0	\$0
Clinic camera (Budget revised at purchase with financial aid)	\$2,200	\$0	\$0	\$0
Isolite system	\$0	\$0	\$1,500	\$0
Laboratory fees	\$144	\$148	\$128	\$44
Dental supplies (Billed with usage)	\$90	\$510	\$420	\$550

### Yearly progress requirement

Each student's academic progress is evaluated by the Academic Review Committee throughout each academic term, and a cumulative review is conducted to determine eligibility for promotion at the end of each academic year. The Office of Academic Affairs monitors the minimum grade point average requirement. The Office of Financial Aid, along with the School of Dentistry Office of Academic Affairs, monitors yearly progress and the maximum time allowance.

Students whose academic standing or degree progress falls below the standard receive a financial aid warning during the next term of registration. If their academic standing or degree progress is not raised to the standard by the end of the term in which the financial aid warning was issued, their financial aid will be terminated until the requirements have been met.

### Reasonable degree progress

It is expected that students will complete the requirements for a degree within the scheduled curriculum time. The Doctor of Dental Surgery degree is scheduled to be completed in four years and may not exceed six. The Bachelor of Science degree in dental hygiene is scheduled to be completed in two years and may not exceed three years. The Bachelor of Science dental hygiene online degree completion program is scheduled to be completed in six quarters and may not exceed 12 quarters. The Associate in Science degree in dental hygiene is scheduled to be completed in seven quarters and may not exceed 14 quarters.

### Certification of status

The Office of Academic Affairs will certify the official status of each enrolled student at the end of each academic year to the Office of University Records and to the Office of Financial Aid.

### Student financial aid

Federal loans are available only to United States citizens, green card holders, or those with permanent resident status. With good credit or a creditworthy cosigner, federal loans may be used to cover the entire academic budget. For more information, contact the Office of Financial Aid <finaid@llu.edu> or 909/558-4509.

Departmental fees (Includes course materials; dental laboratory gold)	\$257	\$1,106	\$321	\$384
Books	\$900	\$1,460	\$700	\$0
ASDA/CDA required fees (Not covered with financial aid)	\$85	\$85	\$85	\$85
National Board Examinations	\$0	\$420	\$0	\$465
Estimated living expenses (For off-campus student, not living with relative)	\$16,000	\$19,200	\$19,200	\$19,200
Total	\$98,351	\$108,013	\$101,596	\$99,656

### International Dentist Program

All tuition, enrollment fees and technology fees are set fees for one academic year.

	IDP 3rd Year	IDP 4th Year
Tuition	\$102,700	\$102,700
Enrollment fees		
University	\$3,160	\$3,160
SD	\$160	\$160
Technology fees (Computer set-up, technical support)	\$1,780	\$780
The following are estimate based on the information available at this time and are subject to change.		
Instrument issue (Includes usage fees)	\$12,354	\$0
Computer (Budget revised at purchase with financial aid)	\$2,200	\$0
CPR (Mandatory on-campus training)	\$40	\$0
Optics (Loupes and light)	\$1,750	\$0
Clinic camera (Budget revised at purchase with financial aid)	\$2,200	\$0
Isolite system	\$1,500	\$0
Laboratory fees	\$160	\$80
Dental supplies (Billed with usage)	\$40	\$316
Departmental fees (includes course materials; dental laboratory gold)	\$320	\$0
Books	\$564	\$0
ASDA/CDA (Not covered with financial aid)	\$85	\$85
Estimated living expenses (For off-campus student, not living with relative)	\$19,515	\$19,515
Total	\$148,528	\$126,796

### Dental Hygiene—B.S. (Entry Level)

All tuition, enrollment fees and technology fees are set for one academic year and are divided equally per term.

	Junior	Senior
Tuition	\$31,476	\$43,100
Enrollment fees		
University	\$2,289	\$3,052
SD	\$60	\$0
Technology fees (Computer set-up, technical support)	\$1,584	\$780
The following are estimates based on the information available at this time and are subject to change.		
Instrument issue (Includes usage fee)	\$5,949	\$88
Computer (Budget revised at purchase with financial aid)	\$2,200	\$0
CPR (Mandatory on-campus training)	\$40	\$0
Optics (Loupes)	\$1,200	\$0
Laboratory fees	\$60	\$0
Supplies (Billed with usage)	\$55	\$125
Books	\$880	\$705
SADHA dues	\$90	\$90
National Board Review Course (Budgeted for students to purchase their choice)	\$0	\$400
National Board Examination	\$0	\$410
Extramural	\$0	\$960
Estimated living expenses (For off-campus student, not living with relative)	\$14,400	\$19,200

Total	\$60,283	\$68,910
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**Dental Hygiene—A.S.**

All tuition, enrollment fees and technology fees are set for one academic year and are divided equally per term.

	Sophomore	Junior
Tuition	\$19,371	\$27,092
Enrollment fees		
University	\$2,289	\$3,052
SD	\$60	\$0
Technology fees (Computer set-up, technical support)	\$1,584	\$780
The following are estimates based on the information available at this time and are subject to change.		
Instrument issue (Includes usage fee)	\$5,949	\$88
Computer (Budget revised at purchase with financial aid)	\$2,200	\$0
CPR (Mandatory on-campus training)	\$40	\$0
Optics (Loupes)	\$1,200	\$0
Laboratory fees	\$60	\$0
Supplies (Billed with usage)	\$55	\$125
Books	\$880	\$705
SADHA dues	\$90	\$90
National Board Review Course (Budgeted for students to purchase their choice)	\$0	\$400
National Board Examination	\$0	\$410
Extramural	\$240	\$240
Estimated living expenses (For off-campus student, not living with relative)	\$14,400	\$19,200
Total	\$48,418	\$52,182

**Dental Hygiene—B.S. Completion Program****Tuition**

\$614 per unit

**On- and off-campus student housing**

Students may go to <llu.edu/central/housing> for housing information and a housing application form.

**Programs****Undergraduate**

- Dental Hygiene — A.S. and B.S. (Entry Level) (p. 214), B.S. (completion) (p. 219)

**Professional**

- Dentistry — D.D.S. (p. 222)
- International Dentist Program (IDP) — D.D.S. (p. 237)
- Biomedical Sciences — Certificate (p. 222)

**Advanced Education**

- Dental Anesthesiology — post-D.D.S. Certificate, M.S.D. (p. 245)
- Endodontics — post-D.D.S. Certificate, M.S.D., M.S. (p. 247)
- Implant Dentistry — post-D.D.S. Certificate, M.S.D., M.S. (p. 249)
- Oral and Maxillofacial Surgery — post-D.D.S. Certificate, M.S.D., M.S. (p. 251)
- Orthodontics and Dentofacial Orthopedics — post-D.D.S. Certificate, M.S. (p. 252)
- Pediatric Dentistry — post-D.D.S. Certificate, M.S.D., M.S. (p. 253)
- Periodontics — post-D.D.S. Certificate, M.S.D., M.S. (p. 255)
- Prosthodontics — post-D.D.S. Certificate, M.S.D., M.S. (p. 256)

**Undergraduate**

Established in 1959, the Department of Dental Hygiene, the Bachelor of Science degree undergraduate curriculum of the School of Dentistry, is largely focused on preventive oral health services and continuing care. Dental science courses, preclinical lectures and seminars, laboratory exercises, and clinical assignments have been developed to provide training in the variety of procedures delegated to the dental hygienist within the dental practice setting. These experiences are sequenced in an organized manner that provides for continual growth and competency in performance of all traditional and expanded function procedures.

The purpose of the program is to develop professionals prepared for the current practice of dental hygiene, as well as graduates who are additionally prepared to deal with future changes in dentistry. Courses that encourage critical thinking and problem-solving techniques and that enhance the ability to evaluate the latest in research are important adjuncts to clinical training. Upon completion of this curriculum, graduates will be prepared to enter a variety of career options available to a dental hygienist.

The A.S. and B.S. degrees, including the online completion program curricula, are approved by Loma Linda University Board of Trustees, Western Association of Schools and Colleges, and Commission on Dental Accreditation of the American Dental Association.

## Philosophy

A profession in the health arts and sciences calls increasingly for persons of intelligence, integrity, responsibility, and depth of human understanding. Therefore, the program of instruction is planned on a strong liberal arts foundation. The student is encouraged to take electives that contribute to breadth of knowledge and quality of values. The choice of electives in early college work is important for many reasons.

The School of Dentistry is interested in applicants with the potential to become hygienists who are well-read and caring persons prepared to communicate effectively in professional and community relationships. They should be able to draw on knowledge of the structure and function of the human body in health and disease, applying resources based on Christian ideals and values to aid in the solution of personal problems. They should also be able to develop the attitudes and skills that will most effectively serve society.

## Goal

The goal of the Dental Hygiene Program is to educate competent, concerned, and active members of the dental hygiene profession who possess the ability to effectively perform the expanding scope of practice of the dental hygienist.

Loma Linda University emphasizes Christian values and beliefs and the concept of whole person care. Opportunities for spiritual growth and fellowship among faculty and students are interwoven into daily academic pursuits, clinical practice, and social interactions.

The advancement of dental hygiene depends on an ever-growing body of knowledge. Therefore, this program also places great importance on providing an atmosphere in which students can develop the skills necessary to objectively assess new theories and trends in dentistry in light of scientific knowledge and principles. By combining Christian values with an appreciation for research and the scientific method, graduates will continually apply evidence-based principles to patient care and exhibit God's love in the quality of service they render.

## Chair

Kristi J. Wilkins

## Primary faculty

Darlene A. Armstrong

Larysa Baydala

D. Darlene Cheek

Danielle Ellington

Debra K. Friesen

Shelley L. Hayton

Marilynn G. Heyde

Shirley A. Lee

Patricia M. Lennan

Patricia Tucker

Colleen A. Whitt

Shelly Withers

Debra A. Zawistowski

## Emeritus faculty

Joni A. Stephens

## Application procedures

The Dental Hygiene Program is an undergraduate curriculum in the School of Dentistry. A student must have a high school diploma or its equivalent and must meet college entrance requirements. After successful completion of the required prerequisite courses in a regionally accredited college or university, admission to the Dental Hygiene Program is in the junior year for the Bachelor of Science degree, in the sophomore year for the Associate in Science degree, and in the senior year for the Bachelor of Science completion program.

The application is available at <<http://www.adea.org/>>. An LLU supplemental application is also required. Application deadlines may be found at [adea.org](http://www.adea.org/); however, priority consideration will be given to those who apply by April 1st.

## Application procedure

1. *DHCAS application.* The DHCAS application is completed online by the applicant at [adea.org](http://www.adea.org/). The DHCAS application takes approximately 4-6 weeks to be processed and sent to the school where the applicant has applied.
2. *Supplemental application.* As soon as the DHCAS application is received by LLU the applicant is sent an email invitation from LLU to complete an electronic supplemental application.
3. *Supplemental application deadline.* The applicant must return the completed supplemental application and materials within thirty (30) days. This includes an essay specific to Loma Linda University, a photograph, and the nonrefundable application fee of \$100.
4. *Transcripts.* Official transcripts must be sent to DHCAS. When an applicant becomes an accepted student, official transcripts—mailed directly from all high schools/colleges/universities to LLU—are required in order for the student to be registered for the first quarter of classes. International students must submit official transcripts at time of supplemental application.
5. *References.* The applicant is asked to send DHCAS three personal references. These must include an academic reference from a science instructor; a reference from an employer; a character or religious reference; such as, from a minister. Members of the applicant's family are excluded from writing the required letters of reference.
6. *Interview.* The applicant's records will be screened when the supplemental application, recommendation, and transcripts are on file. The applicant may then be invited to the school for a personal interview. An interview is required for admission. The interview provides an opportunity for evaluation of noncognitive factors, including communication skills, personal values, motivation, and commitment to goals of the profession; as well as genuine concern for others in the service of dental hygiene. At the time of the interview, a tour of the school will be given by a current student.
7. *Observation.* It is important that students seek experience observing and assisting in a dental office in order to become familiar with the work of a dental hygienist. Prior to interviewing, applicants are expected to complete a minimum of twenty (20) hours of observation/work experience in a dental facility.

8. **Acceptance.** Accepted students receive an acceptance letter. Upon payment of the deposit, accepted students receive an email that serves as a receipt, as well as information about how to access registration information.

Pre-entrance requirements:

1. **Pre-entrance health requirements/immunizations.** It is expected that necessary routine dental and medical care will have been attended to before the student registers. New students are required to have certain immunizations and tests before registration. Forms to document the required immunizations are provided for the physician in the registration information made available electronically to the student by LLU. In order to avoid having a hold placed on registration, the student is encouraged to return the documentation forms to Student Health Service no later than six weeks prior to the beginning of classes.  
For a complete list of required immunizations and tests, see Section II of this CATALOG under the heading "Health Care." Documentation verifying compliance with this requirement must be provided before registration can be completed.  
For further information, consult the *Student Handbook*, Section V—University Policies—Communicable disease transmission prevention policy; or contact the Student Health Service office at 909/558-8770. If a returning student is assigned to a clinical facility that requires a tuberculosis skin test, the student is required to have the test within the six months before the assignment begins.
2. **Deposits.** The student accepted into one of the dental hygiene programs must submit a nonrefundable deposit. All deposits become part of the first quarter's tuition. Failure to submit this deposit will result in loss of the applicant's position in the class. The remaining balance of the first quarter's tuition and fees are due no later than the day of matriculation in late September. If the applicant has submitted a completed application for financial aid by March 2, and if the Stafford application has been submitted by June 15, the final installment can be paid utilizing University-assisted sources.
3. **Financial requirement.** Non-U.S. citizens and non-permanent residents are required by U.S. Immigration regulation to pay for their first year of tuition and fees before they can register for Autumn term. In addition, they must provide documentary evidence of sufficient funds for their second year. International students will receive the necessary visa applications and registration information after they have submitted their deposit and payment plan.
4. **Financial aid.** A financial aid advisor and financial aid programs are available. Please contact the Office of Financial Aid by email at [finaid@llu.edu](mailto:finaid@llu.edu); or by telephone, 909/558-4509. Web site information is located at [llu.edu/central/ssweb/finaid](http://llu.edu/central/ssweb/finaid).

## General regulations

The student is also subject to School of Dentistry academic information (p. 205), technical standards (p. 203), financial policy (p. 209), and University academic policies (p. 35) outlined in this CATALOG.

## Employment

Dental hygiene students may accept part-time employment during the school year after receiving approval from the department chair and the associate dean, academic affairs. Permission to work is granted on the basis of grades, class load, and health. Work hours may not interfere with class, laboratory, or clinic assignments.

## Supplies

Dental hygiene students must obtain required textbooks, computers, supplies, instruments, and uniforms. The official instruments issued must be purchased from the School of Dentistry during registration. Unauthorized or incomplete equipment is not acceptable. Advance consent must be obtained for any exception. The student must purchase the professional apparel (uniforms, protective eyewear, and shoes) specified by the School of Dentistry.

## License

To practice, the dental hygienist must pass clinical licensing examinations given by state and/or regional dental examining boards. The examinations are given several times each year. Credentials from the National Board of Dental Examiners are accepted in lieu of the written portion of a state examination in some states. Some states have additional computer-based written examinations. Further information can be obtained from each state licensing board or regional clinical examination Web site.

## Programs

Dental Hygiene – A.S., B.S. (Entry Level) (p. 214)

Dental Hygiene – B.S. (completion) (p. 219)

## Dental Hygiene – A.S., B.S. (Entry Level)

Dental hygiene, a profession dating back to 1913, is largely concerned with preventive health services. The hygienist works in association with the dentist in private practice offices, industrial organizations, schools, hospitals, state or federal public health services, and the armed forces.

The B.S. degree is organized as a four-year college curriculum. The freshman and sophomore years of largely prescribed, preprofessional study may be taken at any regionally accredited college. The professional curriculum begins with the junior year in the School of Dentistry. The curriculum is approved by the Commission on Dental Accreditation of the American Dental Association. The first class at this University graduated in 1961.

After completion of the required prerequisite course work, the A.S. degree dental hygiene student enters the seven-quarter program leading to the Associate in Science degree in dental hygiene. The student will meet eligibility in the sixth quarter, after successful completion of course work, for the written Dental Hygiene National Board Examination. After successful completion of the seventh quarter, the graduate will be eligible to sit for a state and/or regional clinical board examination.

## Institutional learning outcomes

Students who graduate with the Associate in Science or the Bachelor of Science degree in dental hygiene will meet the University outcomes (p. 19).

## Dental hygiene's ten core competencies

The curriculum is designed to ensure that by graduation, all students will have the knowledge, skills, and attitudes to successfully enter the practice of dental hygiene. Students meeting graduation requirements must be able to:



Competency 1:	Apply a professional code of ethics in all patient and professional interactions.
Competency 2:	Adhere to the federal/state legal and regulatory framework in the provision of oral health care.
Competency 3:	Apply critical-thinking and problem-solving skills in the provision of oral health care to promote whole patient health and wellness.
Competency 4:	Use evidence-based rationales and emerging treatment modalities to evaluate and incorporate accepted standards of care.
Competency 5:	Incorporate self-assessment and professional growth through lifelong learning.
Competency 6:	Advance oral health services through affiliations with professional organizations, service activities, and research.
Competency 7:	Apply quality assurance process to ensure a continued commitment to accepted standards of care.
Competency 8:	Communicate effectively with diverse individuals and groups, serving all persons without discrimination by acknowledging and appreciating diversity.
Competency 9:	Provide accurate, consistent, and complete assessment, planning, implementation, evaluation, and documentation for the provision of all phases of the dental hygiene process of care.
Competency 10:	Provide collaborative, individualized patient care that is comprehensive and compassionate.

## Accreditation

The A.S. and B.S. degree curricula are accredited by the Commission on Dental Accreditation of the American Dental Association. Loma Linda University is regionally accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; Web site: <<http://www.wascweb.org>> or <<http://www.wascsenior.org/contact>>.

## Programs

- Dental Hygiene - A.S. (entry-level) (p. 215), B.S. (entry-level) (p. 217)

## Dental Hygiene – A.S. (Entry Level)

Closed to admissions for the 2016-2017 academic year

### Site coordinator

Debra A. Zawistowski

The Associate in Science (A.S.) degree in dental hygiene, established in 2010, is designed to be completed at the School of Dentistry off-campus location in Palm Desert, California. The goal of the A.S. degree is to offer a unique educational opportunity for students in the Coachella Valley. Applicants who live in the Coachella Valley and have completed prerequisite course work at the College of the Desert will be given priority review in the School of Dentistry admissions process.

The purpose of the A.S. degree—modeled after the B.S. degree in dental hygiene established in 1959—is to increase access to care in an area underserved by preventive oral health-care providers. Upon completion of this curriculum, graduates will be prepared to enter clinical practice under the general and direct supervision of a licensed dentist. A.S. degree

graduates will be encouraged to pursue the B.S. degree online completion curriculum, preparing them for a variety of career options, including teaching and public health opportunities.

## Admissions

The Associate in Science degree dental hygiene applicant must meet the following minimum requirements:

- 44 quarter or 32 semester units of transferable college course work.
- A grade point average of 2.5 or higher in science and nonscience course work, averaged separately; a minimum grade of C for all pre-entrance course work to be transferred to the University.
- A personal interview with a representative designated by the School of Dentistry. This interview will assess personal qualities; such as, values, spiritual heritage, communication skills, service orientation, and volunteer experience. The interview is by invitation only.
- Three personal letters of reference.
- Minimum of twenty (20) hours of experience observing with a dental hygienist.
- Dental hygiene applicants are expected to complete all general education requirements *before* matriculating in the School of Dentistry. A student may be accepted with a deficiency in one or more of the areas but is expected to eliminate deficits before registering for the Dental Hygiene program.

### Dental Hygiene general education requirements (A.S. degree)

#### Domain II: 20 quarter or 15 semester units Scientific Inquiry and Analysis and Social Sciences

One full year of chemistry covering inorganic, organic, and biochemistry—each with laboratory; human anatomy and human physiology with laboratory (may be two separate courses or sequential courses); microbiology with laboratory. Required science course work must be completed within five years prior to matriculation. Nonremedial college mathematics or statistics. Introductory sociology, general psychology.

#### Domain III: 13 quarter or 9 semester units Communication

English composition and literature, a complete sequence (two semesters or two quarters); and a speech/interpersonal communication/persuasion course are required. Introductory courses in computers are highly recommended.

#### Domain IV: 3 quarter or 2 semester units Health and Wellness

A personal health or nutrition course and one physical education activity course are required.

## Program requirements

Code	Title	Clock Hours				Total Units
		Lec	Lab	Clinical	Total	
<b>Sophomore Year, Autumn Quarter</b>						
ANAT 301	Head and Neck Anatomy, DH	46			46	4.0
DNHY 216	Oral Health and Preventive Dentistry	22			22	2.0
DNHY 305	Oral Anatomy Lecture	22			22	2.0
DNHY 305L	Oral Anatomy Laboratory		30		30	1.0
DNHY 321	Preclinical Dental Hygiene I Lecture	22			22	2.0
DNHY 321L	Preclinical Dental Hygiene I Laboratory		60		60	2.0
<b>Winter Quarter</b>						
ANAT 303	General and Oral Histology and Embryology	42			42	3.0
ANDN 314	Dental Anesthesia: Local Anesthesia and Inhalation Sedation	33	30		63	4.0
DNHY 309	Radiology I	22	40		62	3.0
DNHY 322	Preclinical Dental Hygiene II Lecture	22			22	2.0
DNHY 322L	Preclinical Dental Hygiene II Laboratory		60		60	2.0
DNHY 375	Dental Hygiene Clinic			40	40	1.0
RELT 423	Loma Linda Perspectives	20			20	2.0
<b>Spring Quarter</b>						
DNHY 310	Radiology II	22	40		62	3.0
DNHY 323	Preclinical Dental Hygiene III	22			22	2.0
DNHY 323L	Preclinical Laboratory		40		40	1.0
DNHY 376	Dental Hygiene Clinic			120	120	4.0
DNHY 380	Medically Compromised Patients	22			22	2.0
DNHY 381	Pharmacology for the Dental Hygienist I	22			22	2.0
ODRP 311	General and Oral Pathology DH	50			50	5.0
<b>Summer Quarter</b>						
DNHY 217	Community Oral Health Theory	22			22	2.0
DNHY 303	Dental Materials and Techniques	12	30		42	2.0
DNHY 376	Dental Hygiene Clinic			120	120	4.0
DNHY 380	Medically Compromised Patients	22			22	2.0
DNHY 382	Pharmacology for the Dental Hygienist II	22			22	2.0
DNHY 405	Introduction to Periodontics	22			22	2.0
DNHY 450	Junior Clinical Seminar	22			22	1.0
RELE 457	Christian Ethics and Health Care	20			20	2.0
<b>Junior Year, Autumn Quarter</b>						
DNHY 290	Research Design and Biostatistics	33			33	3.0
DNHY 408	Professional Ethics	22			22	2.0
DNHY 410	Cultural Competency in Health Care	22			22	2.0
DNHY 451	Clinical Seminar I	22			22	1.0
DNHY 475	Dental Hygiene Clinic I			176	176	4.0
<b>Winter Quarter</b>						
DNHY 218	Community Oral Health Practicum			60	60	2.0
DNHY 415	Applied Nutrition	22			22	2.0
DNHY 435	Special Topics in Periodontal Therapy	22			22	2.0
DNHY 452	Clinical Seminar II	22			22	1.0
DNHY 476	Dental Hygiene Clinic II			176	176	4.0
DNHY 495	Dental Hygiene National Board Preparation	22			22	1.0-2.0
<b>Spring Quarter</b>						
DNHY 409	Jurisprudence and Practice Management	22			22	2.0
DNHY 412	Dental Hygiene Topics II	22			22	2.0
DNHY 453	Clinical Seminar III	22			22	1.0
DNHY 477	Dental Hygiene Clinic III			204	204	4.0
<b>Total Units</b>		<b>784</b>	<b>330</b>	<b>896</b>	<b>2010</b>	<b>99-100</b>

## Normal time to complete the program

2 years (7 academic quarters) at LLU — full-time enrollment required

## Dental Hygiene – B.S. (Entry Level)

The B.S. degree is organized as a four-year college curriculum. The freshman and sophomore years of largely prescribed, preprofessional study may be taken at any regionally-accredited college. The professional curriculum begins with the junior year in the School of Dentistry. The curriculum is approved by the Commission on Dental Accreditation of the American Dental Association. The first class at this University graduated in 1961.

After completion of the required prerequisite course work, the A.S. degree dental hygiene student enters the seven-quarter program leading to the Associate in Science degree in dental hygiene. The student will meet eligibility in the sixth quarter—after successful completion of course work—for the written Dental Hygiene National Board Examination. After successful completion of the seventh quarter, the graduate will be eligible to sit for a state and/or regional clinical board examination.

## Admissions

The Bachelor of Science degree in dental hygiene applicant must meet the following minimum requirements:

- 96 quarter or 64 semester units of accredited college course work.  
*NOTE:* Loma Linda University requires all students who graduate with a baccalaureate degree to complete a minimum of 68 quarter units of general education, which is integrated into the entire undergraduate program.
- A grade point average of 2.7 or higher in science and nonscience course work, averaged separately; a minimum grade of C for all pre-entrance course work to be transferred to the University. The entering grade point average is typically 3.2 or higher.
- A personal interview with a representative designated by the School of Dentistry. This interview will assess personal qualities; such as, values, spiritual heritage, communication skills, service orientation, and volunteer experience. The interview is by invitation only.
- Three personal letters of reference.
- A minimum of twenty (20) hours observation with a dental hygienist. Completion of observation hours prior to an interview is recommended. Dental assisting experience is also highly recommended.
- Dental hygiene applicants are expected to complete all general education requirements before matriculating in the School of Dentistry. A student may be accepted with a deficiency in one or more of the areas but is expected to eliminate deficits before registering for the Dental Hygiene Program.
- Required science courses must be completed within five years prior to the desired date of matriculation.

## Dental hygiene general education requirements (B.S. degree)

### Domain I: 28-32 units Religion and Humanities

Four (4) quarter or 3 semester units of religion for each full year of attendance at a Seventh-day Adventist college, based on the total units graded; humanities courses (20-24 quarter units or 14 semester units) selected from a minimum of three content areas—history and/

or civilization, fine arts theory, literature, philosophy/ethics, foreign language, performing arts/visual arts (not to exceed 4 quarter units).

### Domain II: 24-32 units Scientific Inquiry and Analysis and Social Sciences

One full year of chemistry covering inorganic, organic, and biochemistry —each with laboratory; human anatomy and human physiology with laboratory (may be two separate courses or sequential courses); microbiology with laboratory. Required science course work must be completed within five years prior to matriculation. Nonremedial college mathematics or statistics. Introductory sociology, general psychology, and cultural anthropology/diversity courses are required.

### Domain III: 9-13 units Communication

English composition and literature, a complete sequence (two semesters or two quarters); and a speech/interpersonal communication/persuasion course are required. Introductory courses in computers are highly recommended.

### Domain IV: 2-6 units Health and Wellness

A personal health or nutrition course and two physical education activity courses are required.

For total unit requirements for graduation, see LLU General Education Requirements (p. 28).

## Program requirements

Code	Title	Clock Hours				Total Units
		Lec	Lab	Clinical	Total	
<b>Junior Year, Autumn Quarter</b>						
ANAT 301	Head and Neck Anatomy, DH	46			46	4.0
DNES 200	Curricular Practical Training <sup>1</sup>		75		75	0.0
DNES 400	Interprofessional Laboratory Experience <sup>1</sup>		4		4	0.0
DNHY 305	Oral Anatomy Lecture	22			22	2.0
DNHY 305L	Oral Anatomy Laboratory		30		30	1.0
DNHY 309	Radiology I	22	40		62	3.0
DNHY 321	Preclinical Dental Hygiene I Lecture	22			22	2.0
DNHY 321L	Preclinical Dental Hygiene I Laboratory		60		60	2.0
RELT 423	Loma Linda Perspectives	20			20	2.0
<b>Winter Quarter</b>						
ANAT 303	General and Oral Histology and Embryology	42			42	3.0
ANDN 314	Dental Anesthesia: Local Anesthesia and Inhalation Sedation	33	30		63	4.0
DNHY 310	Radiology II	22	40		62	3.0
DNHY 322	Preclinical Dental Hygiene II Lecture	22			22	2.0
DNHY 322L	Preclinical Dental Hygiene II Laboratory		60		60	2.0
DNHY 375	Dental Hygiene Clinic			40	40	1.0
DNHY 380	Medically Compromised Patients	22			22	2.0
DNHY 381	Pharmacology for the Dental Hygienist I	22			22	2.0
<b>Spring Quarter</b>						
DNHY 323	Preclinical Dental Hygiene III	22			22	2.0
DNHY 323L	Preclinical Laboratory		40		40	1.0
DNHY 376	Dental Hygiene Clinic			120	120	4.0
DNHY 380	Medically Compromised Patients	22			22	2.0
DNHY 382	Pharmacology for the Dental Hygienist II	22			22	2.0
DNHY 405	Introduction to Periodontics	22			22	2.0
DNHY 450	Junior Clinical Seminar	22			22	1.0
ODRP 311	General and Oral Pathology DH	50			50	5.0
RELE 457	Christian Ethics and Health Care	20			20	2.0
<b>Senior Year, Summer Quarter</b>						
DNES 305	Etiology and Management of Dental Caries	22			22	2.0
DNHY 303	Dental Materials and Techniques	12	30		42	2.0
DNHY 328	Dental Hygiene Portfolio Practicum	10			10	1.0
DNHY 376	Dental Hygiene Clinic			120	120	4.0
DNHY 390	Introductory Statistics	22			22	2.0
DNHY 406	Orthodontics Concepts for Dental Hygiene	12			12	1.0
DNHY 416	Dental Health Education I	22			22	2.0
DNHY 421	Research I	22			22	2.0
DNHY 450	Junior Clinical Seminar	22			22	1.0
<b>Senior Year, Autumn Quarter</b>						
DNES 200	Curricular Practical Training <sup>1</sup>		75		75	0.0
DNES 400	Interprofessional Laboratory Experience <sup>1</sup>		4		4	0.0
DNHY 411	Dental Hygiene Topics I	22			22	2.0
DNHY 415	Applied Nutrition	22			22	2.0
DNHY 417	Dental Health Education II	22			22	2.0
DNHY 422	Research II	20			20	2.0
DNHY 435	Special Topics in Periodontal Therapy	22			22	2.0
DNHY 451	Clinical Seminar I	22			22	1.0
DNHY 475	Dental Hygiene Clinic I			176	176	4.0
DNHY 495	Dental Hygiene National Board Preparation	22			22	1.0-2.0
RELR 475	Art of Integrative Care	20			20	2.0
<b>Winter Quarter</b>						

DNHY 408	Professional Ethics	22		22	2.0
DNHY 412	Dental Hygiene Topics II	22		22	2.0
DNHY 431	Public Health Dentistry	33		33	3.0
DNHY 452	Clinical Seminar II	22		22	1.0
DNHY 476	Dental Hygiene Clinic II		176	176	4.0
DNHY 495	Dental Hygiene National Board Preparation	22		22	1.0-2.0
<b>Spring Quarter</b>					
DNHY 409	Jurisprudence and Practice Management	22		22	2.0
DNHY 413	Dental Hygiene Topics III	22		22	2.0
DNHY 414	Personal Finance	20		20	2.0
DNHY 453	Clinical Seminar III	22		22	1.0
DNHY 477	Dental Hygiene Clinic III		204	204	4.0
RELR 408	Christian Perspectives on Marriage and the Family	20		20	2.0
Total Units		1018	488	836	2342
					117-119

<sup>1</sup> Course may be taken in the junior or senior year.

## Normal time to complete the program

2 years (7 academic quarters) at LLU – full-time enrollment required

NOTE: Consult advisor regarding other courses that may be applied towards graduation.

## Dental Hygiene – B.S. (Completion)

### Program director

Kristi J. Wilkins

The online Dental Hygiene—B.S. (Completion) Program in dental hygiene is designed for licensed dental hygienists who graduated from an Associate in Science degree program, or its equivalent, and wish to complete the baccalaureate (B.S.) degree in dental hygiene. This curriculum is the equivalent of one full academic year. In addition to the degree-completion courses in either education or public health, the student will need to complete any remaining general education requirements needed to earn a baccalaureate degree.

The B.S. degree completion curriculum in dental hygiene is designed to be primarily online, with a requisite teaching or public health component that may be accomplished in the geographical area of the student. This program offers the challenge and quality of a traditional classroom, yet provides the flexibility to fit education into the life of the busy dental professional. Students can study at their own convenience, learn in small groups with expert faculty, and meet career goals at their own speed. Students who tend to be the most successful in this type of program are self-directed, computer literate, and self-motivated in their learning and study habits.

Two areas of focus are included in this curriculum. The first is teaching, which prepares the student to instruct in a dental hygiene program. The second is a public health focus, which will either allow graduates to work in a community/dental public health program or enable them to teach in a dental hygiene program.

- Dental Hygiene—Education Track
- Dental Hygiene—Public Health Track

## Program goals

The Loma Linda University B.S. degree completion curriculum in dental hygiene offers an opportunity for dental hygienists to further their education beyond the certificate or associate degree level. This online

program is designed to guide students in developing the knowledge, skills, attitudes, and values necessary for positions of responsibility in a variety of health-care, educational, research, and community settings.

The curriculum will:

1. Provide the student with knowledge to successfully apply critical thinking and evidence-based decision making in all aspects of dental hygiene practice.
2. Equip the student with the skills to teach in public/community health or educational settings.
3. Prepare the student to effectively communicate in diverse settings, utilizing a variety of methods.
4. Advance student awareness of wholeness and ethics in educational or public/community health settings.
5. Foster student commitment to lifelong learning and career development.

## Student learning outcomes

Students who graduate with a Bachelor of Science degree in dental hygiene will meet the University outcomes (p. 19), as well as the following student learning outcomes (SLOs) for the B.S. degree in dental hygiene completion program.

Graduating Dental Hygiene—B.S. (Completion) Program students will be able to:

1. Retrieve, interpret, and evaluate research for evidence-based decision making.
2. Utilize the principles of adult learning in allied dental or public/community health education settings.
3. Demonstrate skills in communication practices, including the gathering, integrating, and conveying of information in written and oral forms.
4. Recognize the language of ethics that incorporates social and cultural diversity and professional responsibility.
5. Integrate a lifelong learning approach through self-reflection and through academic and professional achievements.

## Accreditation

Loma Linda University is regionally accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797;

Web site: <<http://www.wascsenior.org>> or <<http://www.wascsenior.org/contact>>.

## Admissions

Application for admission to this online curriculum must be submitted by February 1 for the class beginning the following Autumn Quarter. The curriculum may be completed on a full- or part-time basis. Basic requirements and credentials for admission include:

- Graduation from a dental hygiene A.S. degree program accredited by the Commission on Dental Accreditation.
- Successful completion of the Dental Hygiene National Board Examination.
- Successful completion of a state or regional clinical board examination.
- Current RDH license in any U.S. state.

All applicants must provide the following:

- All college transcripts.
- Applications submitted starting September 15. The application is available at <<http://www.adea.org>>.
- Three letters of reference, including one from the director of the accredited dental hygiene program from which the applicant graduated.

## Program requirements

All students graduating from Loma Linda University with a B.S. degree in dental hygiene must have completed all of the prerequisites, including the four domains for general education. Should any prerequisite be lacking, it must be completed at a *four-year college or university* before or during the degree completion curriculum at Loma Linda University School of Dentistry.

### Education

#### Core

Minimum grade of C- required on all the following courses including those in the concentration

DNHY 390	Introductory Statistics	2
DNHY 391	Introduction to Grant Writing	2
DNHY 400	Oral Disease Management	2
DNHY 421	Research I	2
DNHY 422	Research II	2
DNHY 425	Educational Psychology for Health Professionals	3
DNHY 436	Ethical and Legal Principles in Education	2
DNHY 441	Principles of Education I	3
DNHY 442	Principles of Education II	3
DNHY 444	Teaching Practicum	3
DNHY 446	Principles of Clinical Instruction	3
DNHY 464	Evidence-based Decision Making	2
DNHY 478	Advanced Clinical Concepts	2
DNHY 498	Dental Hygiene Directed Study <sup>1</sup>	2
DNHY 499	Research Writing	2
RELE 457	Christian Ethics and Health Care <sup>2</sup>	2
RELT 423	Loma Linda Perspectives <sup>3</sup>	2
Total Units		39

<sup>1</sup> Variable-unit course: minimum 2 units required. Additional units may be added.

<sup>2</sup> LLU DH AS graduates will substitute RELR 475.

<sup>3</sup> LLU DH AS graduates will substitute RELT 436.

### Public Health

#### Core

Minimum grade of C- required on all the following courses including those in the concentration

DNHY 390	Introductory Statistics	2
DNHY 391	Introduction to Grant Writing	2
DNHY 392	Grant Writing II	2
DNHY 400	Oral Disease Management	2
DNHY 419	Essentials of Public Health for Dental Hygienists	3
DNHY 421	Research I	2
DNHY 422	Research II	2
DNHY 425	Educational Psychology for Health Professionals	3
DNHY 428	Health-Care Management	3
DNHY 437	Ethical and Legal Principles in Public Health for the Dental Hygienist	2
DNHY 441	Principles of Education I	3
DNHY 449	Treating the Special-Needs Patient	3
DNHY 464	Evidence-based Decision Making	2
DNHY 498	Dental Hygiene Directed Study <sup>1</sup>	2
DNHY 499	Research Writing	2
RELE 457	Christian Ethics and Health Care <sup>2</sup>	2
RELT 423	Loma Linda Perspectives <sup>3</sup>	2
Total Units		39

<sup>1</sup> Variable-unit course: minimum 2 units required. Additional units may be added.

<sup>2</sup> LLU DH AS graduates will substitute RELR 475.

<sup>3</sup> LLU DH AS graduates will substitute RELT 436.

NOTE: Consult advisor regarding other courses that may be applied to the curriculum.

### Normal time to complete the program

2 years (6 academic quarters) based on half-time enrollment

### Comparison

See the comparison (p. 221) of the Education and Public Health tracks of this program.

## Dental Hygiene B.S. Completion – Education, Public Health Comparison

Minimum grade of C- required in all the following courses, including those in the concentration.

Core	Course Title	Education	Public Health
DNHY 390	Introductory Statistics	2.0	2.0
DNHY 391	Introduction to Grant Writing	2.0	2.0
DNHY 400	Oral Disease Management	2.0	2.0
DNHY 421	Research I	2.0	2.0
DNHY 422	Research II	2.0	2.0
DNHY 425	Educational Psychology for Health Professionals	3.0	3.0
DNHY 441	Principles of Education I	3.0	3.0
DNHY 464	Evidence-based Decision Making	2.0	2.0
DNHY 498	Dental Hygiene Directed Study (variable unit course: minimum 2 units required; additional units may be added)	2.0	2.0
DNHY 499	Research Writing	2.0	2.0
RELE 457	Christian Ethics and Health Care	2.0	2.0
RELT 423	Loma Linda Perspectives	2.0	2.0
DNHY 436	Ethical and Legal Principles in Education	2.0	
DNHY 442	Principles of Education II	3.0	
DNHY 444	Teaching Practicum	3.0	
DNHY 446	Principles of Clinical Instruction	3.0	
DNHY 478	Advanced Clinical Concepts	2.0	
DNHY 392	Grant Writing II		2.0
DNHY 419	Essentials of Public Health for Dental Hygienists		3.0
DNHY 428	Health-Care Management		3.0
DNHY 437	Ethical and Legal Principles in Public Health for the Dental Hygienist		2.0
DNHY 449	Treating the Special-Needs Patient		3.0
Totals		39.0	39.0

## Professional

- Dentistry – D.D.S. (p. 222)
- International Dentist Program (IDP) – D.D.S. (p. 237)
- Biomedical Sciences – Certificate (p. 222)

## Biomedical Sciences – Certificate

Currently not accepting students into this program.

### Program director

Daniel E. Tan

Students accepted into the Biomedical Sciences Program certificate curriculum enroll in basic science and restorative dentistry courses with first-year dental students. Faculty responsible for teaching these students will be those who teach the first-year courses.

Students in the certificate program complete their studies in one academic year of full-time commitment. The program is intended to provide postbaccalaureate experience in the rapidly changing area of biodental sciences. As such, it will augment other career choices or improve the preparation for professional training in dentistry.

Although several of the courses may share lecture experience and tests with the dental program, such courses will not be transferred to the D.D.S. degree program; and a student subsequently admitted to the D.D.S. degree program should expect to take, and pay for, the normal D.D.S. degree curriculum.

## Admissions

Applicants to the Biomedical Sciences Program certificate curriculum must satisfy the same requirements as those applying to the dental program at Loma Linda University; that is, they will have completed a baccalaureate degree (or its equivalent) with a course of study that includes a year each of general biology, general chemistry, organic chemistry, biochemistry, and general physics. Applicants are required to take the Dental Aptitude Test (DAT) and achieve a minimum score of 20 on each part.

## Program requirements

Students are currently required to complete 34 units of courses selected by the program coordinator. The certificate curriculum is developed in consultation with the executive associate dean and will typically include anatomy, physiology, biochemistry, microbiology, restorative dentistry courses, and three units of religion.

ANAT 511	Human Anatomy for Dentists I	5
ANAT 512	Human Anatomy for Dentists II	5
DNES 700	Orientation to Tooth Morphology	2
DNES 705	Etiology and Management of Dental Caries	2
ODRP 501	Principles of Microbiology DN	4
PHSL 503	Biochemical Foundations of Physiology	4
PHSL 505	Homeostatic Mechanisms of the Human Body	5
RELE 567	World Religions and Bioethics	3
RESL 701	Restorative Dentistry I Lecture	2
RESL 701L	Restorative Dentistry I Laboratory	2
Total Units		34

## Normal time to complete the program

1 year – full-time enrollment required

## Dentistry – D.D.S.

### Dean

Ronald J. Dailey

The goal of the General Dentistry Program is to train practitioners in the delivery of high-quality dental care that is preventive in purpose and comprehensive in scope, and that is based on sound biological principles.

## Curriculum

Dentistry, like all health professions, exists to benefit society and, therefore, continually assesses its professional services to ascertain what measures, attitudes, and skills most effectively serve society.

The School of Dentistry is committed to:

- Beginning the curriculum with a strong foundation in the sciences that are basic to knowledge of the structure and function of the human being in health and in sickness.
- Providing an educational environment that progressively leads a student to mastery and correlation of clinical sciences and skills.
- Developing a frame of reference from which to mobilize the resources of dentists and associated professional personnel in both delivery of health care and contribution to community well-being by education for the prevention of illness.

These concepts include responsibility for contributing to the body of scientific knowledge by questioning, investigating, and teaching; for remaining sensitive and adaptive to the needs of humanity in ever-changing conditions; and for maintaining consciousness of the individual obligation to live, practice, and strive for the good of humanity.

The curriculum in dentistry, organized to be completed in four academic years, fulfills requirements for the Doctor of Dental Surgery degree.

## Objective

The primary objective of the dentistry curriculum is to graduate men and women who attest to the purpose of the University and the goals of the School of Dentistry—which include advancing knowledge and understanding of health, disease, and ways to improve health and the dental health-care delivery system through basic and applied research.

## Learning outcomes for the new dental graduate (SLOS)

Graduating dental students must be competent to independently:

1. Perform clinical decision making that is supported by foundational knowledge and evidence-based rationales.
2. Promote, improve, and maintain oral health in patient-centered and community settings.
3. Function as a leader in a multicultural work environment and manage a diverse patient population.
4. Understand the importance of maintaining physical, emotional, financial, and spiritual health in one's personal life.
5. Apply ethical principles to professional practice.



## Regulations

The student is also subject to the conditions of registration, attendance, financial policy, governing practices, and graduation requirements outlined in Section II and in the School of Dentistry general information in Section III of this CATALOG.

## Instruments, textbooks, additional materials

The instruments, textbooks, and materials required for the study and practice of dentistry are prescribed by the School of Dentistry. The school issues dental instruments each quarter as needed in the program.

Unauthorized or incomplete equipment is not acceptable. Advance administrative approval must be obtained for any exception.

## Employment

Because the dental program is very rigorous, first-year students in dentistry may not accept part-time employment during the first term. Thereafter, such employment may be accepted by the student only upon receiving written permission from the associate dean for academic affairs.

## Licensing

Eligibility to take examinations given by the state and regional boards of dental examiners is based on essentially the same requirements as are stipulated by the School of Dentistry for the Doctor of Dental Surgery degree. Information about the examinations of the respective states is available at the office of the associate dean for academic affairs. Credentials from the National Board of Dental Examiners are accepted in lieu of the written portion of a state examination in most states. Many states require the National Board Dental Examination and provide no alternative. (The national board does not include a clinical examination.)

## D.D.S. competencies

The curriculum is designed to ensure that upon graduation all students will have the foundational knowledge (basic sciences), clinical sciences (clinical skills), and human and applied sciences (professional behaviors) necessary for the successful practice of general dentistry. LLUSD students must be competent in the following areas.

### Domain I: Practice and Profession

#### 1. **Critical Thinking: Perform clinical decision making that is supported by foundational knowledge and evidence-based rationales.**

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

- a. Foundational Knowledge
  - Understand the fundamental principles governing the structure and functioning of the human organism.
  - Read and evaluate scientific literature and other appropriate sources of information in making oral health-management decisions.
- b. Clinical Sciences
  - Apply critical-thinking and problem-solving skills in the comprehensive care of patients.
  - Integrate information from biomedical, clinical, and behavioral sciences in addressing clinical problems.

- c. Human and Applied Sciences
  - Understand the role of lifelong learning and self-assessment in maintaining competence and attaining proficiency and expertise.

#### 2. **Community Involvement: Promote, improve, and maintain the oral health of patients in various types of community settings.**

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

- a. Foundational Knowledge
  - Explain the principles of leadership and motivation.
  - Explain the role of professional dental organizations in promoting the health of the public.
  - Explain the concept of a worldwide community as described in the world mission of the Seventh-day Adventist Church.
  - Explain the role of the dental professional in a community setting.
- b. Clinical Sciences
  - Participate in local, national, or global community-based oral health-care programs.
  - Recognize the effectiveness of community-based programs.
- c. Human and Applied Sciences
  - Demonstrate the skills to function successfully as a leader on an oral health-care team.
  - Communicate effectively with patients, peers, other professionals, and staff.
  - Demonstrate the ability to serve patients and interact with colleagues and allied dental personnel in a multicultural work environment without discrimination.
  - Demonstrate honesty and confidentiality in relationships with staff.

#### 3. **Professional Practice: Understand the basic principles important in developing, managing, and evaluating a general dental practice.**

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

- a. Foundational Knowledge
  - Evaluate the advantages and disadvantages of different models of oral health-care management and delivery.
  - Explain legal, ethical, and risk-management principles relating to the conduct of dental practice.
  - Explain the basic principles of personnel management, office systems, and business decisions.
- b. Clinical Sciences
  - Demonstrate the ideal of service through the provision of compassionate, personalized health care.
  - Understand the importance of maintaining a balance between personal and professional needs for successful life management.
  - Apply knowledge of informational technology resources in contemporary dental practice.
  - Recognize and manage significant cultural, psychological, physical, emotional, and behavioral

factors affecting treatment and the dentist-patient relationship.

c. Human and Applied Sciences

- Understand the role of lifelong learning and self-assessment in maintaining competence and attaining proficiency and expertise.
- Apply financial management skills to debt and business management.
- Understand the importance of spiritual principles as a basis for developing a philosophy of health care.
- Establish rapport and maintain productive and confidential relationships with patients using effective interpersonal skills.

**4. Patient Management: Apply behavioral and communication skills in the provision of patient care.**

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

a. Foundational Knowledge

- Understand the fundamental principles governing the structure and functioning of the human organism.
- Read and evaluate scientific literature and other appropriate sources of information in making oral health-management decisions.

b. Clinical Sciences

- Apply critical-thinking and problem-solving skills in the comprehensive care of patients.
- Integrate information from biomedical, clinical, and behavioral sciences in addressing clinical problems.

c. Human and Applied Sciences

- Understand the role of lifelong learning and self-assessment in maintaining competence and attaining proficiency and expertise.
- Recognize and manage significant cultural, psychological, physical, emotional, and behavioral factors affecting treatment and the dentist-patient relationship.
- Establish rapport and maintain productive and confidential relationships with patients, using effective interpersonal skills.
- Recognize common behavioral disorders and understand their management.
- Use appropriate and effective techniques to manage anxiety, distress, discomfort, and pain.
- Manage dental fear, pain, and anxiety with appropriate behavioral and pharmacologic techniques.

- Apply knowledge of molecular, biochemical, cellular and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
- Apply knowledge of the principles of genetic and congenital and developmental diseases and conditions and their clinical features to understand patient risk in the prevention, diagnosis, and management of disease.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of disease.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of disease.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.

b. Clinical Sciences

- Identify the chief complaint and take a history of the present illness.
- Conduct a thorough medical history, social history, and dental history.
- Perform an appropriate clinical and radiographic examination using diagnostic aids and tests, as needed.
- Establish and maintain accurate patient records.

c. Human and Applied Sciences

- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems in maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.
- Identify patient behaviors that may contribute to orofacial problems.
- Identify signs of abuse or neglect.

**6. Diagnosis: Determine a diagnosis by interpreting and correlating findings from the examination.**

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

a. Foundational Knowledge/Basic Sciences

- Apply knowledge of molecular, biochemical, cellular and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
- Apply knowledge of the principles of genetic and congenital and developmental diseases and conditions and their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of diseases.

**Domain II: Assessment of the Patient and the Oral Environment**

**5. Examination of Patients: Conduct an appropriately comprehensive examination to evaluate the general and oral health of a diverse patient population at all stages of life within the scope of general dentistry.**

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

a. Foundational Knowledge/Basic Sciences

- Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.

b. Clinical Sciences

- Identify each problem that may require treatment.
- Recognize clinical and radiographic changes that may indicate disease.
- Establish a clinical or definitive diagnosis for each disorder identified.
- Recognize conditions that may require consultation with or referral to another health-care provider and generate the appropriate request.

c. Human and Applied Sciences

- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.

**7. Treatment Planning: Develop a comprehensive treatment plan and treatment alternatives.**

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

a. Foundational Knowledge/Basic Sciences

- Apply knowledge of molecular, biochemical, cellular and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
- Apply knowledge of the principles of genetic and congenital and developmental diseases and conditions and their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of diseases.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.

b. Clinical Sciences

- Identify treatment options for each condition diagnosed.
- Identify systemic diseases or conditions that may affect oral health or require treatment modifications.
- Develop an appropriately sequenced integrated treatment plan.
- Modify the treatment plan when indicated due to unexpected circumstances, noncompliant individuals, or for patients with special needs (such as frail or elderly, or medically, mentally, or functionally compromised individuals).
- Present the final treatment plan to the patient, including time requirements, sequence of treatment, estimated

fees, payment options, and other patient responsibilities in achieving treatment outcomes.

- Identify patient expectations and goals for treatment.
- Explain and discuss the diagnosis, treatment options, and probable outcomes for each option with the patient or guardian.
- Secure a signed consent to treat.

c. Human and Applied Sciences

- Apply knowledge of sociology, psychology, ethics and other human and applied sciences in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.

**8. Management of Emergencies, Pain, and Anxiety: Manage dental and medical emergencies that may be encountered in dental practice, as well as pain and anxiety with pharmacologic and nonpharmacologic methods.**

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

a. Foundational Knowledge/Basic Sciences

- Apply knowledge of molecular, biochemical, cellular and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
- Apply knowledge of the principles of genetic and congenital and developmental diseases and conditions and their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of diseases.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.
- Recognize common behavioral disorders and understand their management.

b. Clinical Sciences

- Evaluate the patient's physical and psychological state and identify factors that may contribute to orofacial pain.
- Manage patients with craniofacial pain and be able to differentiate pain of a nondental origin.
- Manage dental emergencies of infectious, inflammatory, and traumatic origin.
- Provide basic life support measures for patients.
- Develop and implement an effective office strategy for preventing and managing medical emergencies.

c. Human and Applied Sciences

- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences to the prevention,

diagnosis, and management of diseases and the promotion and maintenance of oral health.

- Identify patient behaviors that may contribute to problems maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.
- Use appropriate and effective techniques to manage anxiety, distress, discomfort, and pain.
- Manage dental fear, pain, and anxiety with appropriate behavioral and pharmacologic techniques.

**9. Health Promotion and Maintenance: Provide appropriate preventive and/or treatment regimens for patients with various dental carious states, using appropriate medical and surgical treatments.**

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

- a. Foundational Knowledge/Basic Sciences
  - Apply knowledge of molecular, biochemical, cellular and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
  - Apply knowledge of the principles of genetic and congenital and developmental diseases and conditions and their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
  - Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
  - Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of diseases.
  - Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.
- b. Clinical Sciences
  - Use accepted prevention strategies, such as oral hygiene instruction, microbiologic evaluation, nutritional education, and pharmacologic intervention to help patients maintain and improve their oral and systemic health.
  - Properly isolate the tooth/teeth from salivary moisture and bacterial contamination.
  - Differentiate between sound enamel, hypomineralized enamel, remineralized enamel, and carious enamel.
  - Develop and implement an appropriate treatment plan for enamel surfaces that can be managed by remineralization therapies.
  - Develop and implement an appropriate treatment plan for tooth surfaces with caries involving the enamel and/or dentin.
  - Remove or treat carious tooth structure and restore with appropriate materials.
  - Determine when a tooth has such severe carious involvement as to require extraction.
- c. Human and Applied Sciences
  - Apply knowledge of sociology, psychology, ethics, and other human and applied sciences in the prevention,

diagnosis, and management of diseases; as well as the promotion and maintenance of oral health.

- Identify patient behaviors that may contribute to problems maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.

**Domain III: Oral Health Management**

**10. Management of Preventive Care: Evaluate and manage the implementation of preventative treatment modalities.**

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

- a. Foundational Knowledge/Basic Sciences
  - Apply knowledge of molecular, biochemical, cellular and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
  - Apply knowledge of the principles of genetic and congenital and developmental diseases and conditions and their clinical features to understand patient risk in the prevention, diagnosis, and management of disease.
  - Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of disease.
  - Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of disease.
  - Apply knowledge of pharmacology in the prevention, diagnosis, and management of disease and the promotion and maintenance of oral health.
- b. Clinical Sciences
  - Provide patient education to maximize oral health.
  - Manage preventive oral health procedures.
  - Perform therapies to eliminate local etiological factors to control caries, periodontal disease, and other oral diseases.
- c. Human and Applied Sciences
  - Apply knowledge of sociology, psychology, ethics, and other human and applied sciences in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.
  - Identify patient behaviors that may contribute to problems maintaining oral health.
  - Identify barriers that prevent patients from seeking oral health care.

**11. Treatment of Periodontal Disease: Evaluate and manage the treatment of periodontal diseases.**

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

- a. Foundational Knowledge/Basic Sciences
  - Apply knowledge of molecular, biochemical, cellular and systems-level development, structure, and function to the prevention, diagnosis, and management of periodontal disease.
  - Apply knowledge of the principles of genetic and congenital and developmental diseases and conditions

and their clinical features to understand patient risk in the prevention, diagnosis, and management of periodontal diseases.

- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of periodontal diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of periodontal diseases.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of periodontal diseases and the promotion and maintenance of the periodontium.

#### b. Clinical Sciences

- Develop an appropriate oral hygiene instruction plan.
- Treat and manage patients with periodontal diseases with up to localized moderate chronic periodontitis (including patient education, management of interrelated systemic health, and effective subgingival scaling and root planing).
- Demonstrate knowledge of therapeutic and referral options for treatment of patients with generalized moderate to severe chronic periodontitis.
- Evaluate the outcomes of periodontal therapies provided to their patients either within their office or services provided by a periodontal specialist to whom the patient may have been referred for treatment.
- Provide and assess success of periodontal maintenance for patients with up to localized moderate chronic periodontitis.
- Manage care of patients who are candidates for referral (those with moderate to severe chronic periodontitis, aggressive forms of periodontitis, mucogingival conditions, periodontal disease associated with systemic disease, or periodontitis that is refractory to treatment) by effective communication and coordination of therapy with a periodontal specialist when appropriate.
- Manage patients requiring modification of oral tissues to optimize restoration of form, function, and esthetics.
- Manage a comprehensive maintenance plan following the active phase of periodontal treatment.
- Manage patients with gingival esthetic needs.

#### c. Human and Applied Sciences

- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences in the prevention, diagnosis, and management of periodontal diseases and the promotion and maintenance of periodontal health.
- Identify patient behaviors that may contribute to periodontal problems (examples: poor oral hygiene and poor compliance with periodontal maintenance).
- Identify barriers that prevent patients from seeking periodontal care.

### 12. Management of Disease of Pulpal Origin: Evaluate and manage diseases of pulpal origin and subsequent periapical disease.

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

#### a. Foundational Knowledge/Basic Sciences

- Apply knowledge of molecular, biochemical, cellular and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
- Apply knowledge of the principles of genetic and congenital and developmental diseases and conditions and their clinical features to understand patient risk in the prevention, diagnosis, and management of disease.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of disease.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of disease.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of disease and the promotion and maintenance of oral health.

#### b. Clinical Sciences

- Prevent and manage pulpal disorders through the use of indirect and direct pulp capping and pulpotomy procedures.
- Assess case complexity of each endodontic patient.
- Manage endodontic emergencies.
- Manage nonsurgical endodontic therapy on permanent teeth.
- Recognize and manage endodontic procedural accidents.
- Manage pulpal and periapical disorders of traumatic origin.
- Manage endodontic surgical treatment.
- Manage bleaching of endodontically treated teeth.
- Evaluate outcome of endodontic treatment.

#### c. Human and Applied Sciences

- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences to the prevention, diagnosis, and management of pulpal diseases and the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.

### 13. Basic Surgical Care: Provide basic surgical care to manage disease and improve oral health conditions.

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

#### a. Foundational Knowledge/Basic Sciences

- Apply knowledge of molecular, biochemical, cellular and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
- Apply knowledge of the principles of genetic and congenital and developmental diseases and conditions and their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.

- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of diseases.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.

b. Clinical Sciences

- Perform uncomplicated extractions of teeth.
- Manage surgical extraction, common intraoperative and postoperative surgical complications.
- Manage pathological conditions, e.g., lesions requiring biopsy, localized odontogenic infections, impacted third molars, and other referrals.
- Manage patients with dentofacial deformities or patients who can benefit from preprosthetic surgery.
- Manage oral and maxillofacial pathologic conditions using pharmacologic and nonpharmacologic methods.

c. Human and Applied Sciences

- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences to the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.

**14. Assessment and Management of Maxillary and Mandibular Skeletodental Discrepancies: Assess and manage maxillary and mandibular skeletodental discrepancies, including space maintenance, as represented in the early, mixed, and permanent dentitions.**

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

a. Foundational Knowledge/Basic Sciences

- Apply knowledge of molecular, biochemical, cellular and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
- Apply knowledge of the principles of genetic and congenital and developmental diseases and conditions and their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of diseases.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.

b. Clinical Sciences

- Perform mixed dentition analyses utilizing the Moyers and Nance methods.

- Perform a Steiner cephalometric analysis to evaluate for individual sagittal and coronal plane skeletodental discrepancies compared to normative data.
- Evaluate the noncephalometric, skeletodental facial esthetics of the child, adolescent, or adult patient.
- Manage multidisciplinary treatment cases involving orthodontics.
- Recognize the effects of abnormal swallowing patterns, mouth breathing, bruxism, and other parafunctional habits on the skeletodental structures; and manage treatment.

c. Human and Applied Sciences

- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences in the prevention, diagnosis, and management of disease and the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.

**15. Restoration and Replacement of Teeth: Manage the restoration of individual teeth and replacement of missing teeth for proper form, function, and esthetics.**

Examples for a new dentist to demonstrate competence in this area may include but are not limited to the following:

a. Foundational Knowledge/Basic Sciences

- Apply knowledge of molecular, biochemical, cellular and systems-level development, structure, and function to the prevention, diagnosis, and management of disease.
- Apply knowledge of the principles of genetic and congenital and developmental diseases and conditions and their clinical features to understand patient risk in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the cellular and molecular basis of immune and nonimmune host defense mechanisms in the prevention, diagnosis, and management of diseases.
- Apply knowledge of the biology of microorganisms in physiology and pathology in the prevention, diagnosis, and management of diseases.
- Apply knowledge of pharmacology in the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.

b. Clinical Sciences

- Assess teeth for restorability.
- Assess esthetic and functional considerations.
- Manage preservation of space following loss of teeth or tooth structure.
- Select appropriate methods and restorative materials.
- Design fixed and removable prostheses.
- Implement appropriate treatment sequencing.
- Perform biomechanically sound preparations.
- Fabricate and place biomechanically sound provisional restorations.
- Make impressions for diagnostic and treatment casts.
- Obtain anatomic and occlusal relation records for articulation of casts.

- Prepare casts and dies for the construction of restorations and prostheses.
- Manage the laboratory fabrication of restorations and prostheses.
- Evaluate and place restorations that are clinically acceptable.
- Instruct patients in follow-up care of restorations and prostheses.
- Determine causes of postoperative problems after restoration and resolve such problems.
- Recognize and manage occlusal discrepancies

c. Human and Applied Sciences

- Apply knowledge of sociology, psychology, ethics, and other human and applied sciences to the prevention, diagnosis, and management of diseases and the promotion and maintenance of oral health.
- Identify patient behaviors that may contribute to problems maintaining oral health.
- Identify barriers that prevent patients from seeking oral health care.

## Departments and faculty

- Dental Anesthesiology (p. 233)
- Dental Education Services (p. 233)
- Division of General Dentistry (p. 235)
- Endodontics (p. 234)
- Oral & Maxillofacial Surgery (p. 234)
- Orthodontics and Dentofacial Orthopedics (p. 234)
- Pediatric Dentistry (p. 235)
- Periodontics (p. 235)
- Radiologic and Imaging Sciences (p. 234)

## Admissions

The Admissions Committee looks for evidence of scholastic competence, high moral and ethical standards, and significant qualities of character and personality. In broad terms, the following are standards required for admission:

- Intellectual capacity to complete the curriculum
- Emotional adaptability and stability
- Social and perceptual skills
- Physical ability to carry out observation and communication activities, and the possession of sufficient motor and sensory abilities to practice general dentistry
- Commitment to a dynamic spiritual journey and service to mankind

Official transcripts and documents are to be sent to:

Loma Linda University

Admissions Processing  
11139 Anderson Street  
Loma Linda, CA 92350

## Admission requirements

Although the pre dental curriculum can be completed in three years, a baccalaureate degree or equivalent is strongly recommended. The following college courses are required for entrance into the D.D.S. degree programs and must be taken in an accredited college in the U.S. or Canada:

### Humanities

A complete sequence of English composition (two semesters or three quarters) to include composition and literature is required. Students with a Baccalaureate degree are considered to have met this requirement.

### Natural Sciences

A complete course sequence, two semesters or three quarters, is required in each science listed unless otherwise noted.

General biology with laboratory  
General chemistry with laboratory  
General physics with laboratory  
Organic chemistry with laboratory  
Biochemistry (one semester of 4 units or two quarters of 6 units)

### Electives (strongly recommended in order of priority)

Histology  
Human gross anatomy  
Systems physiology  
Microbiology  
Cell and molecular biology  
Immunology  
Neuroscience  
Genetics  
Ceramics  
Management  
Developmental psychology  
Accounting  
Nutrition

Students preparing for the predoctoral program are required to complete a minimum of three academic years with no fewer than 96 semester or 144 quarter units in a college or university accredited by a regional accrediting association. Preference is given to applicants who have completed or will complete the requirements for a baccalaureate degree prior to admission. A maximum of 64 semester or 96 quarter units of credit may be accepted from an accredited junior or community college.

A complete academic year of class work (8 semester or 12 quarter units) in general biology, general chemistry, organic and inorganic chemistry, and general physics are required. Also required is a complete sequence of English Composition (two semesters or three quarters). The biochemistry requirement is one semester or a minimum of four units or two quarters or a minimum of six units. All science prerequisites must be completed within five years prior to admission, with a grade of C or above in each course. A minimum grade point average of 2.7 in science subjects and in nonscience subjects, averaged separately, is required. The average grade point average for accepted students is substantially higher.

Students who are enrolled in another program in Loma Linda University are not considered for admission until they have completed or have been released from the program.

Prior to consideration for admission, the applicant must meet specific criteria related to past academic performance (G.P.A.), performance on the Dental Admission Test (DAT), and a personal interview. Applicants are expected to have taken the DAT within the previous two years, preferably not later than October of the year preceding expected matriculation.

In order to be better prepared with specific vocabulary and understanding, the applicant should include science courses with content similar to courses offered during the first year of the professional curriculum. The applicant's purpose should be the pursuit of diverse knowledge, the cultivation of an inquiring mind, the practice of efficient methods of study, and the habit of thinking and reasoning independently.

The choice of electives can broaden the applicant's view of the scope of knowledge. Being well-read will give a perspective on the sweep of human thought throughout the ages, and often this will be of assistance in written and verbal communication and will improve the individual's ability to think and express him-/herself well. Psychological, social, philosophical, and religious insights will help to develop basic resources for the resolution of personal problems and the growth of self-understanding the student must have in order to understand and help associates.

An applicant from a college or university outside the U.S. or Canada or from a nonaccredited college or university in the U.S. must complete a minimum of one full academic year (24 semester or 36 quarter credits) in competition with other preprofessional students in an accredited college or university in the U.S. or Canada. This includes the required specific core sciences in the areas of biology, organic and inorganic chemistry, biochemistry, and physics (all sciences except Biochemistry must include laboratories). A grade of C or above in each course completed is required. (A grade of C- will not be accepted.)

Credits from professional schools (business, medical technology, nursing, pharmacy, chiropractic, or medicine) do not fulfill admission requirements. Credit for studies taken at a military service school is granted to veterans according to recommendations in the *Guide of the American Council on Education* and/or the California Committee for the Study of Education. The University reserves the right to require satisfactory completion of written or practical examinations in any course for which transfer credit is requested.

## Application procedure

The school participates in the American Association of Dental Schools Application Service (AADSAS). Applications are available online at <http://www.adea.org/>. Due to the high volume of applicants LLUSD recommends that AADSAS applications be submitted before August. The following is a step-by-step process for completing an application to Loma Linda University (LLU).

1. *AADSAS application.* Is submitted to the American Association of Dental Schools Application Service between June 1 and December 1 at [www.adea.org](http://www.adea.org/) where it is processed in approximately four to six weeks prior to being sent to the LLUSD Office of Admissions.
2. *Supplemental application.* The applicant then receives an email invitation from LLU to complete an electronic supplemental application.
3. The applicant must return the completed supplemental application and materials within thirty (30) days. This includes an essay specific

to Loma Linda University, a photograph, and the application fee of \$100.

4. *Transcripts.* Official transcripts must be sent to AADSAS at the time application is submitted. When an applicant becomes an accepted student, official transcripts—mailed directly from all colleges/universities to LLU—are required and must be submitted by August 1 in order for the student to be registered for the first academic year of classes.
5. International students must submit official transcripts at time of supplemental application.
6. *References.* The applicant is asked to supply a minimum of three personal references. A reference from a pre-professional committee or science professor; a reference from an employer or professional and a reference from a spiritual leader. If the applicant has attended a college or university that has a preprofessional committee that prepares a preprofessional evaluation, it is required that Loma Linda University is sent a copy of this evaluation from the committee. Members of the applicant's family are excluded from writing the required letters of reference, although letters will be accepted for the file in addition to those required. All recommendation letters sent to AADSAS will be sent to Loma Linda University School of Dentistry along with the application.
7. *Dental Admission Test.* The applicant is required to complete and meet specific criteria related to performance on the Dental Admission Test (DAT). Preference is given to applicants who have taken the test by October of the academic year preceding that for which admission is desired. The student entering the first year is expected to have taken the test within the past two years. If the test has been taken more than one time, the most recent scores are used for admission criteria. The committee reviews all scores on the test. The DAT scores must be on file at Loma Linda University before an applicant is invited to interview.
8. *Interview.* The applicant's records will be screened when the supplemental application, recommendations, transcripts, and DAT scores are on file. The applicant may then be invited to the school for a personal interview. An interview is required for admission as it provides an opportunity for evaluation of noncognitive factors, including communication skills, core values, motivation, and passion for the profession; as well as genuine concern for others in the service of dentistry. At the time of the interview, a tour of the school will be given by a current dental student.
9. *Observation.* It is important that students seek experience observing and assisting in a dental office in order to become familiar with the work of a dentist. Prior to interviewing, applicants are expected to complete a minimum of fifty (50) hours of observation/work experience in a dental facility, twenty (20) of which must be done with a general dentist.
10. *Acceptance.* The student receives notification of an acceptance via a phone call, email and letter signed by the Dean. Upon payment of the deposit, accepted students receive an email that serves as a receipt, as well as information about how to access registration information.
11. *Pre-entrance health requirements/immunizations.* It is expected that necessary routine dental and medical care will have been attended to before the student registers. New students are required to have certain immunizations and tests before registration. Forms to document the required immunizations are provided for the physician in the registration information made available electronically to the student by LLU. In order to avoid having a hold placed on registration, the student is encouraged to return the documentation forms to



Student Health Service no later than six weeks prior to the beginning of classes.

For a complete list of required immunizations and tests, see Section II of this CATALOG under the heading "Health Care." Documentation verifying compliance with this requirement must be provided before registration can be completed.

For further information, consult the *Student Handbook*, Section V—University Policies—Communicable disease transmission prevention policy; or contact the Student Health Service office at 909/558-8770.

If a returning student is assigned to a clinical facility that requires a tuberculosis skin test, the student is required to have the test within the six months before the assignment begins.

12. *Deposits.* The student accepted into dentistry must submit a nonrefundable deposit of \$1,000 to the Office of Admissions. All deposits become part of the first term's tuition. Failure to submit this deposit will result in loss of the applicant's position in the class. A second nonrefundable deposit of \$1,000 is due on May 1 in order to secure a place in the class. The remaining balance of the first term's tuition and fees are due no later than the day of matriculation in August.
13. *Financial requirement.* Non-U.S. citizens and nonpermanent residents are required by U.S. immigration regulation to pay for their first year's tuition and fees before they can register for classes. In addition, they

must provide documentary evidence of sufficient funds for their second year. International students will receive the necessary visa applications and registration information after they have submitted their \$1,000 deposit and payment plan.

14. *Financial aid.* A financial aid advisor and financial aid programs are available. Please contact the Office of Financial Aid by e-mail, <finaid@llu.edu>; or by telephone, 909/558-4509. Web site information is located at <llu.edu/central/ssweb/finaid>.

## Transfer

Transfer from another school of dentistry in the United States is considered only in unusual circumstances. A transfer applicant should expect to begin at the first-year level and will be considered only if there is space available. An application for transfer will be considered when the following information is received in the school's Office of Admissions:

- Letter from applicant, stating reason for requesting transfer;
- Letter of recommendation from the dean of the dental school where the applicant is enrolled;
- Official transcripts sent directly to the LLUSD Office of Admissions for both pre dental and dental school courses completed;
- Dental Admission Test results.

## Program requirements

Code	Title	Clock Hours				Total Units
		Lec	Lab	Clinical	Total	
<b>First Year</b>						
ANAT 511	Human Anatomy for Dentists I	44	40		84	5.0
ANAT 512	Human Anatomy for Dentists II	44	40		84	5.0
ANAT 513	Human Anatomy for Dentists III	45	38		83	5.0
DNES 705	Etiology and Management of Dental Caries	22			22	2.0
DNES 707	Personal Development	20			20	2.0
DNES 708	Introduction to the Dental Profession	10			10	1.0
ODRP 501	Principles of Microbiology DN	44			44	4.0
PERI 705	Fundamentals of Periodontics I	22			22	2.0
PHSL 503	Biochemical Foundations of Physiology	40			40	4.0
PHSL 504	Physiological Systems of the Human Body	56			56	5.0
PHSL 505	Homeostatic Mechanisms of the Human Body	51			51	5.0
RELE 734	Christian Ethics for Dentists	20			20	2.0
RELT 775	Spirituality and the Christian Health Professional	20			20	2.0
RESD 701	Restorative Dentistry I Lecture	25			25	2.0
RESD 701L	Restorative Dentistry I Laboratory		60		60	2.0
RESD 702	Restorative Dentistry II	20			20	2.0
RESD 702L	Restorative Dentistry II Laboratory		62		62	2.0
RESD 708	Restorative Dentistry III Lecture	23			23	2.0
RESD 708L	Restorative Dentistry III Laboratory		74		74	2.0
<b>Second Year</b>						
ANDN 751	Dental Anesthesia: Local Anesthesia and Inhalation Sedation	30	30		60	4.0
DNES 500	Curricular Practical Training <sup>2</sup>	120			120	0.0
DNES 718	Communication Basics for the Dentist	10			10	1.0
DNES 789	National Board Part I Review	38			38	2.0
ENDN 831	Endodontics I	10			10	1.0
ENDN 832	Endodontics II		60		60	2.0
ODRP 701	Radiology I: Clinical Procedures	18	16		34	1.5
ODRP 725	Patient Assessment and Data Management	38	24		62	3.0
ODRP 726	Patient Diagnosis and Treatment Planning	35			35	1.5

ODRP 735	Dental Emergency Diagnosis and Treatment	10		10	1.0
ODRP 751	General and Systemic Pathology I	40		40	4.0
ODRP 752	General and Systemic Pathology II	40		40	4.0
ODRP 755	Radiology II: Theory and Interpretation	24		24	2.0
ODRP 761	Oral Pathology and Diagnosis	65		65	6.0
ORDN 751	Principles of Orthodontics I	11		11	1.0
PEDN 753	Pediatric Dentistry I Lecture	22		22	2.0
PEDN 753L	Pediatric Dentistry I Laboratory		44	44	1.0
PERI 741	Fundamentals of Periodontics II	22		22	2.0
PERI 742	Essential Periodontal Therapy Laboratory	10	30	40	2.0
PHRM 501	Pharmacology and Therapeutics SD	44		44	4.0
RESD 709	Restorative Dentistry IV Lecture	22		22	2.0
RESD 709L	Restorative Dentistry IV Laboratory		60	60	2.0
RESD 764	Removable Prosthodontics	20	50	70	3.5
RESD 771	Single Casting Technique Lecture	24		24	2.0
RESD 771L	Single Casting Technique Laboratory		60	60	2.0
RESD 772	Fixed Prosthodontics Lecture	22		22	2.0
RESD 772L	Fixed Prosthodontics Laboratory		66	66	2.0
RESD 875A	Restorative Dentistry Clinic			45	1.5
SDCL 711	Clinic Orientation I	22		22	2.0
SDCL 712	Clinic Orientation II	22		22	2.0
<b>Third Year</b>					
ANDN 801	Dental Anesthesia: Advanced Topics	22		22	2.0
DNES 794	Public Health Dentistry	22		22	2.0
DNES 800	Interprofessional Laboratory Experience		4	4	0.0
DNES 804	Applied Statistics	22		22	2.0
DNES 806	Research Design	20		20	2.0
DNES 806L	Research Design Laboratory		33	33	1.0
ENDN 834	Endodontics III	12		12	1.0
ODRP 807	Oral Medicine I: TMJ/Orofacial Pain I	12		12	1.0
ODRP 808	Oral Medicine II: Medically Compromised Patient	22		22	2.0
ODRP 811	Oral Medicine III: TMJ/Orofacial Pain II	12		12	1.0
ODRP 821	Clinical Management of Older Adults	11		11	1.0
ODRP 825	Oral Diagnosis, Radiology, and Pathology Clinic			90	3.0
OMFS 805	Oral and Maxillofacial Surgery I	12		12	1.0
OMFS 811	Oral and Maxillofacial Surgery II	22		22	2.0
OMFS 825	Oral and Maxillofacial Surgery Clinic I			30	1.0
ORDN 801	Minor Tooth Movement	18	16	34	2.0
ORDN 811	Principles of Orthodontics II	11		11	1.0
PEDN 821	Pediatric Dentistry II	12		12	1.0
PEDN 825	Pediatric Dentistry Clinic			105	3.5
PERI 765	Essential Periodontal Therapy	22		22	2.0
PERI 805	Periodontal Surgical Therapy	16		16	1.0
PHRM 503	Clinical Pharmacology in Dentistry	20		20	2.0
RELR 717	Diversity and the Christian Health Professional	20		20	2.0
RELR 749	Marriage and Family Wholeness	20		20	2.0
RELT 726	Jesus (elective religion course) <sup>1</sup>	20		20	2.0
RESD 773	Fixed Prosthodontics II Lecture	22		22	2.0
RESD 773L	Fixed Prosthodontics II Laboratory		68	68	2.0
RESD 801	Fixed Prosthodontics and Occlusion	10		10	1.0
RESD 811	Dental Materials II	12		12	1.0
RESD 822	Operative Dentistry II Lecture	11		11	1.0
RESD 822L	Operative Dentistry II Laboratory		33	33	1.0
RESD 823	Aesthetic Dentistry	16		16	1.0
RESD 823L	Aesthetic Dentistry Laboratory		30	30	1.0
RESD 854	Implant Dentistry	22		22	2.0
RESD 854L	Implant Dentistry Laboratory		30	30	1.0

RESD 875B	Restorative Dentistry Clinic		240	240	8.0		
<b>Fourth Year</b>							
DNES 800	Interprofessional Laboratory Experience		4	4	0.0		
DNES 807	Practice Management I		20	20	2.0		
DNES 809	Practice Management II		20	20	2.0		
DNES 851	The Dentist and the Law		20	20	2.0		
DNES 889	National Board Part II Review		32	32	2.0		
ENDN 835	Endodontics IV		40	40	1.0		
ENDN 875	Endodontics Clinic			30	30	1.0	
ODRP 826	Oral Medicine IV: Clinical Oral Pathology and Oncology		20		20	2.0	
ODRP 875	Oral Diagnosis, Radiology, and Pathology Clinic			120	120	4.0	
OMFS 875	Oral and Maxillofacial Surgery Clinic II			30	30	1.0	
ORDN 875	Orthodontics Clinic			30	30	1.0	
PEDN 875	Pediatric Dentistry Clinic			90	90	3.0	
PERI 875	Periodontics Clinic			225	225	7.5	
RELR 715	Christian Dentist in Community		20		20	2.0	
RESD 844	Restorative Study Club Seminar		8		8	0.5	
RESD 861	Senior Topics in Removable Prosthodontics		22		22	2.0	
RESD 875C	Restorative Dentistry Clinic			840	840	28.0	
Total Units			1828	1012	1875	4715	244.5

<sup>1</sup> May be substituted with another course in religion.

<sup>2</sup> Student may take this course multiple times to meet total required hours of 120.

### Normal time to complete the program

4 years (15 academic quarters) – full-time enrollment required

## Dental Anesthesiology

The Department of Dental Anesthesiology is staffed by dentists with advanced training in anesthesiology. The faculty provides didactic and clinical instruction in all areas of pain and anxiety control in dentistry. Didactic and clinical instruction in clinical pharmacology, medical emergency management, and the use of local anesthetics is provided to the predoctoral dental and undergraduate dental hygiene students. Postdoctoral students receive instruction in physical diagnosis, clinical medicine, hospital protocol, medical emergency management, and local anesthesia; as well as all forms of sedation and general anesthesia. The anesthesia management of the medically and physically compromised dental patient is emphasized.

### Chair

John W. Leyman

### Director, Advanced Education Program

John W. Leyman

### Director, Special Care Dentistry clinic

John W. Leyman

### Primary faculty

Neal A. Johnson

Dezireh Sevanesian

Chad A. Tomazin

Larry D. Trapp

## Dental Education Services

The Department of Dental Education Services provides instruction for a variety of nonclinical subject areas, including behavioral science, practice management, preventive and community dentistry, and service learning. The interactions of patients, staff, and dentists are examined in light of varied personality characteristics. In addition, the art and science of establishing and operating a successful practice are examined. Also, preventive dentistry in the office and community as the underlying philosophy of dental practice is studied. Students are required to participate in providing dental services and dental health education in underserved settings outside the dental school clinic—providing the experience of involvement in the real world "to make man whole."

### Chair

Ronald J. Dailey

### Primary faculty

Marjorie R. Arnett

Janet G. Bauer

Vernon P. Brockmann (First 5)

Jack C. Burdick IV

Eun-Hwi E. Cho

Graciela G. Duran (SACH)

William M. Hooker

Edna M. Loveless

Lancelot S. McLean

Kathleen L. Moore

Daniel J. Ninan (SACH)

Udochukwu E. Oyoyo

Thomas C. Rogers

Brent E. Shakespeare

D. Graham Stacey

Rodney L. Turner (SACH)

P. Esther Valenzuela

Krista J. Weymar

Wu Zhang

### **Emeritus faculty**

James M. Crawford

George M. Lessard

## **Endodontics**

Endodontics is the discipline of dentistry concerned with the morphology, physiology, and pathology of the human dental pulp and apical tissues. Its study and practice encompass the basic clinical science, including biology of the normal pulp; the etiology, diagnosis, prevention, and treatment of diseases and injuries of the pulp; and associated apical conditions. The department faculty have developed preclinical lectures, laboratory exercises, and clinical training that cover the scope of endodontics. These experiences are coordinated and incorporated in a manner that provides patients with optimum oral health care in a setting that promotes the mission of the School of Dentistry.

### **Chair**

Bonnie J. Retamozo

### **Director, Advanced Specialty Education Program**

Mahmoud Torabinejad

### **Primary faculty**

Robert A. Handysides

Steven G. Morrow

Mohammad Sabeti

Tory Silvestrin

### **Emeritus faculty**

Leif K. Bakland

Donald L. Peters

## **Radiologic and Imaging Services**

The Department of Radiology and Imaging Sciences provides support in the form of didactic, preclinical, and clinical instruction to students within the School of Dentistry. Courses offered cover principles of acquisition of images, recognition and interpretation of normal and disease conditions of the oral cavity and hard tissues, patient assessment, and treatment-planning activities. The department's aim is to prepare students to excel in compassionate and knowledgeable service to patients that is based on a comprehensive gathering and interpretation of pertinent data.

### **Chair**

Kenneth Abramovitch

### **Primary faculty**

Heidi Kohltfarber

Dwight D. Rice

## **Oral and Maxillofacial Surgery**

The Department of Oral and Maxillofacial Surgery offers courses that include didactic and clinical instruction covering a variety of topics to prepare the student for the practice of dentistry. These courses cover aspects of general, systemic, and oral pathology; patient evaluation, including differential diagnoses; treatment planning; and the identification and management of complications throughout all phases of treatment. Clinical instruction focuses on proper surgical technique for extraction of teeth, alveoplasty, and biopsies. Additionally, proper prescription writing and suturing techniques are evaluated.

### **Chair**

Alan S. Herford

### **Director, Advanced Specialty Education Program**

Jayini S. Thakker

### **Director, Predoctoral Program**

Murray K. Jacobs

### **Primary faculty**

Anupama Grandhi

Frederick Mathews

Carlos Moretta

Susan D. Richards

Susan Roche

### **Emeritus faculty**

Lane C. Thomsen

## **Orthodontics**

The predoctoral courses in the Department of Orthodontics, as outlined by the American Dental Association, apply the knowledge derived from the basic sciences, research, and clinical treatment to the science of orthodontics so that the dental graduate will have the background necessary to recognize those conditions s/he is capable of managing. Clinical experience ranges from minor tooth movement and early treatment cases to more difficult, advanced cases—according to the student's demonstrated ability, perseverance, judgment, and interest in orthodontics.

The graduate will be able to:

1. Anticipate and detect malocclusions.
2. Take steps to prevent or intercept malocclusion, where possible.
3. Use knowledge gained in this area as an adjunct to procedures in all other phases of dental practice.
4. Provide a basis for understanding the possibilities of orthodontic treatment.
5. Treat limited orthodontic problems that fall within the general dentist's sphere of knowledge and training.

6. Know the bases on which case referrals are made and how to handle a referral correctly.

### Chair

Joseph M. Caruso

### Director, Advanced Specialty Education Program

V. Leroy Leggitt

### Faculty

James Farrage

Gabriela Garcia

Roland Neufeld

Gregory W. Olson

Kitichai Rungcharassaeng

R. David Rynearson

Rodrigo Vieceilli

## Pediatric Dentistry

The Department of Pediatric Dentistry is committed to teaching excellent clinical techniques in dentistry for children, and to instilling within the student the importance of providing an emotionally healthy environment for the child patient while "at the dentist." The faculty has developed didactic, laboratory, and clinical learning environments in pediatric dentistry—a broad experience designed to prepare the student for the general practice of dentistry for children.

### Chair

Bonnie A. Nelson

### Director, Advanced Specialty Education Program

Jung-Wei Chen

### Primary faculty

Shahnaz Bonyanpoor

Afsaneh Matin

Wesley K. Okumura

Samah Omar

Melva Wyatt

### Emeritus faculty

John E. Peterson, Jr.

## Periodontics

The Department of Periodontics provides education and training for predoctoral, dental hygiene, and advanced education students in the art and science of periodontics. Periodontics encompasses the study of the supporting structures of the teeth. It also deals with etiology, pathogenesis, diagnosis, and treatment of diseases that affect the supporting structures of the teeth. The study of periodontics helps to form basic concepts of health and disease. These concepts are applied in the treatment of periodontal diseases and in the maintenance of dental health over a patient's lifetime, providing comprehensive dental therapy for the individual patient. In this way, the Department of Periodontics

contributes directly to the School of Dentistry's academic and service mission "to make man whole."

### Interim Chair

Tord M. Lundgren

### Director, Advanced Specialty Education Program

Erik F. Sahl

### Primary faculty

R. Leslie Arnett, Jr.

Ahmed Khocht

Yoon-Jeong Kim

Leticia C. Lenoir

Adrian Mobilia

Zahra Mohammadzadah

Manoochehr Gothtasb pour Parsi

Dennis H. Smith

Loredana E. Trica

Barbara Valadez

Klaus D. Wolfram

## Division of General Dentistry

The Division of General Dentistry encompasses the specific disciplines of oral diagnosis, operative dentistry, fixed prosthodontics, and removable prosthodontics. The Division also houses the International Dentistry Program and is responsible for the management of both the preclinical and clinical education for those students. It is the aim of the division to provide each student with a thorough understanding of both technical and clinical skills, enabling comprehensive patient care. The primary objectives of the Division of General Dentistry can be generally described on two levels. The first comprises the preclinical didactic courses and the second includes clinical education. The division also aims at instilling in each student an interest in exploring new frontiers in dentistry and in recognizing the need for a continued quest for knowledge.

### Head

John B. Won

### Academic Director

Heidi L. Christensen

### Clinical Director

L. Parnell Taylor

### International Dentist Program Director

Mark E. Estey

### Primary faculty

Edward Albrecht

Daniel R. Armstrong

Andrea R. Beckford

H. Brooks Burnsed

Perry D. Burtch

Yanina Chambi

Vincent K. Chee

Eun-Joo P. Choi

Iris H. Choi

Kwang-Su Chung

L. Todd Cochran

Michael J. Fitzpatrick

Sofia I. Fitzpatrick

Madelyn L. Fletcher-Stark

Ronald E. Forde

Robert L. Fritz

Gary J. Golden

Wendy C. Gregorius

Paula M. Izvernari

Balsam F. Jekki

Rami R. Jekki

Zina F. Johnston

Lynda M. Juhl-Burnsed

Vaughn Kearbey

Jeong Suk Kim

Soh Yeun Kim

Edward Ko

Gregory D. Mitchell

Doyle R. Nick

Stephen Noble

Steven Powell

Paul L. Richardson

Holli C. Riter

Rafik R. Rofael

Clyde L. Roggenkamp

Scott C. Smith

Ronald L. Sorrels

Erin E. A. Stephens

Raghad J. Sulaiman

Daniel E. Tan, Jr.

F. Jose Torres

James R. Trott

Robert D. Walter

Robert B. Walter

Ronald L. Young

**Emeritus faculty**

Douglass B. Roberts

## International Dentist Program – D.D.S.

The International Dentist Program, founded by Dr. Lloyd Baum in 1985, is designed to allow qualified dentists educated in countries outside the United States to earn a Doctor of Dental Surgery (D.D.S.) degree in the United States. More than 486 students from eighty-one countries have graduated from the program.

The D.D.S. degree from a U.S. dental college is an educational requirement for eligibility to take the dental licensure examination in many states. The program has a minimum length of two academic years (twenty-four calendar months); but it may be extended, when necessary, to meet the needs of a particular student.

### Regulations

The student is also subject to the conditions of registration, attendance, financial policy, governing practices, and graduation requirements outlined in Section II (p. 35) and in the School of Dentistry (p. 205) general information in Section III of this CATALOG.

#### Program director

Mark Estey

#### Faculty

Andrea R. Beckford

H. Brooks Burnsed

Michael J. Fitzpatrick

Paula M. Izvernari

Balsam F. Jekki

Rami R. Jekki

Ronald L. Sorrels

Klaus D. Wolfram

### Admissions

Applications are available online at <<http://www.adea.org/>>. Requests for information are accepted by e-mail or telephone.

#### Admission requirements

- Dental degree from a recognized international dental school.
- Successful completion of the National Dental Board Examination, Part I and Part II.
- TOEFL examination, with a minimum score of twenty (20) in each area of the Internet-based examination.
- Dental school transcript (evaluated by an LLU-approved organization).

Other documentation is required, as outlined in the application. A nonrefundable application fee of \$100 is required with the application and accompanying documentation between March 1 and July 1. All application material sent to the Office of Admissions becomes the property of the school.

Students currently enrolled in a similar program at another university are not eligible to apply and will not be accepted for admission.

#### Application procedure

1. CAAPID application. The Centralized Application for Advanced Placement for International Dentists (CAAPID) application is completed online by the applicant at <<http://www.adea.org/>>. It takes approximately 4 weeks for CAAPID applications to be processed and sent to the dental school where the applicant has applied.
2. Supplemental application. The applicant then receives an email invitation from LLU to complete an electronic supplemental application.
3. Supplemental application deadline. The applicant must return the completed supplemental application and materials within thirty (30) days. This includes an essay specific to Loma Linda University, a photograph, and the application fee of \$150.
4. Transcripts. Official transcripts and diploma or certificate with English translations and documentation of all postsecondary education must be mailed directly to LLU from all colleges/universities attended by the student. If the dental education was received in India, transcripts must be sent directly from the University and not the dental school college.
5. Official Foreign educational credential evaluation report(course by course evaluation) mailed directly from WES, ECE, or AACRAO; links available at [www.llu.edu/apply/intltrans.html](http://www.llu.edu/apply/intltrans.html)
6. Non-English Language Documents. Must be submitted in their original language along with an English translation.
7. NBDE. Official score report of the National Dental Board Examination, Part I and Part II (School code #10) mailed directly to LLU from ADA.
8. TOEFL. Official score report of the TOEFL exam (School code #4062) mailed directly from ETS.
9. Language. All classes are conducted in English, and patients treated in the clinic communicate in English. Applicants must demonstrate competence in both written and spoken English.
10. References. Two letters of recommendation, preferably from former teachers or mentors who can attest to applicant's character, conduct, and professional ability. Members of the applicant's family are excluded from writing the required letters of reference, although letters will be accepted for the file in addition to those required. Letters should be sent directly to CAAPID.
11. Photograph. A recent passport size photograph uploaded through your supplemental application.
12. Deadline. To be considered, the CAAPID and LLU applications and all required documents must arrive at the School of Dentistry Office of Admissions by July 1. All documents sent to Loma Linda become property of LLU.
13. Selection process
  - Screening: Completed applications submitted before the application deadline will first be evaluated by the Office of Admissions .
  - Admissions testing: Testing is conducted one or more Sundays in the fall.

- Interview : Based on Admissions testing, applicants may be invited to interview .
  - Final selection: The applicant's admissions testing results, interview and application file, are presented to the School of Dentistry Admissions Committee for final selection. Twenty-four (24) applicants are accepted each year for enrollment in the International Dentist Program which begins in the Spring term.
14. Deposits. A student accepted into the International Dentist Program must submit a deposit of \$4,000 USD to Loma Linda University within 30 days of acceptance. Deposits become part of the first term's tuition. Failure to submit this deposit will result in the loss of the applicant's position in the class.
15. Financial requirement. Students applying for or holding F-1 U.S. student visas are required by U.S. immigration regulation to pay for the first first year's tuition and fees and provide documented evidence of sufficient funds for their second year prior to enrolling. For students eligible for government-sponsored financial aid programs, only the first term tuition is required at the initial registration.
16. Financial aid. A financial aid advisor and financial aid programs are available. Applicants should contact the Office of Financial Aid at e-mail <finaid@llu.edu (id@llu.edu)>; or by telephone, 909-/558-4509. Web site information can be obtained at <llu.edu/central/ssweb/finaid>.
17. Pre-entrance health requirements/immunizations. It is expected that necessary routine dental and medical care will have been attended to before the student registers. New students are required to have certain immunizations and tests before registration. Forms to document the required immunizations are provided for the physician in the registration information made available electronically to the student by LLU. In order to avoid having a hold placed on registration, the student is encouraged to return the documentation forms to Student Health Service no later than six weeks prior to the beginning of classes.
- For a complete list of required immunizations and tests, see Section II of this CATALOG under the heading "Health Care." Documentation verifying compliance with this requirement must be provided before registration can be completed.
- For further information, consult the *Student Handbook*, Section V–University Policies–Communicable disease transmission prevention policy; or contact the Student Health Service office at 909/558-8770.
- If a returning student is assigned to a clinical facility that requires a tuberculosis skin test, the student is required to have the test within the six months before the assignment begins.
- Students in the International Dentist Program have the same benefits, including health-care coverage, as are described elsewhere in this CATALOG.

## Program requirements

Code	Title	Clock Hours				Total Units
		Lec	Lab	Clinical	Total	
<b>Third Year</b>						
DNES 504	Curricular Practical Training for IDP <sup>1</sup>		60		60	0.0
DNES 707	Personal Development	20			20	2.0
DNES 800	Interprofessional Laboratory Experience <sup>1</sup>		4		4	0.0
ENDN 831	Endodontics I	10			10	1.0
ENDN 832	Endodontics II		60		60	2.0
ENDN 835	Endodontics IV		40		40	1.0
IDPC 815	Clinical Orientation I - IDP	11	30		41	2.0
IDPC 816	Clinical Orientation II - IDP		30		30	1.0
IDPC 817	Clinical Orientation III - IDP			30	30	1.0
IDPC 825	General Clinics			450	450	15.0
IDPG 718	Communication Basics for the International Student	10			10	1.0
IDPG 845	Evidence-Based Dentistry	22			22	2.0
IDPO 535	Oral Pathology and Diagnosis	33			33	3.0
IDPO 720	Oral and Maxillofacial Radiology for the IDP Program	20			20	2.0
IDPO 723	Patient Assessment and Data Management I	20			20	2.0
IDPO 725	Patient Assessment and Data Management II	11	33		44	2.0
IDPO 726	Patient Diagnosis and Treatment Planning	11	33		44	2.0
IDPO 826	Oral and Maxillofacial Surgery	22			22	2.0
IDPO 827	Oral and Maxillofacial Surgery	22			22	2.0
IDPP 754	Fundamentals of Periodontics	22			22	2.0
IDPP 755	Pediatric Dentistry Clinic—IDP			48	48	1.0
IDPP 756	Pediatric Dentistry	22			22	2.0
IDPP 756L	Pediatric Dentistry Laboratory		44		44	1.0
IDPP 759	Periodontal Therapy	22			22	2.0
IDPR 701	Operative Dentistry I	11	33		44	2.0
IDPR 702	Operative Dentistry II	11	33		44	2.0



IDPR 750	Dental Materials	22		22	2.0
IDPR 761	Removable Prosthodontics I	11	33	44	2.0
IDPR 762	Removable Prosthodontics II	11	33	44	2.0
IDPR 763	Removable Prosthodontics III	11	33	44	2.0
IDPR 771	Fixed Prosthodontics I	11	33	44	2.0
IDPR 773	Advanced Prosthodontics for IDP	11	33	44	2.0
IDPR 803	Operative Dentistry III	11	33	44	2.0
IDPR 854	Implant Dentistry for the IDP Student	22	44	66	3.0
ORDN 801	Minor Tooth Movement	18	16	34	2.0
PEDN 821	Pediatric Dentistry II	12		12	1.0
<b>Fourth Year</b>					
DNES 817	Practice Management I for IDP Students	20		20	2.0
DNES 818	Practice Management II for IDP Students	20		20	2.0
IDPC 835	General Clinics			570	19.0
IDPC 845	General Clinics - Direct Patient Care			540	18.0
IDPO 534	Oral Medicine: Orofacial Pain and TMD <sup>2</sup>	22		22	2.0
IDPO 728	Patient Diagnosis and Treatment Planning II	20		20	2.0
IDPO 821	Clinical Management of the Older Adult	10		10	1.0
IDPR 704	Introduction to Occlusion	22		22	2.0
IDPR 772	Fixed Prosthodontics II	11	33	44	2.0
ORDN 811	Principles of Orthodontics II	11		11	1.0
RELE 734	Christian Ethics for Dentists	20		20	2.0
RELR 749	Marriage and Family Wholeness	20		20	2.0
RELT 717	Christian Beliefs and Life	20		20	2.0
<b>Total Units</b>		<b>636</b>	<b>691</b>	<b>1638</b>	<b>2965</b>
					<b>132</b>

<sup>1</sup> This course may be taken in the third or fourth year.

<sup>2</sup> Course for IDP students offered in odd-numbered years

## Normal time to complete the program

2 years at LLU—full-time enrollment required

# Advanced Dental Education

## Assistant dean for advanced dental education

Steven G. Morrow

The School of Dentistry offers advanced dental education programs in specialty and nonspecialty disciplines of dentistry. Postdoctoral certificates, Master of Science (M.S.), and Master of Science in Dentistry (M.S.D.) degrees are available. The purpose of these programs is to offer candidates an opportunity to integrate advanced clinical training with meaningful exposure to applied basic science and research. For additional information and to submit an online application, interested applicants should visit the School of Dentistry Web site (Graduate Programs).

Advanced dental education programs leading to a professional certificate with an option to also pursue the Master of Science (M.S.) degree or the Master of Science in Dentistry (M.S.D.) degree are:

- Dental Anesthesiology
- Endodontics
- Implant Dentistry
- Oral and Maxillofacial Surgery
- Orthodontics and Dentofacial Orthopedics (M.S. degree only)
- Pediatric Dentistry
- Periodontics
- Prosthodontics

These programs are organized to comply with the standards of the Council on Dental Education of the American Dental Association, and the objectives and content meet the requirements of the respective specialty boards. In addition, the programs in endodontics, oral and maxillofacial surgery, orthodontics and dentofacial orthopedics, pediatric dentistry, periodontics, and prosthodontics are accredited by the Commission on Dental Accreditation, a specialized accrediting body recognized by the Council on Postsecondary Accreditation and the United States Department of Education. For additional information, the student may contact:

The Office of Advanced Education  
Loma Linda University  
School of Dentistry  
Loma Linda, CA 92350

<llu.edu/dentistry/gradprograms>

## Student learning outcomes (SLOs)

Graduate students and residents in advanced dental education programs are expected to:

1. Understand the didactic foundation of their discipline and master the clinical skills required to utilize that foundation.
2. Integrate advanced clinical training with meaningful exposure to the applied basic sciences.
3. Engage in a project involving advanced clinical training with meaningful exposure to research.
4. Integrate interdisciplinary treatment planning into their didactic and clinical activity.
5. Apply for and pursue board certification in their discipline through the appropriate sponsoring organization.

6. Understand the importance of developing a commitment to the University-wide student learning outcomes.

## Residence

The required time in residence varies with each program. For the length of a program, refer to the information under each program description.

## Stipends

Stipends are provided in the Dental Anesthesiology and the Oral and Maxillofacial Surgery programs. Pediatric dentistry students are paid a stipend of \$5,200.00 during the course of their training. For details, contact the program director personally.

## Tuition

Tuition and fees quoted in the school financial information section of this CATALOG are for the academic year 2016-2017.

## Thesis

The student must complete a research project presented in thesis format and orally defend it according to the standards set by the Faculty of Graduate Studies. A written thesis, approved by the student's research committee, must be submitted to the Faculty of Graduate Studies in order to receive a satisfactory grade for the course.

## Publishable paper

Students on the Master of Science in Dentistry degree track must submit a publishable paper no later than one year from the date they complete their certificate program. Candidates are admitted to only one master's degree track of their choosing.

## General requirements

For information about requirements and practices which all graduate students are subject to, the student should consult Section II of this CATALOG.

## Admissions

### Admission requirements for advanced dental education programs/postdoctoral programs

An appropriate degree from an accredited college or university is required for admission into the advanced dental education programs and postgraduate programs. A doctoral degree in dentistry (Doctor of Dental Surgery or Doctor of Dental Medicine) or the equivalent is required for admission to all programs. The applicant should have achieved a general grade point average of not less than 3.0 on a 4.0 scale, with no grade below 2.0. In addition to acceptable scholastic performance, the applicant must give evidence of personal and professional fitness for growth in the science and art of the intended dental discipline. For application deadlines, see the section on each individual program or refer to the chart on the following page.

After applicants are accepted into the advanced dental education programs in dental anesthesiology, endodontics, oral and maxillofacial surgery, pediatric dentistry, periodontics, prosthodontics, or the postdoctoral program in implant dentistry, they may apply for admission to the Faculty of Graduate Studies for the purpose of earning an M.S. degree; or to the Office of Advanced Education to earn an M.S.D. degree (in addition to the advanced program certificate). Applicants for the Master of Science (M.S.) degree who meet or exceed the minimum

entrance requirements may be accepted to the Faculty of Graduate Studies (FGS) by the School of Dentistry's assistant dean for advanced dental education. The master's degree thesis must be completed, defended, and accepted in final form (as evidenced by a completed Form D) by both the graduate program and the Faculty of Graduate

Studies. Students have up to five years from the date of acceptance of the certificate program to complete the requirements for the MS degree. All the M.S.D. requirements may be completed during the program but no later than one year from the candidate's program completion date.

### Admissions criteria for advanced dental education programs 2015

Program	Official Transcript(s) <sup>1</sup>	Cumulative G.P.A. <sup>2</sup>	GRE <sup>3</sup>	National Boards Part I <sup>3</sup>	DAT	TOEFL <sup>4</sup>	Letters of Recommendation
Dental Anesthesiology <sup>5</sup> (24 mo./6 positions)	Required	3.0	Not required	Required all applicants	Not required	Required (internationally trained)	3
Endodontics <sup>10</sup> (27 mo./2 positions; 36 mo./1 position)	Required	3.0	Not required for certificate program	Required (only U.S.-trained applicants)	Not required	Required (internationally trained)	3
Implant Dentistry (36 mo./3 positions)	Required	3.0	Not required for certificate program	Not required	Not required	Required (internationally trained)	3
Oral and Maxillofacial Surgery <sup>11</sup> (4 yrs./2 positions; 6 yrs./2 positions)	Required	3.0	Not required for certificate program	Required (all applicants) score of 86 or higher	Not Required	Required (internationally trained)	3
Orthodontics and Dentofacial Orthopedics <sup>6, 7, 9</sup> (27 mo./6 positions)	Required	3.0	Required	Required (all applicants)	Required (all applicants)	Required (internationally trained)	3
Pediatric Dentistry <sup>10, 12</sup> (24 mo./4 positions)	Required	3.0	Required for internationally trained applicants	Required (only U.S.-trained applicants)	Not required	Required (internationally trained)	3
Periodontics <sup>8</sup> (36 mo./3 positions)	Required	3.0	Not required for certificate program	Required (only U.S.-trained applicants)	Not required	Required (internationally trained)	3
Prosthodontics (36 mo./4 positions)	Required	3.0	Not required for certificate program	Required (only U.S.-trained applicants)	Not required	Required (internationally trained)	3

### Application and program dates

Program	LLU Applications Open	LLU Applications Close	Admissions Committee Meets	Pass Applications Open	Pass Applications Close	Advanced Education Programs Start Date	Advanced Education Programs Ending Date
Dental ANES	1/1/2016	9/1/2016	November	5/2016 Match participant	9/1/2016	July 1	June 30
ENDN	1/1/2016	8/1/2016	September	5/2016	8/1/2016	July 1	Late September
IMPD	1/1/2016	8/15/2016	December	n/a	n/a	July 1	June 30
OMFS	1/1/2016	9/15/2016	January	5/2016 Match participant	9/15/2016	July 1	June 30
ORDN	1/1/2016	8/1/2016	November	n/a	n/a	July 1	Late September
PEDN	1/1/2016	10/1/2016	January	5/2015 Match participant	10/1/2016	July 1	June 30
PERI	1/1/2016	9/1/2016 (rolling admissions)	September	5/2016	9/1/2016	July 1	June 30
PROS	1/1/2016	8/1/2016	September	5/2016	8/1/2016	July 1	June 30

- 1 *Transcripts.* Transcripts from all postsecondary schools from which credit was received, whether or not the work pertains to your LLU degree, are required to complete your application.
- 2 *Grade Point Average (G.P.A.).* A cumulative G.P.A. of 3.0 (on a 4.0 scale) is required for admission.
- 3 *National Boards, Part I.* Refers to Part I of the two-part U.S. National Board Examinations. Part II must also be submitted when available. All must be passing grades.
- 4 *English Language Skills.* Non-U.S. applicants for whom English is not their primary language and whose secondary education has been given outside the U.S. are required to take the TOEFL examination. They must demonstrate satisfactory verbal and written English language skills. A minimum TOEFL score of 550 (paper based) and 80 (internet based) is required. TOEFL scores are valid for two years from the test date.
- 5 *Dental License.* All applicants for the Advanced Education Program in Dental Anesthesiology who are not currently enrolled in a U.S. or Canadian dental school must have a current U.S. or Canadian dental license.
- 6 *International Dentist Program.* All graduates from non-ADA-accredited dental schools who apply to the Advanced Specialty Education Program in Orthodontics and Dentofacial Orthopedics must complete an accredited International Dentist Program.
- 7 *Orthodontics and Dentofacial Orthopedics.* This program requires applicants to meet the requirements for the certificate program and the Master of Science (M.S.) degree track. To be considered, applicants must take the GRE.
- 8 *Periodontics.* This program has a rolling admission process between January 1 and September 1, which means it reserves the right to fill some but not all of its entering class prior to the September 1 deadline.
- 9 *Orthodontics and Dentofacial Orthopedics.* The program reserves the right to admit selected students to the certificate program, which would require submission of a certificate application due by the regular application deadline.
- 10 *Endodontics and Pediatric Dentistry.* All applicants for the Endodontic and Pediatric Dentistry Program who have received their dental school training outside the U.S. or Canada must have a current dental license from their country and submit a notarized copy with their application.
- 11 *National Board Medical Examination (NBME) Comprehensive Basic Science Examination.* Applicants for the Oral and Maxillofacial Surgery Program who take the National Board Dental Examination (NBDE) Part I after January 1, 2012—and, therefore, do not have a numerical score—must take the National Board Medical Examination (NBME) Comprehensive Basic Science Examination and have their official test results reported to Loma Linda University by the application deadline.
- 12 *TOEFL Scores for Pediatric Dentistry.* The Pediatric Dentistry Program requires a minimum paper-based TOEFL score of 590 or an internet-based score of 90. TOEFL scores are valid for two years from the test date.

## Master of Science in Dentistry (M.S.D.) Degree, Advanced

Graduate students and residents enrolled in certain advanced education programs are eligible to apply for and be awarded a Master of Science in Dentistry (M.S.D.) degree, if they fulfill all of the following requirements.

### Admission process

1. The following minimum requirements have been established for admission to the M.S.D. degree program:  
Admissions requirements
  - Cumulative grade point average (G.P.A.) of 3.0
  - Approval by the program director
  - Academic record of scholastic competence
  - Demonstrated professionalism and integrity
2. A candidate for the M.S.D. degree must complete a Loma Linda University online Application for Admission and a Part I (Application for Admission for the Master of Science in Dentistry [M.S.D.] degree) form. The Part I form can be found in the advanced education section of Canvas. The Part I form must be accompanied by a research protocol approved by the candidate's research guidance committee (RGC) and reviewed by the School of Dentistry Research Committee.
3. The Part I form must be signed by the applicant's program director and the research guidance committee (RGC) members.
4. The completed Loma Linda University application, Part I form, and approved protocol are then reviewed for approval by the associate dean for advanced education to ensure all admissions requirements have been met.
5. Accepted applicants will receive a letter of admission from the associate dean for advanced education. They must acknowledge

acceptance of their admission electronically to the Office of Advanced Dental Education.

## Master of Science (M.S.) Degree, Advanced

Graduate students and residents enrolled in certain advanced education programs are eligible to apply for and be awarded a Master of Science (M.S.) degree, if they fulfill all of the requirements stated below.

### Admission process

1. The following minimum requirements have been established for admission to the M.S. degree curriculum:  
Admissions requirements
  - Minimum cumulative grade point average (G.P.A.) of 3.0
  - Approval by the program director
  - Academic record of scholastic competence
  - Demonstrated professionalism and integrity
2. An applicant to the M.S. degree must complete a Loma Linda University online Application for Admission, as well as a Form A (Petition for Admission to Candidacy). The online application is open to students already enrolled in a certificate curriculum. Form A is found on Canvas and must be accompanied by a research protocol approved by the applicant's research guidance committee (RGC) and reviewed by the School of Dentistry Research Committee.
3. Form A must be signed by the applicant's program director and research guidance committee (RGC) members.
4. The completed Loma Linda University application, Form A, and the approved protocol are then reviewed for approval by the associate dean for advanced education to ensure that all admissions requirements have been met.
5. Accepted applicants will receive a letter of admission from the associate dean for advanced education. The prospective student

must acknowledge acceptance of his/her admission electronically to the Office of Advanced Dental Education.

## Academic policies

### Grading system for advanced education programs

The following information outlines the grading systems for all postdoctoral students/residents enrolled in advanced education programs in the School of Dentistry. Each course taught in the school has been approved for either a letter grade or an S/U grade, and deviations from this are not allowed other than the MS grade as specified below.

### Grades and grade points for postdoctoral students/residents

A	4.0	Outstanding performance
A-	3.7	Very good performance
B+	3.3	
B	3.0	Satisfactory performance for which credit is granted toward degree.
B-	2.7	Passing grade but cumulative G.P.A. must be 3.0 or higher to avoid academic probation.

Postdoctoral students/residents who receive one or more of the following grades in any quarter will be placed on academic probation if their cumulative G.P.A. is below 3.0.

C+	2.3	Remediation* required and cumulative G.P.A. must be 3.0 or higher to avoid academic probation.
C	2.0	Remediation* required and cumulative G.P.A. must be 3.0 or higher to avoid academic probation.

Postdoctoral students/residents who receive one or more of the following grades in any quarter will be placed on academic probation and must retake the course(s) for which these grades were received.

C-	1.7	Course must be retaken.
D+	0.0	Failure; course must be retaken.
D	0.0	Failure; course must be retaken.
F	0.0	Failure; course must be retaken.
S	none	Satisfactory performance, counted toward graduation. Equivalent of a B grade or better. An S grade is not computed in the grade point average.
MS	none	Marginally satisfactory, equivalent to a C+ or C; remediation* required.
U	none	Unsatisfactory performance, given only when performance falls below a B grade level. The U grade is not computed in the grade point average. Course must be remediated or repeated to count toward a degree.
S/N	none	Satisfactory performance in a clock hour course. Not included in total units. Same grading criteria as the S grade given for a credit hour course.
U/N	none	Unsatisfactory performance in a clock hour course. Not included in total units. Same grading criteria as the U grade given for a credit hour course.
CR	none	Credit earned for credit by examination. Counted toward graduation/units earned, but not units attempted. Such credit cannot be counted for financial aid purposes.
NC	none	No credit for satisfactory performance for a credit by examination. Does not count for any purpose.

University policy states that "a student may repeat a course only once, and no more than two courses may be repeated in a student's degree program."

- \* To remediate a course, a detailed, written plan must be developed by the course instructor/program director outlining how deficiencies will be remedied and reassessed. The plan must be approved by the Office of Advanced Education, after which the student is required to register for the appropriate directed study course in the quarter following receipt of the MS grade for the number of units to be remediated. Select SDCL 696 Directed Study for didactic courses and SDCL 896 Clinical Directed Study for clinical courses. An Independent Study Title Request form must be completed (electronically) by the student for each directed study course, and must include a description of the approved remediation plan.

### Academic criteria for academic advancement and program completion

#### Postdoctoral student/resident

- Cumulative, didactic, and laboratory G.P.A. at or above 3.0 (B).
- Selection for advancement to Master of Science (M.S.) degree candidacy.
- Selection for advancement to Master of Science in Dentistry (M.S.D.) degree candidacy.
- Successful completion of all evaluations.
- Successful completion of annual student evaluation (includes a review of entire academic record).

### Academic disciplinary policy for advanced education programs

#### Academic probation

Academic probation is a specified period of time during which the student is given an opportunity to comply with specific academic standards. Such action must be confirmed by memorandum to the student. For a postdoctoral student/resident, a grade of 3.0 (B) is considered satisfactory performance for graduate credit.

#### Criteria for advisory notice of potential for academic probation (postdoctoral students and residents)

A postdoctoral student/resident will be sent an advisory letter of the potential for placement on academic probation under the following conditions:

1. Term G.P.A. of 2.7 (B-).
2. One or more courses with grade of C+ or lower.
3. One or more courses with a grade of marginally satisfactory (MS).

#### Criteria for placement on academic probation (postdoctoral students and residents)

A postdoctoral student/resident will be placed on academic probation if s/he meets one or more of the following conditions:

1. Term G.P.A. of 2.3 (C+) or below.
2. One or more courses with C+, or lower; and an overall G.P.A. below 3.0.
3. Failing (F/U/D+/D/D-) or unsatisfactory (C-) grades in any course required for the specialty certificate, Master of Science (M.S.) degree, or Master of Science in Dentistry (M.S.D.) degree program.
4. Clinical performance below minimum expected for his/her year level.

5. Social/behavioral/ethical problems that significantly impact academic and/or clinical performance.

#### **Level of academic probation (postdoctoral student and resident)**

The level of academic probation indicates the seriousness of the cumulative academic deficiency. However, depending on the seriousness or nature of the academic deficiency, a student/resident may be considered for academic leave of absence or discontinuation at any level of probation.

#### **Level I**

First term on academic probation.

#### **Level II**

Second term on academic probation, consecutive or nonconsecutive.

**EXCEPTION:** Continued academic probation due to failing grade in a course that cannot be repeated until a later term.

#### **Level III**

Third term on academic probation, consecutive or nonconsecutive. If a student/resident is unable to remove academic probationary status within the following term, s/he will be considered for academic discontinuation.

**EXCEPTION:** Continued academic probation due to failing grade in a course that cannot be repeated until a later term.

#### **Level IV**

If a student/resident meets criteria for academic probation for a fourth term, consecutive or nonconsecutive, s/he will be considered for academic discontinuation.

#### **Restrictions for a student on academic probation**

A student/resident on academic probation:

1. May not serve as an officer for any class, school, or extracurricular organization.
2. May not take any elective courses.
3. May not participate in any elective off-campus, service learning, or mission activities.
4. Remains on academic probation until all the terms of the probation sanctions have been fulfilled, unless the student/resident is discontinued.

#### **Remedial action (remediation)**

As a condition for continued enrollment, remedial action may consist of:

1. Counseling, tutoring, and/or repeating assignments or course work; or completing additional assignments or course work—possibly including repeating an academic year or portion thereof.
2. Other specified requirements.

### **Disciplinary actions**

A student who is not performing up to expectations can receive the following:

1. Restriction of clinical privileges—by program director.
2. Academic probation (Level I to III)—by the associate dean for advanced education or upon recommendation of the program director.
3. Behavioral probation (Level I to III)—by the associate dean for advanced education or upon recommendation of the program director.

4. Clinical probation (Level I to III)—by the associate dean for advanced education or upon recommendation of the program director.
5. Discontinuation—by the associate dean for advanced education or upon recommendation of the program director to the dean.

### **Probation**

All recommendations to the associate dean for advanced education must be supported by well-documented evidence of repeated counseling and other internal measures designed to point out deficiencies and take corrective action through a detailed remediation program. A remediation program must be specific in design, implemented, and monitored for any student/resident who is not performing up to a program's stated standards. It is important to have documentary evidence on record by multiple faculty members with detailed accounts of dates, times, explanations of counseling, discussions, and corrective measures. Written statements from support staff should also be included if they have direct contact or knowledge of a matter involving a postdoctoral student/resident.

Postdoctoral students/residents may be placed on academic probation, behavioral probation, and/or clinical probation. Probation begins at Level I and may progress to Level III. Postdoctoral students/residents should be placed on probation for a prescribed period of time: one quarter, two quarters, etc. This information should be conveyed to a student/resident in writing (required) and also verbally (recommended).

### **Continuation**

Students who are not progressing as expected may be continued in their year group for as long as necessary before being promoted to the next year or discontinued. To exercise this option, the associate dean for advanced education must inform University Records of the decision to continue a student/resident and state the anticipated length of that continuation. Program directors make the determination as to when to recommend continuing a student and when to recommend discontinuing a student/resident and allowing him/her to graduate or continue his/her studies. Invariably, the length of the continuation period will determine when a student/resident actually completes his/her program.

### **Discontinuation**

Students who do not make any measurable improvement by the end of the prescribed remediation and counseling periods may be recommended for discontinuation by the associate dean for advanced education or upon recommendation of the respective program director to the associate dean for advanced dental education. Recommendations to discontinue a student/resident are then sent to the dean (in writing) for action.

### **Criteria for discontinuation**

- Three or more unsatisfactory or failing grades within the academic year, regardless of term or cumulative G.P.A.
- Three consecutive quarters of academic probation.
- Failure to fulfill terms of academic probation within the specified time period.
- Failure to achieve eligibility for award of a certificate in the clinical specialty program within the standard number of full academic years.

## **Programs**

- Dental Anesthesiology — post-D.D.S. Certificate, M.S.D. (p. 245)
- Endodontics — post-D.D.S. Certificate, M.S.D., M.S. (p. 247) Comparison (p. 248)
- Implant Dentistry — post-D.D.S. Certificate, M.S.D., M.S. (p. 249)

- Oral and Maxillofacial Surgery — post-D.D.S. Certificate, M.S.D., M.S. (p. 251), post-D.D.S. Certificate/M.D. (p. 467)
- Orthodontics and Dentofacial Orthopedics — post-D.D.S. Certificate, M.S. (p. 252)
- Pediatric Dentistry — post-D.D.S. Certificate, M.S.D., M.S. (p. 253)
- Periodontics — post-D.D.S. Certificate, M.S.D., M.S. (p. 255)
- Prosthodontics — post-D.D.S. Certificate, M.S.D., M.S. (p. 256)

## General degree requirements

### Master of Science in Dentistry (M.S.D.) Degree, Advanced

Graduate students and residents enrolled in certain advanced education certificate programs are eligible to apply for and be awarded a Master of Science in Dentistry (M.S.D.) degree, if they fulfill all of the following requirements.

#### Degree requirements

1. Students must perform scholarly activity as defined by the program director. Programs may differ in how this requirement is met in order to afford directors the opportunity to align such activity with the experience, background, and interest of each student and of the program faculty as a worthy and achievable goal is pursued. The nature of the scholarly activity will be defined in Part II (Statement of Completion for the Master of Science in Dentistry [M.S.D.] degree) of the degree application form as submission of a formatted, publishable manuscript.
2. Students must successfully complete all the course requirements of the certificate curriculum, with additional units in research for the master's degree curriculum (see individual program descriptions at <llu.edu/dentistry/gradprograms>). Candidates complete sections I and II of Part II form to indicate their anticipated degree completion date.
3. A publishable paper and public presentation of the research are required. The manuscript must be in a format approved by the respective program director.
4. Students who do not complete the publishable paper while completing the curriculum will have one year from their program end date to fulfill this requirement.
5. After conducting an internal degree audit, the program director completes and signs the Part III form (Statement of Completion) to verify that all requirements for the M.S.D. degree have been met.
6. The associate dean for advanced education reviews the student's file and academic record (final degree audit) before signing the Part III form, signifying approval to award the Master of Science in Dentistry (M.S.D.) degree.

The M.S.D. degree is not offered by the advanced education program in orthodontics and dentofacial orthopedics.

### Master of Science (M.S.) Degree, Advanced

Graduate students and residents enrolled in certain advanced education programs are eligible to apply for and be awarded a Master of Science (M.S.) degree, if they fulfill all of the requirements stated below.

#### Degree requirements

1. Applicants must undertake scholarly activity/research as defined by each program director. Programs may differ on how this requirement is met in order to afford directors the opportunity to align such activity with the experience, background, and interest of each student

and of the program faculty as a worthy and achievable goal is pursued.

2. Students must successfully complete all course requirements of the certificate curriculum, with additional units in research for the master's degree (see individual program descriptions online). Also, students must submit a completed Form C, Petition for Graduation, to indicate their anticipated degree completion date.
3. A thesis and a public thesis defense are required. The thesis must be in a format approved by the thesis editor in the Faculty of Graduate Studies (FGS).
4. Students who do not complete the thesis during their program will have five years from the beginning of the certificate program to fulfill this requirement for the master's degree.
5. After conducting a degree audit, the program director completes and signs Form D, Statement of Completion of Requirements for Degree, verifying that all requirements for the M.S. degree have been met.
6. After reviewing the student's file and academic record (final degree audit), the associate dean for advanced education signs Form D, indicating approval of the award of the Master of Science (M.S.) degree. Form D is then submitted to the Faculty of Graduate Studies (FGS) for final approval and degree issuance.

## Dual majors

Applicants to the programs in implant dentistry, periodontics, and prosthodontics have the option to select an extended program (approximately four-and-a-half years in length) to pursue dual majors in two of these areas of study.

Students must complete all the requirements of each ADA-recognized specialty program—periodontics (p. 255) and prosthodontics (p. 257), comparison (p. 258); periodontics (p. 255) and implant dentistry (p. 250), comparison (p. 259); or prosthodontics (p. 257) and implant dentistry (p. 250), comparison (p. 260)—to be eligible for board certification. Dual credit—up to 100 units—may be awarded for courses required by the two programs.

Individuals who wish to pursue the dual major option must indicate such interest by completing separate applications to both programs. Applicants in one of the optional dual major programs must not only meet the admissions requirements of each program, but must also be admitted to the advanced education programs they designate.

### Length of program

- Periodontics and Prosthodontics (up to 5 years in length)
- Periodontics and Implant Dentistry (approximately 4 1/2 years in length)
- Prosthodontics and Implant Dentistry (approximately 4 1/2 years in length)

## Dental Anesthesiology – Certificate (post-D.D.S.), M.S.D.

The Advanced General Dentistry Education Program in Dental Anesthesiology is offered to dentists who desire to pursue a career in anesthesiology for dentistry. The educational design of this twenty-four month program provides a strong clinical background in anesthesiology. The program is based in the Koppel Special Care Dentistry Center (KSCDC), an outpatient facility utilizing general anesthesia for dental care. The KSCDC is located in the School of Dentistry, where approximately 4,000 patients are treated on an

annual basis. Scheduled simulation training is obtained at the LLU Medical Simulation Center. Additional training in structured rotations in cardiology, internal medicine, and anesthesiology is obtained at area hospitals.

Didactic instruction is coordinated through the School of Dentistry's Department of Dental Anesthesiology. Residents attend an anesthesiology lecture series and weekly grand rounds at Loma Linda University Medical Center. In addition, regular meetings of the dental anesthesiology residents are held, during which a variety of contemporary topics are discussed—including a review of the current literature. Residents also participate in teaching pain control in the predoctoral curriculum and present their topics at the annual Dental Anesthesia Symposium at Loma Linda University.

Upon successful completion of the program, the dental anesthesiologist will be eligible to take the diplomate examination of the American Dental Board of Anesthesiology, and to apply for a general anesthesia permit in any state of the United States.

Following enrollment into the program, residents may apply for acceptance to the Master of Science in Dentistry (M.S.D.) degree track, in addition to the specialty certificate. The application should be submitted at the end of the first year and be supported by the program director. Admission into the M.S.D. degree track may extend the length of study. Any additional time must be in residence, and continued financial support is not guaranteed.

## Dental anesthesiology goals

- |        |   |
|--------|---|
| Goal 1 | To provide the dental anesthesia resident with anesthesia-related skills and knowledge that are the basis for a safe and responsible practice of office-based or hospital-based dental anesthesiology after completion of the training program.   |
| Goal 2 | To provide an in-depth education in acute pain and anxiety as it pertains to dental treatment and an understanding of the application of the pharmacologic and behavioral treatments of these conditions.   |
| Goal 3 | To provide a background in the health sciences and clinical medicine that will allow a dentist anesthesiologist to recognize and appropriately refer the patient who is at elevated risk for anesthesia due to comorbidities.                     |
| Goal 4 | To develop desirable character values and attributes in residents—including professionalism, respect for others, responsibility, compassion, integrity, and ethical behavior; and to instill the importance of a commitment to lifelong learning. |
| Goal 5 | To develop professional presentation skills to enhance professional communications.   |

Program link: [www.llu.edu/dentistry/gradprograms/](http://www.llu.edu/dentistry/gradprograms/)

### Director, Advanced General Dentistry Education Program in Dental Anesthesiology

Dezireh Sevanesian

### Associate Director, Advanced General Dentistry Education Program in Dental Anesthesiology

Larry D. Trapp

Associate Program Director

### Director, Koppel Special Care Dentistry Center

John W. Leyman

### Faculty

Neal Johnson

John W. Leyman

Dezireh Sevanesian

Chad A. Tomazin

Larry D. Trapp

## Admissions

### Application process

The Dental Anesthesiology, Advanced Program participates in the Postdoctoral Application Support Service (PASS) of the American Dental Education Association (ADEA), which allows applicants to apply to multiple participating institutions.

The advanced specialty education program in dental anesthesiology also participates in the Postdoctoral Dental Matching Program (Match). This program identifies and "matches" the preferences of applicants and the advanced education program, using a rank order list submitted by the applicant and the program.

All applicants must complete and submit an online application (<[llu.edu/central/apply](http://llu.edu/central/apply)>) directly to Loma Linda University and the Match (<<https://portal.passweb.org/>>) application. A PASS application is available (<<https://portal.passweb.org/>>), but not required.

### Application deadline

Application for admission should be submitted no later than September 15 of the year prior to the summer of intended enrollment.

## Tuition

Tuition and fees for the 2016-17 academic year are waived. Residents are paid a stipend during training.

## Program requirements

### Certificate

#### Major

#### Interdisciplinary

ANDN 521	Principles of Medicine, Physical Diagnosis, and Hospital Protocol	8
ANDN 549	Contemporary Anesthesia	2
ANDN 547	Anesthesia Grand Rounds	8
ANDN 604	Anesthesia Literature Review	2
ANDN 652	Introduction to General Anesthesia	1
ANDN 654	Practice Teaching in Anesthesia 1	1
ANDN 674	Crisis Management in Anesthesia	4
ANDN 696	Scholarly Activity in Dental Anesthesiology 1	8
ANDN 699	Scholarly Activity II in Dental Anesthesiology	4
Interdisciplinary		
REL_ 5__	Graduate-level Religion	3
Total Units		41

Clinical <sup>1</sup>



ANDN 746	General Anesthesia	80
Total Units		80

<sup>1</sup> Units for clinic practice courses do not count toward minimum number of didactic units required for the degree.

### Normal time to complete the program

3 years (36 months) – full-time enrollment required

### M.S.D.

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 245) for the degree. Students may take up to one year following the completion of the certificate program to complete the M.S.D. degree.

ANDN 697A	Research	1
ANDN 697B	Research	1
ANDN 697C	Research	1

## Endodontics – Certificate (post-D.D.S.), M.S.D., M.S.

The mission of the twenty-seven-month Endodontics-Advanced Specialty Program is to train endodontists who are proficient in treating teeth that require root canal therapy (art), who possess an in-depth biological knowledge related to endodontics (science), and who have participated in endodontic research and teaching. The mission of the thirty-six-month Endodontics-Advanced Program is to provide additional care for patients who have failed root canal treatment and require a single tooth implant. The thirty-six-month program consists of the entire twenty-seven-month curriculum; as well as additional courses in periodontics, radiology, and implant dentistry.

The goals of the Endodontics Advanced Specialty Program include training endodontists who have:

1. the knowledge necessary to diagnose and plan treatment for various pulpal and periapical conditions, and who possess skills at the level of proficiency to treat—alone or in concert with other dental and medical practitioners—various pulpal and periapical conditions.
2. formally taken biomedical sciences-related endodontics and health sciences courses at an advanced level; as well as implant as a part of the thirty-six-month program.
3. participated in endodontic research and teaching.
4. been prepared for careers in clinical practice.
5. if completing the thirty-six-month program, the knowledge and skills to diagnose and treat patients with failed root canals who would benefit from surgical placement and restoration of a single tooth implant, when such care is needed.

The programs begin in July and require twenty-seven or thirty-six months in residence, depending on the specialty training pursued.

Following enrollment into the program, students may apply for acceptance to either the Master of Science (M.S.) or the Master of Science in Dentistry (M.S.D.) degree track, in addition to the specialty certificate. The application should be submitted at the beginning of the second year and must be supported by the program director. Admission

into the M.S. or the M.S.D. degree track may extend the length of study; the additional time must be in residence.

Graduates in both the certificate and graduate degree curricula are educationally qualified for certification by the American Board of Endodontics.

Program link: <https://llu.edu/dentistry/gradprograms>

### Director, Advanced Specialty Education Program

Mahmoud Torabinejad

### Faculty

Bonnie J. Retamozo

Mahmoud Torabinejad

## Admissions

### Application process

The Endodontics, Advanced Program participates in the Postdoctoral Application Support Service (PASS) of the American Dental Education Association (ADEA), which allows applicants to apply to multiple participating institutions.

PASS applicants for the advanced education program in endodontics must also complete and submit a separate online application (<[llu.edu/central/apply](https://llu.edu/central/apply)>) directly to Loma Linda University.

This program also will accept direct applications for individuals who are not applying to other institutions through PASS.

### Application deadline

Application for admission should be submitted by August 1 of the year prior to the summer of intended enrollment.

## Tuition

Tuition and fees for the 2016-17 academic year (effective July 1, 2016) is approximately \$16,523.00 per quarter. Tuition is adjusted annually every July 1<sup>st</sup>. These fees do not include instruments and textbooks that may be required. A separate fee of \$800 is charged for GRDN 632 Basic Microsurgery Techniques, taken by students during the first quarter.

## Program requirements

### 27-month Certificate

#### Major

ENDN 534	Endodontic Treatment Conference	18
ENDN 601	Principles of Endodontics	10
ENDN 604	Literature Seminar in Endodontics	16
ENDN 654	Practice Teaching in Endodontics	4
ENDN 697A	Research	1
ENDN 697B	Research	1

#### Interdisciplinary

GRDN 514	Introduction to Biomedical Research	4
GRDN 535	Clinical Oral Pathology	2
GRDN 609	Professional Ethics	2
GRDN 622	Biomedical Science I	2
GRDN 632	Basic Microsurgery Techniques	2
IMPD 611	Introduction to Implant Dentistry	2
IMPD 612	Advanced Implant Dentistry	2

ORDN 526	Applied Anatomy	2
ORPA 533	Radiology Topics for Graduate Dental Programs	2
PERI 524	The Periodontium	2
PERI 608	Dental Specialty Practice Management	2
PERI 611	Introduction to Periodontics	2
PERI 624	Moderate Sedation in Periodontics	4
REL 5	Graduate-level Religion	3
Total Units		83

**Clinical**<sup>1</sup>

ENDN 725	Clinical Practice in Endodontics	72
Total Units		72

<sup>1</sup> Units for clinic practice courses do not count toward minimum number of didactic units required for the degree.

**Normal time to complete the program**

2.3 years (9 academic quarters) – full-time enrollment required

**36-month Certificate****Major**

ENDN 534	Endodontic Treatment Conference	21
ENDN 601	Principles of Endodontics	10
ENDN 604	Literature Seminar in Endodontics	16
ENDN 654	Practice Teaching in Endodontics	4
ENDN 697A	Research	1
ENDN 697B	Research	1

**Interdisciplinary**

GRDN 514	Introduction to Biomedical Research	4
GRDN 535	Clinical Oral Pathology	2
GRDN 609	Professional Ethics	2
GRDN 622	Biomedical Science I	2
GRDN 632	Basic Microsurgery Techniques	2
IMPD 505	Patient Presentation Seminar (1.0)	7
IMPD 533	Applied Radiology for Implant Dentistry	1.5
IMPD 601	Literature Review in Implant Dentistry	16
IMPD 604	Current Literature Review in Implant Dentistry	16
IMPD 611	Introduction to Implant Dentistry	2
IMPD 612	Advanced Implant Dentistry	2
IMPD 634	Diagnosis and Treatment Planning in Implant Dentistry (1.0)	7
ORDN 526	Applied Anatomy	2
ORPA 533	Radiology Topics for Graduate Dental Programs	2
PERI 524	The Periodontium	2

PERI 608	Dental Specialty Practice Management	2
PERI 611	Introduction to Periodontics	2
PERI 624	Moderate Sedation in Periodontics	4
REL 5	Graduate-level Religion	3
Total Units		133.5

**Clinical**<sup>1</sup>

ENDN 725	Clinical Practice in Endodontics	64.5
ENDN 726	Clinical Practice of Implant Dentistry in Endodontics	8
Total Units		72.5

<sup>1</sup> Units for clinic practice courses do not count toward minimum number of graduate units required for the degree.

**Normal time to complete the program**

3 years (12 academic quarters) – full-time enrollment required

**Comparison**

See the comparison (p. 248) of the 27-month and 36-month Certificates.

**M.S.D.**

In addition to completing the requirements for the 27 or 36-month certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 245) for the degree. Students may take up to one year following the completion of the certificate program to complete the M.S.D. degree.

ENDN 697C	Research	1
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**Normal time to complete the program**

2.3 years (9 academic quarters) – full-time enrollment required (this includes the time needed to complete the certificate program).

**M.S.**

In addition to completing the requirements for the 27 or 36-month certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 245) for the degree. Students have 5 years from the start of the certificate program to complete the M.S. degree.

ENDN 698	Thesis	1
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**Normal time to complete the program**

2.3 years (9 academic quarters) – full-time enrollment required (this includes the time needed to complete the certificate program).

**Endodontics Certificate – 27-month, 36-month Comparison**

	Course Title	27-month Certificate	36-month Certificate
<b>Major</b>			
ENDN 534	Endodontic Treatment Conference	18.0	21.0
ENDN 601	Principles of Endodontics	10.0	10.0
ENDN 604	Literature Seminar in Endodontics	16.0	16.0
ENDN 654	Practice Teaching in Endodontics	4.0	4.0
ENDN 697A	Research	1.0	1.0

ENDN 697B	Research	1.0	1.0
Totals		50.0	53.0
Course Title		27-month Certificate	36-month Certificate
<b>Interdisciplinary</b>			
GRDN 514	Introduction to Biomedical Research	4.0	4.0
GRDN 535	Clinical Oral Pathology	2.0	2.0
GRDN 609	Professional Ethics	2.0	2.0
GRDN 622	Biomedical Science I	2.0	2.0
GRDN 632	Basic Microsurgery Techniques	2.0	2.0
IMPD 611	Introduction to Implant Dentistry	2.0	2.0
IMPD 612	Advanced Implant Dentistry	2.0	2.0
ORDN 526	Applied Anatomy	2.0	2.0
ORPA 533	Radiology Topics for Graduate Dental Programs	2.0	2.0
PERI 524	The Periodontium	2.0	2.0
PERI 608	Dental Specialty Practice Management	2.0	2.0
PERI 611	Introduction to Periodontics	2.0	2.0
PERI 624	Moderate Sedation in Periodontics	4.0	4.0
REL_ 5__ Graduate-level Religion		3.0	
IMPD 505	Patient Presentation Seminar		7.0
IMPD 533	Applied Radiology for Implant Dentistry		1.5
IMPD 601	Literature Review in Implant Dentistry		16.0
IMPD 604	Current Literature Review in Implant Dentistry		16.0
IMPD 634	Diagnosis and Treatment Planning in Implant Dentistry		7.0
REL_ 5__ Graduate-level Religion			3.0
Totals		33.0	80.5
Overall Totals		83.0	133.5
Course Title		27-month Certificate	36-month Certificate
<b>Clinical</b>			
ENDN 725	Clinical Practice in Endodontics <sup>1</sup>	72.0	64.5
ENDN 726	Clinical Practice of Implant Dentistry in Endodontics <sup>1</sup>		8.0
Totals		72.0	72.5

<sup>1</sup> Units for clinic practice courses do not count toward minimum number of graduate units required for the degree.

## Implant Dentistry – Certificate (post-D.D.S.), M.S.D., M.S.

The Implant Dentistry, Advanced Program leads to a certificate. The postdoctoral student may also obtain a Master of Science (M.S.) or a Master of Science in Dentistry (M.S.D.) degree. The program is designed to prepare the student for the practice of implant dentistry and to provide the foundation for the continued acquisition of knowledge and clinical skills in this demanding area.

Implant dentistry interfaces with the dental specialties of oral and maxillofacial surgery, prosthodontics, and periodontics. The implant dentistry student will be expected to achieve advanced knowledge and skills in certain aspects of all these dental specialties and to be proficient in implant prosthodontics and implant surgery. The content of the program is designed to prepare the student for certification by the American Board of Oral Implantology/Implant Dentistry; and upon application, s/he may be qualified as an associate fellow of the American Academy of Implant Dentistry.

The program start date is July 1, and the required residence for the certificate is thirty-six months.

Following enrollment into the program, students may apply for acceptance to either the Master of Science (M.S.) or the Master of Science in Dentistry (M.S.D.) degree track, in addition to the specialty certificate. The application should be submitted before the end of the first year and must be supported by the program director. Admission into the M.S. or the M.S.D. degree track may extend the length of study to complete a research project and a thesis or a publishable paper. The additional time must be in residence.

### Implant dentistry goals

1. To educate graduates to deliver implant dentistry treatment.
2. To provide in-depth didactic and clinical instruction in problem-based patient situations that require implant prosthodontic and surgical solutions.
3. To train graduates to develop clinical practice.

- To train graduates to achieve the highest levels of patient-treatment satisfaction.
- To educate graduates to perform research and practice teaching.

Program link: <https://llu.edu/dentistry/gradprograms>

### Director, Advanced Education Program

Jaime L. Lozada

### Faculty

Aladdin J. Al-Ardah

Joseph Y. Kan

Jaime L. Lozada

John B. Won

## Admissions

### Application process

All applicants must meet the admission requirements (p. 24) of Loma Linda University.

### Application deadline

Application for admission should be submitted by August 15 of the year prior to the summer of intended enrollment.

## Tuition

Tuition and fees for the 2016-17 academic year (effective July 1, 2016) is approximately \$16,523.00 per quarter. Tuition is adjusted annually every July 1<sup>st</sup>. These fees do not include instruments and textbooks that may be required. Students should plan on an annual increase consistent with inflation in the education sector.

A separate fee of \$800.00 is charged for GRDN 632 Basic Microsurgery Techniques, taken by students during the first quarter.

## Program Requirements

### Certificate

#### Major

IMPD 505	Patient Presentation Seminar	10
IMPD 533	Applied Radiology for Implant Dentistry	1.5
IMPD 547	Implant Dentistry Grand Rounds	10
IMPD 561	Dental Bioengineering	2
IMPD 585	Implant Prosthodontics	10
IMPD 601	Literature Review in Implant Dentistry	22
IMPD 604	Current Literature Review in Implant Dentistry	20
IMPD 611	Introduction to Implant Dentistry	2
IMPD 612	Advanced Implant Dentistry	2
IMPD 631	Oral Implant Surgery	11
IMPD 634	Diagnosis and Treatment Planning in Implant Dentistry	10
IMPD 637	Peri-Implant Histopathology	1
IMPD 654	Practice Teaching in Implant Dentistry	3
IMPD 696	Scholarly Activity in Implant Dentistry	1
PERI 601	Periodontal Therapy	4
PERI 606	Modern Concepts of Periodontal Wound Healing	2
PERI 624	Moderate Sedation in Periodontics	4

PROS 500	Prosthodontic Literature Review	6
PROS 546	Occlusion and Morphology	2
PROS 547	Occlusion: Principles and Instrumentation	2
PROS 555	Removable Partial Prosthodontics	2
PROS 565	Complete Denture Prosthodontics	2
PROS 566	Advanced Complete Denture Prosthodontics	2
PROS 575	Fixed Partial Prosthodontics	2
PROS 576	Advanced Fixed Partial Prosthodontics I (MC Aesthetics)	2
PROS 595	Maxillofacial Prosthetics	2
<b>Interdisciplinary</b>		
GRDN 514	Introduction to Biomedical Research	4
GRDN 535	Clinical Oral Pathology	2
GRDN 609	Professional Ethics	2
GRDN 622	Biomedical Science I	2
GRDN 632	Basic Microsurgery Techniques	2
OMFS 604	Selected Topics in Oral and Maxillofacial Surgery	4
OMFS 606	Applied Surgical Anatomy	1
REL_ 5__	Graduate-level Religion	3
Total Units		157.5

### Clinical<sup>1</sup>

IMPD 725	Clinical Practice in Implant Dentistry	40
IMPD 726	Clinical Practice in Periodontics in Implant Dentistry	4
IMPD 727	Clinical Practice of Prosthodontics in Implant Dentistry	20
Total Units		64

<sup>1</sup> Units for clinic practice courses do not count toward minimum number of didactic units required for the degree.

### Normal time to complete the program

3 years (36 months) – full-time enrollment required

### M.S.D.

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 245) for the degree. Students may take up to one year following the completion of the certificate program to complete the M.S.D. degree.

IMPD 697A	Research	1
IMPD 697B	Research	1
IMPD 697C	Research	1

### Normal time to complete the program

3 years (36 months) – full-time enrollment required (this includes the time needed to complete the certificate program).

### M.S.

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 245) for the degree. Students have 5 years from the start of the certificate program to complete the M.S. degree.

IMPD 697A	Research	1
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IMPD 697B	Research	1
IMPD 698	Thesis	1

### Normal time to complete the program

3 years (36 months) – full-time enrollment required (this includes the time needed to complete the certificate program).

## Oral and Maxillofacial Surgery – Certificate (post-D.D.S.), M.S.D., M.S

The Oral and Maxillofacial Surgery-Advanced Specialty Program is designed to prepare the resident for practice of the specialty and to provide the foundation for the continued acquisition of knowledge and skills. Clinical surgical health-care delivery is emphasized. The resident is introduced to research methodology and teaching to develop an increased awareness of their importance in assessing clinical procedures and patient management. The content of the program conforms to the Standards of the Commission on Dental Accreditation (CODA) and is designed to prepare the surgeon for certification by the American Board of Oral and Maxillofacial Surgery.

Four-year and six-year residency programs are available. Residents in the six-year program will also complete medical school and a one-year general surgery internship. The residency begins July 1.

Following enrollment into the program, residents may apply for acceptance to either the Master of Science (M.S.) or the Master of Science in Dentistry (M.S.D.) degree track, in addition to the specialty certificate. The application should be submitted before the end of the first year and must be supported by the program director. Admission into the M.S. or the M.S.D. degree track may extend the length of study. The additional time must be in residence.

### Oral and maxillofacial surgery program goals

1. To prepare the resident for competent delivery of health care.
2. To prepare the resident for continual acquisition of skills and knowledge to improve health care.
3. To prepare the resident for certification by the American Board of Oral and Maxillofacial Surgery.
4. To provide the background for stimulation of academic achievement should the resident wish to enter into a teaching career.
5. To enable the resident to practice the full scope of oral and maxillofacial surgery in a competent and skillful manner, based on a thorough knowledge of the basic sciences.
6. To integrate oral and maxillofacial surgical care with other medical and dental specialties in the health-care delivery system.
7. To conduct clinical investigation and/or research studies.
8. To encourage the resident to practice the specialty based upon the highest moral and ethical standards.
9. To provide the resident the opportunity to achieve a high degree of clinical proficiency in his/her specialty.
10. To provide extensive surgical experience of a broad nature.
11. To develop competence in the administration of inpatient and outpatient general anesthesia, local anesthesia, and sedation techniques.
12. To provide the resident with the basic skills and tools required to manage the administration of his/her practice.

13. To provide competence in resident communication skills. Training will include public speaking, lecturing, writing, and improving the resident's critical thinking—providing a foundation to become an effective student and mentor.
14. To provide residents with the skill to proficiently assess and treat problems of the maxillofacial region. This includes dentoalveolar surgery, maxillofacial trauma, reconstructive surgery, pathology, and orthognathic/craniofacial surgery.
15. To demonstrate the importance of lifelong learning and to encourage promotion of faculty.

Program link: <https://llu.edu/dentistry/gradprograms>

### Director, Advanced Specialty Education Program

Jayini S. Thakker

### Faculty

Jeffrey A. Elo

Alan S. Herford

Murray K. Jacobs  
Pre-doctoral Program Director

Frederick R. Mathews

Dale E. Stringer

Jayini S. Thakker

## Admissions

### Application process

The Oral and Maxillofacial Surgery, Advanced Program participates in the Postdoctoral Application Support Service (PASS) of the American Dental Education Association (ADEA), which allows applicants to apply to multiple participating institutions.

PASS applicants for the advanced education program in oral and maxillofacial surgery must also complete and submit an online application (<[llu.edu/central/apply](https://llu.edu/central/apply)>) directly to Loma Linda University.

The advanced education program also participates in the Postdoctoral Dental Matching Program (Match). This program identifies and "matches" the preferences of applicants and the advanced education program, using a rank order list submitted by the applicant and the program. A Match application (<<https://portal.passweb.org/>>) is also required.

### Application deadline

Application for admission should be submitted by September 15 of the year prior to the summer of intended enrollment. Applicants to the six-year program must also apply to the School of Medicine.

## Tuition

Fes will be charged but tuition will be waived for 2016-2017 academic year. Residents are paid a stipend during training.

## Program requirements

### Certificate

#### Major

OMFS 604	Selected Topics in Oral and Maxillofacial Surgery	12
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OMFS 605	Integrated Orthodontic and Surgical Correction of Dentofacial Deformities	12
OMFS 606	Applied Surgical Anatomy	1
OMFS 607	Principles of Medical History, Physical Examination, and Clinical Medicine	2
OMFS 608	Surgical Oral and Maxillofacial Pathology Conference	6
OMFS 609	Literature Review in Oral and Maxillofacial Surgery	6
OMFS 616	Application of Surgical Principles to Orthognathic Surgery	1
OMFS 617	Critical Decision Making in Oral and Maxillofacial Surgery	12
OMFS 618	Introduction to General Anesthesia	1
OMFS 696	Scholarly Activity in Oral and Maxillofacial Surgery	1
<b>Interdisciplinary</b>		
GRDN 601	Practice Management	2
GRDN 632	Basic Microsurgery Techniques	2
IMPD 547	Implant Dentistry Grand Rounds	4
IMPD 611	Introduction to Implant Dentistry	2
IMPD 612	Advanced Implant Dentistry	2
RELE 534	Ethical Issues in Public Health	3
Total Units		69

**Clinical**<sup>1</sup>

OMFS 614	Clinical Experience in Oral and Maxillofacial Surgery Practice	70
OMFS 615	Current Trends in Medicine and Surgery	12
Total Units		82

<sup>1</sup> Units for clinic practice courses do not count toward minimum number of didactic units required for the degree.

**Normal time to complete the program**

Certificate—4 years (48 months) — full-time enrollment required

Certificate/M.D.—6 years — full-time enrollment required

**M.S.D.**

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 245) for the degree. Students may take up to one year following the completion of the certificate program to complete the M.S.D. degree.

OMFS 697A	Research	1
OMFS 697B	Research	1
OMFS 697C	Research	1

**Normal time to complete the program**

4 years (48 months) + research — full-time enrollment required (this includes the time needed to complete the certificate program).

**M.S.**

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 245) for the degree. Students have 5 years from the start of the certificate program to complete the M.S. degree.

OMFS 697A	Research	1
OMFS 697B	Research	1
OMFS 698	Thesis	1

**Normal time to complete the program**

4 years (48 months) + thesis — full-time enrollment required (this includes the time needed to complete the certificate program).

## Orthodontics and Dentofacial Orthopedics – Certificate (post-D.D.S.), M.S.

The Orthodontics and Dentofacial Orthopedics-Advanced Specialty Program is organized to provide graduates with the knowledge and skill to:

1. Develop technical competence in orthodontics.
2. Deepen understanding of the basic natural sciences and their correlation with the practice of orthodontics.
3. Develop analytical thinking.
4. Develop skills in clinical research.
5. Increase the sense of responsibility toward the patient and the community.
6. Develop increased awareness of the obligation to make contributions to the growth and stature of the profession and to coordinate with individuals in other allied professional disciplines.

All of the above goals are designed to prepare the student for a specialty practice in orthodontics or for pursuing a teaching career. The content of the program conforms to the standards developed by the specialty board, and graduates are educationally qualified for certification by the American Board of Orthodontics.

The master's degree curriculum requires a minimum of twenty-seven months in residence, beginning in late June. Additional time may be required, depending on the research selected.

## Orthodontics and dentofacial orthopedics program goals

1. Students will have course work in biomedical sciences that is intended to provide the knowledge required to practice orthodontics and dentofacial orthopedics, as defined by the program's proficiency standards.
2. Students will have a clinical experience that is varied and demanding; and that will prepare them for the clinical practice of orthodontics and dentofacial orthopedics, with emphasis on bioprogressive principles.
3. Students will perform research that provides them with experience involving problem solving, critical thinking, research methodology, and scientific writing.
4. Students will be exposed to and participate in a teaching experience.
5. Students will be exposed to professional venues that encourage continued professional growth.

Program link: <https://llu.edu/dentistry/gradprograms>

**Director, Advanced Speciality Education Program**

Joseph M. Caruso

Program Director

### Faculty

Joseph M. Caruso

James R. Farrage

Gabriela E. Garcia

Roland D. Neufeld

Gregory W. Olson

Kitichai Rungcharassaeng

R. David Rynearson

Rodrigo F. Viecilli

### Associate Director

V. Leroy Leggitt

Associate Director

## Admission

Candidates apply for admission to the Master of Science (M.S.) degree program and have the option of applying later for a certificate as well.

All applicants must meet the admission requirements (p. 24) of Loma Linda University.

This program does not participate in the Postdoctoral Application Support Service (PASS) of the American Dental Education Association (ADEA), which allows applicants to apply to multiple participating institutions or the MATCH program which identifies and "matches" the preferences of applicants and the advanced education program, using a rank order list submitted by the applicant and the program.

### Application deadline

All applications for admission should be submitted to the school by August 1 of the year prior to the summer of intended enrollment.

## Tuition

Tuition and fees for the 2016-17 academic year (effective July 1, 2016) is approximately \$16,523.00 per quarter. Tuition is adjusted annually every July 1<sup>st</sup>. These fees do not include instruments and textbooks that may be required

## Program requirements

### Major

ORDN 524	Introduction to Graduate Orthodontics	12
ORDN 524L	Introduction to Graduate Orthodontics Laboratory	6
ORDN 525	Materials Science and Mechanics	2
ORDN 526	Applied Anatomy	2
ORDN 527	Clinical Photography	1
ORDN 535	Advanced Cephalometrics	2
ORDN 536	Concepts of Physical Anthropology	2
ORDN 545	Growth and Development	3
ORDN 546	Fundamentals of Occlusion	2
ORDN 571	Diagnosis and Treatment Planning I	2
ORDN 574	Diagnosis and Treatment Planning II	2
ORDN 584	Current Orthodontics Literature I	2

ORDN 591	Current Orthodontics Literature II	2
ORDN 597	Orthognathic Surgery Theory and Literature Review	2
ORDN 604	Seminar in Orthodontics	1
ORDN 605	Advanced Seminar in Orthodontics	2
ORDN 606	Craniofacial Genetics	2
ORDN 608	Speech, Language, Breathing, and Orofacial Myofunction	1
ORDN 634	Orthodontics Clinical Conference	2
ORDN 635	Finishing Mechanics I	2
ORDN 636	Finishing Mechanics II	1
ORDN 654	Practice Teaching in Orthodontics	4
ORDN 655	Temporomandibular Function and Dysfunction	2
ORDN 657	Orthodontic Board Preparation	6
ORDN 697A	Research	1
ORDN 697B	Research	1
ORDN 698	Thesis	3

### Interdisciplinary

GRDN 514	Introduction to Biomedical Research	4
GRDN 601	Practice Management	2
GRDN 609	Professional Ethics	2
GRDN 623	Biomedical Science II	5
OMFS 608	Surgical Oral and Maxillofacial Pathology Conference	2
OMFS 616	Application of Surgical Principles to Orthognathic Surgery	1
REL 5	Graduate-level Religion	3

Total Units 89

### Clinical <sup>1</sup>

ORDN 725	Clinical Practice in Orthodontics	56
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Total Units 56

<sup>1</sup> Units for clinic practice courses do not count toward minimum number of didactic units required for the degree.

### Normal time to complete the program

2.25 years (27 months) – full-time enrollment required

## Pediatric Dentistry – Certificate (post-D.D.S.), M.S.D., M.S

The Pediatric Dentistry-Advanced Specialty Program is designed to prepare the resident as a specialist in this area of dentistry. The curriculum leads to a certificate in pediatric dentistry. Clinical pediatric dentistry is emphasized; however, this clinical experience is balanced with a didactic curriculum of multidisciplinary courses and seminars. There is also a research component designed to expose the resident to problem solving using the scientific method. The program requires a minimum of twenty-four months in residence beginning July 1 and fulfills the requirements for initiating the process of certification by the American Board of Pediatric Dentistry.

Following enrollment into the program, residents may apply for acceptance to either the Master of Science (M.S.) or the Master of Science in Dentistry (M.S.D.) degree track, in addition to the specialty

certificate. The application should be submitted before the end of the first year and must be endorsed by the program director. Admission into the M.S. or the M.S.D. degree track may extend the length of study. The additional time must be in residence.

## Pediatric dentistry goals

1. To prepare the resident to be a specialist who is proficient in providing comprehensive, preventive, and therapeutic oral health care for infants and children through adolescence, including those with special health-care needs.
2. To provide an educational structure that complies with the standards set forth by the Commission on Dental Accreditation.
3. To prepare the resident for the practice of pediatric dentistry.
4. To train pediatric dentists who have participated in pediatric dental research.
5. To train pediatric dentists who have participated in teaching pediatric dentistry.
6. To prepare the resident for certification by the American Board of Pediatric Dentistry.

Program link: <https://llu.edu/dentistry/gradprograms>

### Director, Advanced Specialty Education Program

Jung-Wei Chen

### Faculty

Jung-Wei Chen

Afsaneh Matin

Bonnie A. Nelson

Wesley K. Okumura

Samah I. Omar

Melva Wyatt

Ji Min Yochim

## Admissions

### Application process

The Pediatric Dentistry, Advanced Program participates in the Postdoctoral Application Support Service (PASS) of the American Dental Education Association (ADEA), which allows applicants to apply to multiple participating institutions. A PASS application (<<https://portal.passweb.org/>>) is required.

PASS applicants for the advanced education program in pediatric dentistry must also complete and submit an online application (<[llu.edu/central/apply](http://llu.edu/central/apply)>) directly to Loma Linda University.

The Pediatric Dentistry, Advanced Program also participates in the Postdoctoral Dental Matching Program (MATCH). This program identifies and "matches" the preferences of applicants and the advanced education program, using a rank order list submitted by the applicant and the program. A Match application (<<https://portal.passweb.org/>>) is also required.

For admissions requirements, please refer to the Program's website: <<http://www.llu.edu/dentistry/pediatrics/graduateprogram.page?>>.

## Application deadline

Application for admission should be submitted by October 1 of the year prior to the summer of intended enrollment.

## Tuition

Tuition and fees for the 2016-17 academic year (effective July 1, 2016) is approximately \$16,523.00 per quarter. Tuition is adjusted annually every July 1<sup>st</sup>. These fees do not include instruments and textbooks that may be required.

## Program Requirements

### Certificate

#### Major

PEDN 503	Pediatric Dental Seminar	16
PEDN 508	Pediatric Hospital Dentistry Seminar	2
PEDN 512	Oral Sedation Seminar	2
PEDN 521	Principles of Medicine and Physical Diagnosis	2
PEDN 524	Introduction to Orthodontics	2
PEDN 524L	Introduction to Orthodontics Laboratory	1
PEDN 604	Pediatric Dental Literature	14
PEDN 654	Practice Teaching for Pediatric Dentistry	5
PEDN 680	Elective Study for Advanced Education Students of Pediatric Dentistry	5
PEDN 696	Scholarly Activity in Pediatric Dentistry	1
PEDN 697A	Research	1
PEDN 697B	Research	1

#### Interdisciplinary

GRDN 514	Introduction to Biomedical Research	4
GRDN 535	Clinical Oral Pathology	2
GRDN 601	Practice Management	2
GRDN 609	Professional Ethics	2
GRDN 622	Biomedical Science I	2
ORDN 526	Applied Anatomy	2
ORDN 545	Growth and Development	3
ORDN 606	Craniofacial Genetics	2
ORDN 608	Speech, Language, Breathing, and Orofacial Myofunction	1
ORPA 533	Radiology Topics for Graduate Dental Programs	2
REL 5	Graduate-level Religion	3
Total Units		77

#### Clinical<sup>1</sup>

PEDN 725	Pediatric Dental Clinic	64
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<sup>1</sup> Units for clinic practice courses do not count toward minimum number of didactic units required for the degree.

### Normal time to complete the program

2 years (24 months) – full-time enrollment required

### M.S.D.

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 245) for the degree. Students may take up to



one year following the completion of the certificate program to complete the M.S.D. degree.

PEDN 697C Research 1

### Normal time to complete the program

2 years – full-time enrollment required (this includes the time needed to complete the certificate program).

### M.S.

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 245) for the degree. Students have 5 years from the start of the certificate program to complete the M.S. degree.

PEDN 698 Thesis 1-3

### Normal time to complete the program

2 years – full-time enrollment required (this includes the time needed to complete the certificate program).

## Periodontics – Certificate (post-D.D.S.), M.S.D., M.S

The three-year Periodontics-Advanced Specialty Program leads to a certificate in periodontics with an optional Master of Science (M.S.) or Master of Science in Dentistry (M.S.D.) degree.

The certificate in periodontics prepares the student for a specialty practice and provides the basis for continuing professional development after completion of the curriculum. Specific emphasis is placed on various high-level technique procedures, including esthetics- and prosthetics-related mucogingival surgery, root-form implant placement, preparatory augmentation, and repairs. The program includes didactic and clinical training, as well as research in a topic selected by the student.

The student is required to complete one or more research projects and is involved in clinical and didactic predoctoral teaching activities. The optional master's degree tracks are intended for the student who wishes to pursue an academic career or full-time clinical practice.

A minimum of thirty-six months in residence is required, beginning July 1 each year.

## Periodontics goals

1. To train graduate students in the science of periodontics—including contributions from the literature, an understanding of periodontal pathology, and knowledge of the history and current rationale for performing clinical procedures in periodontics.
2. To train graduate students to be able to perform at the level of proficiency the full range of clinical procedures that are considered essential to establish a specialty practice in the field of periodontics.
3. To train graduate students to be able to design, conduct, and report a periodontal research project under the guidance of and in collaboration with a graduate faculty member; and to encourage graduate students to become diplomates of the American Board of Periodontology.
4. To train graduate students to be able to teach in both didactic and clinical areas of predoctoral periodontics at the level of a

junior faculty member, with the intent of enhancing their ability to communicate with peers.

5. To train graduate students to be able to successfully complete the American Board of Periodontology Certification Examination.
6. To train graduate students to be able to achieve successful careers in clinical practice, research, and/or dental education.

Program link: <https://llu.edu/dentistry/gradprograms>

### Acting Director, Advanced Speciality Education Program

Erik F. Sahl

### Faculty

R. Leslie Arnett

James Grisdale

Jeffrey M. Henkin

Ahmed Khocht

Yoon J. Kim

Erik F. Sahl

Dennis Smith

Chun Xiao Sun

## Admissions

### Application process

The Periodontics, Advanced Program participates in the Postdoctoral Application Support Service (PASS) of the American Dental Education Association (ADEA), which allows applicants to apply to multiple participating institutions.

All applicants to the advanced education in periodontics program must complete and submit an online application (<[llu.edu/central/apply](https://llu.edu/central/apply)>) directly to Loma Linda University. A PASS application is available (<<https://portal.passweb.org/>>), but not required.

The program has a rolling admissions policy. This means that candidates will be selected for admission during the application period until the class is filled. Once the class has been filled, an announcement will be posted on the program's description on the Loma Linda University School of Dentistry Web site, and the admissions process will be closed for the year.

### Application deadline

Application for admission should be submitted to the program by September 1 of the year prior to the summer of intended enrollment. (rolling admissions)

## Tuition

Tuition and fees for the 2016-17 academic year (effective July 1, 2016) is approximately \$16,523.00 per quarter. Tuition is adjusted annually every July 1<sup>st</sup>. These fees do not include instruments and textbooks that may be required.

## Program requirements

### Certificate

#### Major

PERI 524	The Periodontium	2
PERI 531	Periodontal Pathology	10
PERI 601	Periodontal Therapy	12
PERI 604	Current Periodontal and Implant Literature	18
PERI 605	Implant Literature Review	4
PERI 606	Modern Concepts of Periodontal Wound Healing	2
PERI 608	Dental Specialty Practice Management	2
PERI 611	Introduction to Periodontics	2
PERI 614	Implant Treatment Planning	24
PERI 624	Moderate Sedation in Periodontics	4
PERI 634	Clinical Conference	9
PERI 654	Practice Teaching in Periodontics	4
PERI 696	Scholarly Activity in Periodontics	1
<b>Interdisciplinary</b>		
GRDN 514	Introduction to Biomedical Research	4
GRDN 535	Clinical Oral Pathology	2
GRDN 609	Professional Ethics	2
GRDN 622	Biomedical Science I	2
GRDN 632	Basic Microsurgery Techniques	2
REL_ 5__	Graduate-level Religion	3
Total Units		109

**Clinical**<sup>1</sup>

PERI 725	Clinical Practice in Periodontics	72
PERI 726	Clinical Practice in Implant Surgery	24
Total Units		96

<sup>1</sup> Units for clinic practice courses do not count toward minimum number of didactic units required for the degree.

**Normal time to complete the program**

3 years (36 months) – full-time enrollment required

**M.S.D.**

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 245) for the degree. Students may take up to one year following the completion of the certificate program to complete the M.S.D. degree.

PERI 697A	Research	1
PERI 697B	Research	1
PERI 697C	Research	1

**Normal time to complete the program**

3 years – full-time enrollment required (this includes the time needed to complete the certificate program).

**M.S.**

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 245) for the degree. Students have 5 years from the start of the certificate program to complete the M.S. degree.

PERI 697A	Research	1
PERI 697B	Research	1

PERI 698	Thesis	1
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**Normal time to complete the program**

3 years – full-time enrollment required (this includes the time needed to complete the certificate program).

**Prosthodontics – Certificate (post-D.D.S.), M.S.D., M.S**

The School of Dentistry's Prosthodontics, Advanced Specialty Program is designed to increase the knowledge base and the clinical and laboratory skills of the student in all areas of prosthodontics. In addition to conventional fixed and removable prosthodontics, this program offers considerable experience in implant prosthodontics esthetic dentistry; as well as an introduction to maxillofacial prosthetics, and the diagnosis and treatment of patients with temporomandibular dysfunction. Comprehensive interdisciplinary treatment-planning seminars with students and faculty of other advanced dental education programs are designed to prepare the student to interact with and coordinate the treatment of patients requiring advanced prosthodontic care.

The program begins on July 1 and requires thirty-six months in residence to complete the certificate requirements.

Following enrollment into the program, students may apply for acceptance to either the Master of Science (M.S.) or the Master of Science in Dentistry (M.S.D.) degree track, in addition to the specialty certificate. The application must be supported by the program director. Admission into the M.S. or the M.S.D. degree track may extend the length of study; the additional time must also be in residence.

**Prosthodontics goals**

1. To educate students to become proficient in the delivery of prosthodontic care.
2. To train students to perform at the level of proficiency for the full range of clinical procedures that are considered an integral part of the specialty of prosthodontics; to utilize experienced, highly competent faculty who are recognized by the specialty; and to accomplish management of patients' prosthetic needs successfully so that the patients are satisfied, comfortable, and acceptably treated in a timely, efficient manner.
3. To educate students to perform research and practice teaching.
4. To encourage students to participate in prosthodontics dental teaching and to prepare them to continue to grow professionally and become emissaries for the School of Dentistry, the dental profession, and the specialty of prosthodontics.

Program link: [www.llu.edu/dentistry/gradprograms/](http://www.llu.edu/dentistry/gradprograms/)

**Director, Advanced Specialty Education Program**

Mathew T. Kattadiyil

**Faculty**

Nadim Baba

Charles J. Goodacre

Mathew T. Kattadiyil

Myron S. Winer

## Admissions

### Application process

The Prosthodontics, Advanced Program participates in the Postdoctoral Application Support Service (PASS) of the American Dental Education Association (ADEA), which allows applicants to apply to multiple participating institutions.

All applicants to the advanced education in prosthodontics program must complete and submit an online application (<llu.edu/central/apply>) directly to Loma Linda University. A PASS application is available (<https://portal.passweb.org/>), but not required.

This program also will accept direct applications from individuals who are not applying to other institutions through PASS.

### Application deadline

Application for admission should be submitted by August 1 of the year prior to the summer of intended enrollment.

## Tuition

Tuition and fees for the 2016-17 academic year (effective July 1, 2016) is approximately \$16,523.00 per quarter. Tuition is adjusted annually every July 1<sup>st</sup>. These fees do not include instruments and textbooks that may be required.

## Program requirements

### Certificate

#### Major

IMPD 533	Applied Radiology for Implant Dentistry	1.5
IMPD 561	Dental Bioengineering	2
IMPD 611	Introduction to Implant Dentistry	2
IMPD 612	Advanced Implant Dentistry	2
PROS 500	Prosthodontic Literature Review	22
PROS 501	Removable Partial Prosthodontics Literature Review	2
PROS 502	Complete Denture Prosthodontics Literature Review	2
PROS 505	Patient Presentation Seminar (Prosthodontics, Implant, Perio)	9
PROS 515	Practice Teaching in Prosthodontics	2
PROS 525	Dental Materials Science	2
PROS 527	Clinical Application of Dental Materials	2
PROS 546	Occlusion and Morphology	2
PROS 547	Occlusion: Principles and Instrumentation	2
PROS 555	Removable Partial Prosthodontics	2
PROS 556	TMJ Function and Dysfunction	1
PROS 557	Advanced Removable Partial Prosthodontics	2
PROS 565	Complete Denture Prosthodontics	2
PROS 566	Advanced Complete Denture Prosthodontics	2
PROS 575	Fixed Partial Prosthodontics	2
PROS 576	Advanced Fixed Partial Prosthodontics I (MC Aesthetics)	2
PROS 595	Maxillofacial Prosthetics	2
PROS 604	Literature Review in Implant Dentistry for Prosthodontists	14

PROS 634	Diagnosis and Treatment Planning	18
PROS 637	Geriatric Dentistry	1
PROS 696	Scholarly Activity in Prosthodontics	1
<b>Interdisciplinary</b>		
GRDN 514	Introduction to Biomedical Research	4
GRDN 535	Clinical Oral Pathology	2
GRDN 609	Professional Ethics	2
GRDN 622	Biomedical Science I	2
REL_ 5__	Graduate-level Religion	3
Total Units		114.5

#### Clinical <sup>1</sup>

PERI 606	Modern Concepts of Periodontal Wound Healing	2
PERI 608	Dental Specialty Practice Management	2
PROS 710	Clinical Practice of Prosthodontics	66
Total Units		70

<sup>1</sup> Units for clinic practice courses do not count toward minimum number of didactic units required for the degree.

### Normal time to complete the program

3 years (36 months) – full-time enrollment required

### M.S.D.

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 245) for the degree. Students may take up to one year following the completion of the certificate program to complete the M.S.D. degree.

PROS 697A	Research	1
PROS 697B	Research	1
PROS 697C	Research	1

### Normal time to complete the program

3 years – full-time enrollment required (this includes the time needed to complete the certificate program).

### M.S.

In addition to completing the requirements for the certificate as listed above, students must also complete the following courses and fulfill the general requirements (p. 245) for the degree. Students have 5 years from the start of the certificate program to complete the M.S. degree.

PROS 697A	Research	1
PROS 697B	Research	1
PROS 698	Thesis	2

### Normal time to complete the program

3 years – full-time enrollment required (this includes the time needed to complete the certificate program).

## Dual Major – Periodontics, Prosthodontics Comparison

Major	Course Title	Periodontics	Prosthodontics
PERI 524	The Periodontium	2.0	
PERI 531	Periodontal Pathology	10.0	
PERI 601	Periodontal Therapy	12.0	
PERI 604	Current Periodontal and Implant Literature	18.0	
PERI 605	Implant Literature Review	4.0	
PERI 606	Modern Concepts of Periodontal Wound Healing	2.0	2.0
PERI 608	Dental Specialty Practice Management	2.0	2.0
PERI 611	Introduction to Periodontics	2.0	
PERI 614	Implant Treatment Planning	24.0	
PERI 624	Moderate Sedation in Periodontics	4.0	
PERI 634	Clinical Conference	9.0	
PERI 654	Practice Teaching in Periodontics	4.0	
PERI 696	Scholarly Activity in Periodontics	1.0	
IMPD 533	Applied Radiology for Implant Dentistry		1.5
IMPD 561	Dental Bioengineering		2.0
IMPD 611	Introduction to Implant Dentistry		2.0
IMPD 612	Advanced Implant Dentistry		2.0
PROS 500	Prosthodontic Literature Review		22.0
PROS 501	Removable Partial Prosthodontics Literature Review		2.0
PROS 502	Complete Denture Prosthodontics Literature Review		2.0
PROS 505	Patient Presentation Seminar (Prosthodontics, Implant, Perio)		9.0
PROS 515	Practice Teaching in Prosthodontics		2.0
PROS 525	Dental Materials Science		2.0
PROS 527	Clinical Application of Dental Materials		2.0
PROS 546	Occlusion and Morphology		2.0
PROS 547	Occlusion: Principles and Instrumentation		2.0
PROS 555	Removable Partial Prosthodontics		2.0
PROS 556	TMJ Function and Dysfunction		1.0
PROS 557	Advanced Removable Partial Prosthodontics		2.0
PROS 565	Complete Denture Prosthodontics		2.0
PROS 566	Advanced Complete Denture Prosthodontics		2.0
PROS 575	Fixed Partial Prosthodontics		2.0
PROS 576	Advanced Fixed Partial Prosthodontics I (MC Aesthetics)		2.0
PROS 595	Maxillofacial Prosthetics		2.0
PROS 604	Literature Review in Implant Dentistry for Prosthodontists		14.0
PROS 634	Diagnosis and Treatment Planning		18.0
PROS 637	Geriatric Dentistry		1.0
PROS 696	Scholarly Activity in Prosthodontics		1.0
Totals		94.0	105.5
Interdisciplinary	Course Title	Periodontics	Prosthodontics
GRDN 632	Basic Microsurgery Techniques	2.0	
GRDN 514	Introduction to Biomedical Research	4.0	4.0
GRDN 535	Clinical Oral Pathology	2.0	2.0
GRDN 609	Professional Ethics	2.0	2.0
GRDN 622	Biomedical Science I	2.0	2.0

REL_ 5_ Graduate-level Religion	3.0	3.0
Totals	15.0	13.0
Overall Totals	109.0	118.5

	Course Title	Periodontics	Prosthodontics
<b>Clinical</b>			
PERI 725	Clinical Practice in Periodontics	72.0	
PERI 726	Clinical Practice in Implant Surgery	24.0	
PROS 710	Clinical Practice of Prosthodontics		66.0
Totals		96.0	66.0

## Dual Major – Periodontics, Implant Dentistry Comparison

	Course Title	Periodontics	Implant Dentistry
<b>Major</b>			
PERI 606	Modern Concepts of Periodontal Wound Healing	2.0	2.0
PERI 624	Moderate Sedation in Periodontics	4.0	4.0
PERI 524	The Periodontium	2.0	
PERI 531	Periodontal Pathology	10.0	
PERI 601	Periodontal Therapy	12.0	4.0
PERI 604	Current Periodontal and Implant Literature	18.0	
PERI 605	Implant Literature Review	4.0	
PERI 608	Dental Specialty Practice Management	2.0	
PERI 611	Introduction to Periodontics	2.0	
PERI 614	Implant Treatment Planning	24.0	
PERI 634	Clinical Conference	9.0	
PERI 654	Practice Teaching in Periodontics	4.0	
PERI 696	Scholarly Activity in Periodontics	1.0	
IMPD 505	Patient Presentation Seminar		10.0
IMPD 533	Applied Radiology for Implant Dentistry		1.5
IMPD 547	Implant Dentistry Grand Rounds		10.0
IMPD 561	Dental Bioengineering		2.0
IMPD 585	Implant Prosthodontics		10.0
IMPD 601	Literature Review in Implant Dentistry		22.0
IMPD 604	Current Literature Review in Implant Dentistry		20.0
IMPD 611	Introduction to Implant Dentistry		2.0
IMPD 612	Advanced Implant Dentistry		2.0
IMPD 631	Oral Implant Surgery		11.0
IMPD 634	Diagnosis and Treatment Planning in Implant Dentistry		10.0
IMPD 637	Peri-Implant Histopathology		1.0
IMPD 654	Practice Teaching in Implant Dentistry		3.0
IMPD 696	Scholarly Activity in Implant Dentistry		1.0
PROS 500	Prosthodontic Literature Review		6.0
PROS 546	Occlusion and Morphology		2.0
PROS 547	Occlusion: Principles and Instrumentation		2.0
PROS 555	Removable Partial Prosthodontics		2.0
PROS 565	Complete Denture Prosthodontics		2.0
PROS 566	Advanced Complete Denture Prosthodontics		2.0
PROS 575	Fixed Partial Prosthodontics		2.0
PROS 576	Advanced Fixed Partial Prosthodontics I (MC Aesthetics)		2.0
PROS 595	Maxillofacial Prosthetics		2.0
Totals		94.0	137.5
	<b>Course Title</b>	<b>Periodontics</b>	<b>Implant Dentistry</b>

<b>Interdisciplinary</b>			
GRDN 514	Introduction to Biomedical Research	4.0	4.0
GRDN 535	Clinical Oral Pathology	2.0	2.0
GRDN 609	Professional Ethics	2.0	2.0
GRDN 622	Biomedical Science I	2.0	2.0
GRDN 632	Basic Microsurgery Techniques	2.0	2.0
REL_ 5_	Graduate-level Religion	3.0	3.0
OMFS 604	Selected Topics in Oral and Maxillofacial Surgery		4.0
OMFS 606	Applied Surgical Anatomy		1.0
Totals		15.0	20.0
Overall Totals		109.0	157.5

	<b>Course Title</b>	<b>Periodontics</b>	<b>Implant Dentistry</b>
<b>Clinical</b>			
PERI 725	Clinical Practice in Periodontics	72.0	
PERI 726	Clinical Practice in Implant Surgery	24.0	
IMPD 725	Clinical Practice in Implant Dentistry		40.0
IMPD 726	Clinical Practice in Periodontics in Implant Dentistry		4.0
IMPD 727	Clinical Practice of Prosthodontics in Implant Dentistry		20.0
Totals		96.0	64.0

## Dual Major – Prosthodontics, Implant Dentistry Comparison

	<b>Course Title</b>	<b>Prosthodontics</b>	<b>Implant Dentistry</b>
<b>Major</b>			
IMPD 533	Applied Radiology for Implant Dentistry	1.5	1.5
IMPD 561	Dental Bioengineering	2.0	2.0
IMPD 611	Introduction to Implant Dentistry	2.0	2.0
IMPD 612	Advanced Implant Dentistry	2.0	2.0
PROS 546	Occlusion and Morphology	2.0	2.0
PROS 547	Occlusion: Principles and Instrumentation	2.0	2.0
PROS 555	Removable Partial Prosthodontics	2.0	2.0
PROS 565	Complete Denture Prosthodontics	2.0	2.0
PROS 566	Advanced Complete Denture Prosthodontics	2.0	2.0
PROS 575	Fixed Partial Prosthodontics	2.0	2.0
PROS 576	Advanced Fixed Partial Prosthodontics I (MC Aesthetics)	2.0	2.0
PROS 595	Maxillofacial Prosthetics	2.0	2.0
PERI 606	Modern Concepts of Periodontal Wound Healing	2.0	2.0
PERI 608	Dental Specialty Practice Management	2.0	
PROS 500	Prosthodontic Literature Review	22.0	6.0
PROS 501	Removable Partial Prosthodontics Literature Review	2.0	
PROS 502	Complete Denture Prosthodontics Literature Review	2.0	
PROS 505	Patient Presentation Seminar (Prosthodontics, Implant, Perio)	9.0	
PROS 515	Practice Teaching in Prosthodontics	2.0	
PROS 525	Dental Materials Science	2.0	
PROS 527	Clinical Application of Dental Materials	2.0	
PROS 556	TMJ Function and Dysfunction	1.0	
PROS 557	Advanced Removable Partial Prosthodontics	2.0	
PROS 604	Literature Review in Implant Dentistry for Prosthodontists	14.0	
PROS 634	Diagnosis and Treatment Planning	18.0	
PROS 637	Geriatric Dentistry	1.0	
PROS 696	Scholarly Activity in Prosthodontics	1.0	
IMPD 505	Patient Presentation Seminar		10.0

IMPD 547	Implant Dentistry Grand Rounds	10.0
IMPD 585	Implant Prosthodontics	10.0
IMPD 601	Literature Review in Implant Dentistry	22.0
IMPD 604	Current Literature Review in Implant Dentistry	20.0
IMPD 631	Oral Implant Surgery	11.0
IMPD 634	Diagnosis and Treatment Planning in Implant Dentistry	10.0
IMPD 637	Peri-Implant Histopathology	1.0
IMPD 654	Practice Teaching in Implant Dentistry	3.0
IMPD 696	Scholarly Activity in Implant Dentistry	1.0
PERI 601	Periodontal Therapy	4.0
PERI 624	Moderate Sedation in Periodontics	4.0

Totals		105.5	137.5
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	Course Title	Prosthodontics	Implant Dentistry
<b>Interdisciplinary</b>			
GRDN 514	Introduction to Biomedical Research	4.0	4.0
GRDN 535	Clinical Oral Pathology	2.0	2.0
GRDN 609	Professional Ethics	2.0	2.0
GRDN 622	Biomedical Science I	2.0	2.0
REL_ 5__	Graduate-level Religion	3.0	3.0
GRDN 632	Basic Microsurgery Techniques		2.0
OMFS 604	Selected Topics in Oral and Maxillofacial Surgery		4.0
OMFS 606	Applied Surgical Anatomy		1.0

Totals		13.0	20.0
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Overall Totals		118.5	157.5
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	Course Title	Prosthodontics	Implant Dentistry
<b>Clinical</b>			
PROS 710	Clinical Practice of Prosthodontics	66.0	
IMPD 725	Clinical Practice in Implant Dentistry		40.0
IMPD 726	Clinical Practice in Periodontics in Implant Dentistry		4.0
IMPD 727	Clinical Practice of Prosthodontics in Implant Dentistry		20.0
Totals		66.0	64.0

# SCHOOL OF MEDICINE

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## Dean's welcome



Thank you for your interest in Loma Linda University School of Medicine. This catalog will provide you with detailed information about our people, programs, and facilities; as well as our requirements and expectations. Commitment to our university's mission and medical education remains our first priority.

In addition to our medical school program, we offer a broad spectrum of graduate education opportunities, including combined degrees programs and a wide range of postgraduate specialty residencies and fellowships; as well as a program of continuing medical education for physicians beyond their formal academic years.

Our faculty are committed to ensuring that those we educate will develop the skills and intellectual curiosity needed for success as lifelong learners in a changing world.

We welcome your interest.

Roger Hadley, M.D.  
Dean, School of Medicine



## School foundations

### History

The professional curriculum in medicine was first offered at Loma Linda University in 1909. For more than a century, the School of Medicine has kept pace with the rapid growth of knowledge and technology. Over 10,000 students have graduated from the school and have gone on to all corners of the earth, fulfilling the University's motto—"To make man whole."

### Since 1909

Since the school's inception, the first two years of the medical school program have always been taught on the Loma Linda campus. From 1913 to the mid-1960s, however, the third and fourth years were taught in Los Angeles at what is now White Memorial Medical Center and at nearby Los Angeles County Hospital (now Los Angeles County/USC Medical Center). Construction of Loma Linda University Medical Center (inclusive of clinical, teaching, and research facilities) allowed the entire four-year curriculum to be concentrated on the Loma Linda campus, beginning with the 1966-1967 school year.

### Our mission

The mission of the School of Medicine is to continue the healing and teaching ministry of Jesus Christ, "To make man whole" (Luke 9:6).

### Preparing the physician

Our purpose is the formation of Christian physicians, providing whole-person care to individuals, families, and communities. Fulfilling this responsibility requires—

#### Education

Creating an environment in which medical students, graduate students, and residents will acquire the knowledge, skills, values, and attitudes appropriate to Christian health professionals and scholars.

#### Research

Cultivating an atmosphere of inquiry and discovering new routes to wholeness through basic and clinical research.

#### Service

Providing timely access to cost-effective, safe, comprehensive, whole person care for all patients, without regard for their circumstances or status.

#### Developing the whole person

The Christian view of wholeness holds that the needs of patients go beyond the healing of the body, and that the development of students involves more than the training of the mind. We are dedicated to promoting physical, intellectual, social, and spiritual growth in our faculty and our students; and to transforming our daily activities into personal ministries.

#### Reaching the world

Providing whole person care wherever the opportunity arises, participating with the world community in the provision of local medical education, providing international physicians and scientists the opportunities for professional interaction and enrichment, sharing the good news of a loving God as demonstrated by the life and teachings of Jesus Christ—these are the goals of the students, faculty, and graduates of Loma Linda University School of Medicine.

## Doctor of Medicine degree/Oral and Maxillofacial Surgery Program requirements

The Doctor of Medicine degree/Oral and Maxillofacial Surgery Program (M.D./OMS) is designed to provide an opportunity for qualified dentists to obtain the Doctor of Medicine degree in a customized, three-year period. Clinical surgical health-care delivery is emphasized. The content of the program conforms to the standards of the Commission on Accreditation and is designed to prepare the oral surgeon for certification by the American Board of Oral and Maxillofacial Surgery. Oral and maxillofacial surgery residents begin their residency program on the OMS service. They subsequently enter the second year at Loma Linda University School of Medicine with advanced standing. The residents then complete the second, third, and fourth years of medical school. The third year of the M.D./OMS curriculum consists of required clerkships in acute care, emergency medicine, a subinternship in ENT, and whole person care. An additional 30 units of electives, which include anesthesia and oral and maxillofacial surgery, complete the third year of the medical program. The graduate then enters a one-year general surgery internship, followed by two years of oral and maxillofacial surgery residency.

## Graduate combined degrees programs

Loma Linda University is committed to fostering the investigative skills of its medical students. Students interested in pursuing careers in academic medicine and medical research may wish to enroll in *one of the combined degrees programs*.

### Combined degrees (M.D./M.S. or M.D./Ph.D.)—SM/GS

The M.D./Ph.D. combined degrees program is available through the School of Medicine. It includes many of the features of the Medical Scientist Program. Students in the combined degrees program complete the first two years of the standard medical curriculum. This is followed by three or more years of graduate course work and research to qualify for a Ph.D. degree, or at least one year for an M.S. degree, before commencing the last two years of the medical school curriculum—the clinical training—for the Doctor of Medicine degree. Majors are offered in anatomy, biochemistry, microbiology and molecular genetics, physiology, and pharmacology.

For the M.D./M.S. and M.D./Ph.D. combined degrees programs, the prerequisites and Graduate Record Examination requirements are similar to those described for the Medical Scientist Program, except that biochemistry is not required.

### Medical Scientist Program (M.D./Ph.D.)

Loma Linda University is committed to fostering the investigative skills of its medical students. Students interested in pursuing careers in academic medicine and medical research may wish to enroll in the Medical Scientist Program.

Tuition assistance for the M.D. portion of the combined degrees program is not given to all students who earn both degrees. Assistance for the M.D. portion will be given only in cases where an applicant has received approval from the School of Medicine M.D./Ph.D. Admissions Committee prior to beginning the M.D. course work. Assistance that is received will be in the form of an institutional loan that will cover M.D. tuition and fees but will not include living expenses. The School of Medicine makes provision for the loan to be forgiven when a recipient meets the terms described below and in the loan agreement.

Loans for the first two years of the M.D. curriculum may be canceled when a student completes an M.S. or Ph.D. degree within the time schedule described below and according to the terms of the loan agreement. Loans for the third and fourth years of the M.D. curriculum may be canceled when a student completes the Ph.D. degree within the time schedule described below and according to the terms described below and according to the terms of the loan agreement.

The Medical Scientist Program is designed to develop a student's independence and competence as an investigative scientist and clinician. It provides students with a broad educational base for the practice of medicine and medically related research. The program is administered by the School of Medicine in cooperation with the Faculty of Graduate Studies. (See Medical Scientist Program in the Combined Degrees Programs after the general information for the School of Medicine.)

## Residency programs

Loma Linda University is affiliated with a variety of accredited residency programs in two sponsoring institutions. The first is Loma Linda University Medical Center, and the second is Loma Linda-Inland Empire Consortium for Healthcare Education. All specialties and a variety of subspecialty programs are offered. Additional nonaccredited fellowships are available.

Graduate physicians wishing to apply for entrance into these programs should contact the director of the program.

Graduate dentists who seek residencies in dental anesthesia, endodontics, oral implantology, orthodontics, pediatric dentistry, periodontics, and prosthodontics should apply directly to the School of Dentistry.

## Research centers

Basic science investigation is advanced, and patient treatment is enhanced through the ground-breaking research conducted in several centers housed within the School of Medicine.

### Center for Health Disparities and Molecular Medicine

The mission of the Center for Health Disparities and Molecular Medicine (CHDMM) is to eliminate health disparities through research, education, and community engagement. Faculty members at the CHDMM use modern molecular genetics and cell biology approaches, community based participatory research (CBPR), and precision medicine to investigate the causes of health disparities, how they are developed, and promising strategies to address them. Current research efforts at the center examine the influence of the augmented state of cellular oxidative stress (ASCOS) and inflammatory pathways on cell death and survival as it pertains to cancer, diabetes and neurological health disparities. The goal is to define novel molecular determinants and biomarkers associated with these health disparities, leading to the development of innovative clinical and community interventions aimed at eliminating or reducing them. The education mission of the center is to train a diverse group of graduate students, medical students, and postdoctoral scientists to develop an inclusive biomedical workforce. Further, through partnering with community-based organizations, the CHDMM aims to develop healthy and whole communities through the implementation of evidence based prevention initiatives and programs.

### Center for Perinatal Biology

The primary research focus of the Center for Perinatal Biology is investigation of molecular and epigenetic mechanisms of fetal

development and programming of health and disease later in life. The majority of the funding to support this research is derived from competitive grants awarded by the National Institutes of Health; additional funding is provided by the National Science Foundation and other agencies. The biomedical scientists in this internationally renowned research center also teach basic science courses in the School of Medicine; as well as graduate courses in their disciplines: physiology/pharmacology, gynecology/obstetrics, pathology/human anatomy, biochemistry/microbiology, and pediatrics.

For graduate students, postdoctoral fellows, and beginning investigators—who spend from two-to-four years in research and training in fields related to developmental biology and physiology—the center is an ideal environment. A number of visiting scholars from other universities also work in the center during sabbaticals or other interims.

### Neurosurgery Center for Research, Training, and Education

The Neurosurgery Center for Research, Training, and Education has as its primary focus the improvement of patient care by conducting translational research. These goals are met by the research and development of new biologically and technologically advanced diagnostic procedures, minimally invasive surgical techniques, and innovative hemostatic instrumentation. The center functions in collaboration with many well-known institutions, such as George Mason University, UCLA, and North Carolina State University.

The center has been the recipient of a five-year National Institutes of Health (NIH) competitive grant to determine the role of iron perturbations in metabolism in the pathogenesis of Alzheimer's disease, as well as grants for proteomic study of schizophrenia. The center's multidisciplinary work involves collaborations of faculty within Biochemistry, Radiology, Cell and Molecular Biology, Radiobiology, Psychiatry, Geriatric Medicine, and Biostatistics. The center is also interested in the development of new hemostatic agents that involve the control of hemorrhage. To this end, it has developed new procoagulants and surgical devices in collaboration with industry. The center works in close collaboration with industrial resources for both testing and development of new surgical instrumentation. The director of the center holds numerous international and United States patents on surgical instruments and other devices.

### Neuroscience Research Center

The major goal of the Center for Neuroscience Research is to conduct translational studies of major neurological disorders, in particular, the brain hemorrhage seen in neurosurgery and neurology. These instances of brain hemorrhage include subarachnoid hemorrhage, intracerebral hemorrhage, hemorrhage after ischemic stroke, neonatal brain hemorrhage, and traumatic brain injury caused by brain hemorrhage. A longitudinal combined approach is encouraged, which includes animal models, experimental treatment, neuroimaging, neurological functional evaluations, and neural and cerebral vascular biological studies, to explore the mechanisms and potential treatment options. The Center is funded by a National Institutes of Health Program Project Grant, as well as additional federal grant support to individual Center members.

### Center for Genomics

The mission of the Center for Genomics is to provide state-of-the-art genomic (e.g., next-generation sequencing), epigenomic, and bioinformatic tools to: 1) better understand the molecular mechanisms of human disease and health disparities from a genome-wide and systems biology approach; 2) identify novel biomarkers of and novel therapeutic

targets for human disease while providing single-nucleotide resolution genomic and epigenomic data for precision medicine; and 3) define the health and lifestyle profile of the Loma Linda Blue Zone population at the genomic and epigenomic levels. The educational mission of the Center is to teach and train graduate students, medical students, and postdoctoral scientists on systems biology involving genomics, epigenomics, transcriptomics, and bioinformatics in the Loma Linda University School of Medicine.

## General regulations

Students of the University are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. Section III gives the general setting for the programs of each school and outlines the subject and unit requirements for admission to individual professional programs. It is important to review specific program requirements in the context of the general requirements applicable to all programs.

## Student life

The information on student life contained in this CATALOG is brief. The Loma Linda University *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies; and is available on the University Web site as <llu (<http://www.llu.edu/assets/central/handbook/documents/Student-Handbook.pdf>).edu/ student-handbook> (<http://www.llu.edu/assets/central/handbook/documents/Student-Handbook.pdf>). All students are expected to familiarize themselves with the contents of the *Student Handbook*—including the section that pertains specifically to the School of Medicine—and to abide by its policies. Additional information regarding policies specific to the School of Medicine are provided by the school at the orientation to each academic year. Students who have questions about the *Student Handbook* should contact the associate dean for student affairs. Students in the School of Medicine's Integrated Biomedical Graduate Studies Program are expected to familiarize themselves with the document *Student Guidelines, Policies and Procedures*, and students in programs associated with the School of Medicine's Earth and Biological Sciences are expected to familiarize themselves with the document *Earth and Biological Sciences Student Handbook*. These documents contain policies and procedures specific to the individual graduate programs and are given to students at orientation. These documents may also be requested from the Office of the Assistant Dean for Student Affairs in the Graduate Program and from the individual program directors

## Awards

### Bernard D. Briggs Award

The Bernard D. Briggs Award is presented to an outstanding medical student entering the field of anesthesiology who exhibits the dedication, enthusiasm, and commitment of the visionary physician and distinguished mentor for whom it is named.

### Robert F. Chinnock Award

The Robert F. Chinnock Award is presented annually to a student who has demonstrated outstanding performance in clinical and academic pediatrics.

### Daniel D. Comstock Award

The Daniel D. Comstock Award is given annually to the senior student with the most distinguished performance in internal medicine. Selection is based on scholarship, interest in science, skill, devotion to patient care,

and personal attributes of dependability and integrity—as demonstrated by the physician, Daniel D. Comstock, for whom the award is named.

### The Departmental Advising Award

The Departmental Advising Award is given annually by the dean's office to the clinical department that has provided outstanding career counseling and extraordinary support to help students achieve their career aspirations.

### Distinguished Student in Radiology Award

The Distinguished Student in Radiology Award is given to the student who is devoted to the field of radiology as evidenced by their distinguished service, exceptional performance, and commitment to pursuing radiology as a career.

### Donald E. Griggs Award

The Donald E. Griggs Award is presented annually to a senior student selected for meritorious scholarship and service—the highest grade in the clinical rotations of medicine—reflecting those qualities demonstrated by the physician and teacher for whom the award is named.

### David B. Hinshaw, Sr., Award

The David B. Hinshaw, Sr., Award is presented annually to a senior student who has demonstrated outstanding qualities of leadership and scholarship and who is entering a categorical surgery residency program with the intention of pursuing a career in general surgery.

### Guy M. Hunt Award

The Guy M. Hunt Award is presented annually by the Department of Neurology to a senior student who combines outstanding academic achievement and the spirit of gentle caring that was exemplified by Dr. Hunt.

### Harold J. Hoxie Award

The Harold J. Hoxie Award is presented by the Department of Medicine to a senior medical student whose meritorious scholarship, exceptional performance in medicine with emphasis in research, and service reflect those qualities demonstrated by the physician and teacher for whom the award is named.

### Benjamin Kovitz Award

The Benjamin Kovitz Award is presented to a senior medical student who has demonstrated qualities of leadership and scholarship in the field of psychiatry.

### Walter P. Ordelheide Award

The Walter P. Ordelheide Award is given annually by the Department of Family Medicine to a senior student who has demonstrated outstanding scholarship and leadership, and who has fostered the promotion and advancement of family medicine.

### President's Award

The President's Award, established in 1960, is presented annually in recognition of superior scholastic attainment and active participation in the student community, within the framework of Christian commitment. One recipient is selected from each school of the University.

### Society for Academic Emergency Medicine Award

The Society for Academic Emergency Medicine Award is presented to the senior medical student who has demonstrated excellence in the specialty of emergency medicine.

**Varner J. Johns, Jr., Award**

The Varner J. Johns, Jr., Award is given to a graduating senior who is recognized as an outstanding student with the potential of becoming a future faculty member in the Department of Medicine.

**Alumni Association--Herber Award**

The School of Medicine Alumni Association Award is given annually to students who demonstrate outstanding leadership in furthering the mission of Loma Linda University School of Medicine.

**Wil Alexander Whole Person Care Award**

The Wil Alexander Whole Person Care Award recognizes a senior medical student who, during the clinical years, has demonstrated to his/her peers and colleagues a growing excellence in the physical, mental, emotional, spiritual, and relational care of his/her patients as part of the art of medical practice.

**Alpha Omega Alpha Honor Society**

Fourth-year students are recommended for membership in the national honor medical society, Alpha Omega Alpha. Membership is determined based on scholastic, professional, and personal performance. The School of Medicine was granted a charter for establishing the Epsilon Chapter on April 1, 1957.

**Roger W. Barnes Award**

The Roger W. Barnes Award is presented to a senior student who has demonstrated to an unusual degree the qualities of compassion, kindness, and humility--as exhibited by the physician and teacher for whom the award is named.

**Harold F. Ziprick Award**

The Harold F. Ziprick Award is presented annually by the Department of Gynecology and Obstetrics to a senior student in recognition of overall academic achievement and clinical performance in gynecology and obstetrics, as demonstrated by the physician and teacher for whom the award is named.

**Distinguished Student in Emergency Medicine Award**

The Distinguished Student in Emergency Medicine Award is given by the department to a senior student who is devoted to emergency medicine and committed to pursuing it as a career.

**Distinguished Student in Preventive Medicine Award**

The Distinguished Student in Preventive Medicine Award is given to a senior student who has demonstrated exceptional performance in preventive medicine and is committed to pursuing it as a career.

**Philip H. Reiswig Award**

The Philip H. Reiswig Award is presented to a senior student entering the field of orthopaedic surgery who exhibits the dedication, enthusiasm, and commitment of the physician-leader for whom it is named.

## Financial information

The Office of the Dean is the final authority in all financial matters and is charged with the interpretation of all financial policies. Any exceptions to published policy regarding reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members, program directors, or department chairs regarding these matters is not binding on the school or the University unless approved by the dean.

Registration is not complete until tuition and fees on the required installment are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic year.

There may be adjustments in tuition and fees as economic conditions warrant.

## General financial practices

The student is expected to arrange for financial resources to cover all expenses before the beginning of each school year. Previous accounts with other schools or this University must have been settled.

## Veteran's benefits

A student eligible to receive veteran's benefits under the current enactment should contact the Office of University Records within the first week following registration.

Under Title 38 of the U.S. Code, Loma Linda University is approved for the training of veterans and other eligible persons. Information regarding eligibility for any of these programs may be obtained by calling 1-888/GIBILL1.

Application for benefits must be made directly to the VA and may be done via the Web. The Office of University Records serves as the certifying official for Loma Linda University. Students should contact the certifying official prior to their first enrollment certification. For more information, open links to the VA Web site at <llu.edu/central/students/veterans.page>.

## Schedule of charges

**Tuition**

\$51,390 Full time

**Fees**

\$3,428\* For years 1 and 2: student services, information services, Drayson Center, etc.

\$3,768 For years 3 and 4: student services, information services, Drayson Center, etc.

**Supplies and instruments (estimated)**

\$3,200\* Per school calendar year

\$900\* First-year medical equipment

\* Fees subject to change

## Living expenses (estimated)

Students should contact the Office of Financial Aid for current living allowance information (<finaid@llu.edu> or 909/558-4509).

**On- and off-campus student housing**

Students may go to <llu.edu/central/housing> for housing information and a housing application form.

## Special charges 2016-2017

\$75 Supplemental application (nonrefundable), in addition to AMCAS fee

\$100 Acceptance deposit

\$50 Late payment fee

cost Health-care items not covered by health fee or insurance

cost Library fine or loss, parking fine, property breakage or loss

cost Health coverage for spouse and family

\$200 Late registration (beginning first day after published term begin date)

\$25 Returned check fee

## Programs

- Anatomy—M.S., Ph.D (p. 300).
- Biochemistry - M.S., Ph.D (p. 270)
- Biology - M.S. (p. 283), Ph.D. (p. 283)
- Biomedical Sciences - M.M.S. (p. 306)
- Earth Science - Ph.D. (p. 287)
- Environmental Sciences - B.S. (p. 289)
- Geology - B.S. (p. 292), M.S. (p. 295)
- Medical Scientist—M.D. and Ph.D. (p. 311)
- Medicine—M.D. (p. 312)
- Microbiology and Molecular Genetics - M.S., Ph.D. (p. 273)
- Natural Sciences - M.S. (p. 297)
- Pharmacology - M.S., Ph.D. (p. 276)
- Physiology - M.S., Ph.D. (p. 279)

# Graduate

## Mission

It is the mission of the Loma Linda University basic sciences programs to further the teaching and healing ministry of Jesus Christ by fostering scholarly excellence leading to the discovery, integration, and dissemination of biomedical knowledge.

## General information

The basic sciences of the School of Medicine offer graduate programs with emphases in anatomy, biochemistry, microbiology, pharmacology, and physiology. The Ph.D. degree curriculum is designed to prepare students for a career in independent research and teaching in an academic or biotechnology setting. Students may enter any of these five Ph.D. degree curricula by applying to the Integrated Biomedical Graduate Studies Program. After completing a common first-year core curriculum, students will select a program and a mentor for the completion of their studies, during which advanced courses and laboratory work allow them to fully develop an area of research interest and expertise. Students usually rotate through up to three research laboratories before selecting a research advisor.

The M.S. degree course of study provides education appropriate for technicians involved in biomedical research and for medical technologists seeking career advancement. A pathway to combined M.D./Ph.D. degrees is also offered.

## Combined degrees

Combined degrees (Ph.D./M.D. and M.S./M.D.) options are also available. The combination of an M.S. degree with a professional degree provides additional content and research experience as a background for postgraduate medical or dental education. The combination of a Ph.D. degree with a professional degree prepares the student for a future in academic medicine or dentistry—combining research, teaching, and clinical practice.

The combined degrees are described at the end of Section III in this CATALOG.

## Department of Basic Sciences

The Department of Basic Sciences in the School of Medicine offers graduate programs leading to the M.S. and Ph.D. degrees in four areas (biochemistry, microbiology, pharmacology, and physiology) through the Integrated Biomedical Graduate Studies program (IBGS). This program includes a common integrated first-year core curriculum that explores the biochemical, molecular, cellular, and physiological functions of living systems in a way that emphasizes analytical thinking and problem solving. During this first year, students also attend seminars and rotate through up to three research laboratories. After completing the first year of study, students select both a program and a laboratory from which they wish to obtain a degree. Advanced, discipline-specific courses are taken during the second year; and research leading to the publication of peer-reviewed articles and doctoral dissertation defense is carried out between the time a research laboratory is selected and the completion of the degree.

### Chair

Penelope J. Duerksen-Hughes

### Primary faculty

Danilyn M. Angeles

Wilson Aruni

Vladimar Bashkirov

Danilo Boskovic

Eileen J. Brantley

John N. Buchholz

Edouard M. Cantin

Carlos A. Casiano

Shin-Tai Chen

Valeri Filippov

Maria Filippova

Ronald R. Fiscus

Hansel M. Fletcher

Ravi Goyal

Daila S. Gridley

David A. Hessinger

Salma Khan

Paul R. Krafft

William H. Langridge

Tim Lekic

Daisy D. De Leon

Marino A. De Leon

Charles A. Ducsay

Penelope J. Duerksen-Hughes

Lawrence D. Longo

Xiao W. Mao

Eugenica I. Mata-Greenwood

Jonathan W. Neidigh

Gregory A. Nelson

Stephen A. Nyirady

William J. Pearce

Michael J. Pecaut

Christopher C. Perry

Gordon G. Power

Hongyu Qiu

John J. Rossi

Keith E. Schubert

Ihsan Solarouglu

Ubaldo A. Soto-Wegner

Lawrence C. Sowers

Richard S. Sun

Jiping Tang

Julia J. Unternaehrer-Hamm

Roman Vlkolinsky

Nathan R. Wall

Charles Wang

Kylie J. Watts

R. Bruce Wilcox

Christopher G. Wilson

Sean M. Wilson

David L. Wolf

Daliao Xiao

Zhice Xu

Steven M. Yellon

John H. Zhang

Lubo Zhang

Anthony J. Zuccarelli

## General regulations

### First-year curriculum (Ph.D. degree)

The first-year curriculum includes a course sequence taught by interdisciplinary faculty that integrates all the disciplines of the biomedical basic science areas—moving from molecules through cellular mechanisms to integrated systems. In addition, a supplemental course covers research-related topics—such as scientific communication and integrity, information handling and statistics, as well as successful grant writing. Students learn of new developments in the biomedical sciences through weekly seminars, and they gain presentation skills of their own in a weekly student presentation seminar series. During the subsequent years, formal courses continue to broaden and integrate into a meaningful whole an understanding of the clinical consequences of cellular events.

### Religion requirement

Students in the Master of Science (M.S.) degree curricula are required to complete one 3-unit, graduate-level religion class (RELT 617 Seminar in Religion and the Sciences). Students in the Ph.D. degree curriculum are required to complete three graduate-level religion courses of 3 or more units each. These must include RELT 617 Seminar in Religion and the Sciences; as well as RELE 525 Ethics for Scientists and RELR 588 Personal and Family Wholeness. A course in biblical studies (RELT 559 New Testament Thought, RELT 560 Jesus the Revealer: The Message of the Gospel of John, RELT 564 Apostle of Hope: The Life, Letters, and Legacy of Paul, or RELT 565 Vision of Healing: The Message of the Book of Revelation) may be substituted for either the ethical or relational course.

### Research units

A student will, at all times, have registration in research units. An IP will be assigned until the student registers for new units. The units should be spread out over the course of time it takes to complete thesis or dissertation research satisfactorily. An IP may not be carried for longer than five quarters.

## Programs

- Biochemistry – M.S. (p. 271), Ph.D. (p. 271) (Comparison (p. 272))
- Microbiology and Molecular Genetics – M.S. (p. 273), Ph.D. (p. 274) (Comparison (p. 275))
- Pharmacology – M.S. (p. 276), Ph.D. (p. 277) (Comparison (p. 278))
- Physiology – M.S. (p. 279), Ph.D. (p. 280) (Comparison (p. 281))

## Biochemistry – M.S., Ph.D.

### Program coordinator

Penelope Duerksen-Hughes

The School of Medicine's Division of Biochemistry offers curricula leading to the Master of Science and Doctor of Philosophy degrees. The core curriculum provides a broad background in biochemistry-related issues and approaches. Advanced courses allow each student to fully develop an area of interest. Research strengths of the department include: cancer biology, DNA damage and repair, measurement of thyroid hormones, coagulation, neurobiology, peptide structure, vaccine development, and radiation biology.

The Master of Science degree provides content appropriate for persons preparing to teach at the secondary level or in related professional school areas; or for persons intending to pursue careers as research technicians. The Doctor of Philosophy degree is designed to prepare the graduate for a career in independent research and teaching in university, clinical, biotechnological, or government environments. Doctoral degree students are expected to develop creativity and independence, in addition to technical skills.

## Student learning outcomes

1. Students will demonstrate a broad knowledge of the biomedical sciences.
2. Students will demonstrate subject mastery in molecular, cellular, and integrative aspects of biochemistry.
3. Students will interpret the current literature in biochemistry.
4. Students will make original contributions to the body of biomedical knowledge.
5. Students will demonstrate an understanding of the principles of scientific and professional ethics.
6. Students will understand the process of applying for external funding.\*

\* This objective is not applicable to M.S. degree students.

## Admissions

In addition to Loma Linda University (p. 24) application requirements, the applicant must also complete the following prerequisites:

- a bachelor's degree from an accredited U.S. college or the equivalent from an international university.
- results of the general test of the Graduate Record Examination (GRE): A total (verbal plus quantitative) score of no less than the sum of the scores corresponding to the 50th percentile of each, with neither score less than the 35th percentile; analytical writing 4.0. GRE older than 5 years from the date of matriculation are not considered.
- a full year of each of the following undergraduate courses:
  - general biology
  - general chemistry
  - organic chemistry
  - general physics
  - biochemistry (a minimum of one quarter/semester)

Strongly Recommended:

- upper division biology (such as cell and molecular biology)
- a full year of biochemistry with labs
- research experience
- calculus

**PLEASE NOTE:** CLEP (College-Level Examination Program), pass/fail performances, and online classes are not acceptable for the sciences required courses. Additionally, science credits earned in professional schools (e.g., allied health professions, business, dentistry, nursing or pharmacy) do not fulfill requirements for admissions to the graduate program.

The program reserves the right to decide on the equivalence of courses presented by the applicant.



## M.S. requirements

A minimum of 45 units is required for the M.S. degree, as detailed in the table below. Two options, a research track and a course work track, are available. Students must maintain a G.P.A. of at least 3.0. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or "Student Guide." Policies and requirements are subject to change.

### Basic science core

IBGS 501	Biomedical Communication and Integrity	2
IBGS 502	Biomedical Information and Statistics	2
IBGS 511	Cellular Mechanisms and Integrated Systems I	6
IBGS 512	Cellular Mechanisms and Integrated Systems II	6
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club	2
IBGS 523	Cellular Mechanisms and Integrated Systems III Journal Club	2

### Major

BCHM ___	Biochemistry specific courses	12
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### Seminars

IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>1</sup>	0
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### Religion

RELE 525	Ethics for Scientists <sup>2</sup>	3
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<b>Degree completion options</b>		10
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### Coursework track:

BCHM ___	Graduate Biochemistry Elective (9 units)	
IBGS 604	Introduction to Integrative Biology Presentation Seminar (1 unit)	

### Research track:

BCHM ___	Graduate biochemistry elective (2 units)	
IBGS 605	Integrative Biology Presentation Seminar (1 unit)	
BCHM 697	Research (7 units)	

Total Units		45
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<sup>1</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

<sup>2</sup> May substitute with another religion course at the 500-level or greater.

## Noncourse requirements

Course work track: a comprehensive written examination over the graduate course work in lieu of preparing a thesis.

Research track: pass an oral examination given by his/her graduate guidance committee after the thesis has been completed.

## Normal time to complete the program

2 year— based on full-time enrollment; part time permitted

## Comparison

See the comparison (p. 272) of the M.S. Course work, M.S. Research and Ph.D. tracks of this program.

## Ph.D. requirements

For the Ph.D. degree, students must complete a minimum of 77 units, as detailed in the table below, and must maintain a G.P.A. of at least 3.0. In addition, Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or "Student Guide." Policies and requirements are subject to change.

### Basic science core

IBGS 501	Biomedical Communication and Integrity	2
IBGS 502	Biomedical Information and Statistics	2
IBGS 503	Biomedical Grant Writing	2
IBGS 511	Cellular Mechanisms and Integrated Systems I	6
IBGS 512	Cellular Mechanisms and Integrated Systems II	6
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club	2
IBGS 523	Cellular Mechanisms and Integrated Systems III Journal Club	2

### Major

BCHM ___	Graduate Biochemistry Elective <sup>3</sup>	12
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### Seminars

IBGS 604	Introduction to Integrative Biology Presentation Seminar	1
IBGS 605	Integrative Biology Presentation Seminar <sup>2</sup>	2
IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>1</sup>	0

### Religion

RELE 525	Ethics for Scientists <sup>4</sup>	3
RELR 588	Personal and Family Wholeness <sup>4</sup>	3
RELT 617	Seminar in Religion and the Sciences <sup>4</sup>	3

### Research/Dissertation or Thesis

BCHM 697	Research <sup>2</sup>	12
IBGS 696	Research Rotations <sup>2</sup>	2

Total Units		60
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<sup>1</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

<sup>2</sup> Multiple registrations required to fulfill total units required.

<sup>3</sup> At least 2 units must be in a techniques course and 2 units in a didactic literature based course.

<sup>4</sup> May substitute with another graduate religion course with the same prefix and numbered 500 or above.

## Noncourse requirements

- pass both written and oral comprehensive examinations in order to advance to candidacy.
- successfully defend the dissertation before their guidance committee prior to being awarded the Ph.D. degree.

## Normal time to complete the program

4 years — full-time enrollment, part-time permitted

## Comparison

See the comparison (p. 272) of the M.S. Course work, M.S. Research and Ph.D. tracks of this program.

## Biochemistry – M.S., Ph.D. Comparison

	Course Title	MS	PhD
<b>Basic Science Core</b>			
IBGS 501	Biomedical Communication and Integrity	2.0	2.0
IBGS 502	Biomedical Information and Statistics	2.0	2.0
IBGS 511	Cellular Mechanisms and Integrated Systems I	6.0	6.0
IBGS 512	Cellular Mechanisms and Integrated Systems II	6.0	6.0
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club	2.0	2.0
IBGS 523	Cellular Mechanisms and Integrated Systems III Journal Club	2.0	2.0
IBGS 503	Biomedical Grant Writing		2.0
Totals		20.0	22.0
	Course Title	MS	PhD
<b>Major</b>			
BCHM ____	Graduate biochemistry electives <sup>3</sup>	12.0	12.0
Totals		12.0	12.0
	Course Title	MS	PhD
<b>Seminars</b>			
IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>1</sup>	0.0	0.0
IBGS 604	Introduction to Integrative Biology Presentation Seminar		1.0
IBGS 605	Integrative Biology Presentation Seminar <sup>2</sup>		2.0
Totals			3.0
	Course Title	MS	PhD
<b>Religion</b>			
RELE 525	Ethics for Scientists <sup>4</sup>	3.0	3.0
RELR 588	Personal and Family Wholeness <sup>4</sup>		3.0
RELT 617	Seminar in Religion and the Sciences <sup>4</sup>		3.0
Totals		3.0	9.0
	Course Title	MS	PhD
<b>MS completion options</b>			
Required units		10.0	
Coursework track:			
BCHM ____	Graduate biochemistry electives (9 units)		
IBGS 604	Introduction to Integrative Biology Presentation Seminar ((1 units))		
Research track:			
BCHM ____	Graduate biochemistry elective (2 units)		
BCHM 697	Research ((7 units))		
IBGS 605	Integrative Biology Presentation Seminar ((1 unit))		
Totals		10.0	
	Course Title	MS	PhD
<b>PhD research/dissertation</b>			
IBGS 696	Research Rotations <sup>2</sup>		2.0
BCHM 697	Research <sup>2</sup>		12.0
Totals			14.0
Overall Totals		45.0	60.0

<sup>1</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

<sup>2</sup> Multiple registrations required to fulfill total units required.

<sup>3</sup> At least 2 units must be in a techniques course and 2 units in a didactic literature based course (PhD program only).

<sup>4</sup> May substitute with another graduate religion course with the same prefix and numbered 500 or above.

# Microbiology and Molecular Genetics – M.S., Ph.D.

## Program coordinator

Hansel M. Fletcher

The School of Medicine's Division of Microbiology and Molecular Genetics offers curricula leading to the Master of Science and Doctor of Philosophy degrees. The core curriculum provides a broad background in molecular biology, immunology, and medical microbiology and infectious diseases. Advanced courses allow each student to develop fully an area of interest. Research strengths of the department include: signal transduction in bacteria, molecular genetics of virulence in bacteria, mechanisms of oxidative stress resistance, mechanisms of cell death, cellular and tumor immunology, autoimmunity, chaperonins and protein folding, mechanisms of posttranslational modification, cancer biology, and DNA restriction modification.

The thesis or research Master of Science degree provides training for individuals who will become technicians involved in biomedical research in universities or in the biotechnology industry, and for medical technologists seeking specialized research training. The nonthesis Master of Science degree provides content appropriate for medical technologists preparing for the specialist in microbiology certification; for secondary teachers seeking advanced training in areas such as molecular biology, immunology, or microbiology; and for students seeking admission to a professional school, such as medicine or dentistry.

The Doctor of Philosophy degree is designed to prepare students for a career in independent research and teaching in a university, clinical, or biotechnology environment. Doctoral degree students are expected to develop creativity and independence in addition to technical skills.

## Program student learning outcomes

1. Students will demonstrate a broad knowledge of the biomedical sciences.
2. Students will demonstrate subject mastery in molecular, cellular, and integrative aspects of microbiology and molecular genetics.
3. Students will interpret the current literature in microbiology and molecular genetics.
4. Students will make original contributions to the body of biomedical knowledge.
5. Students will demonstrate an understanding of the principles of scientific and professional ethics.
6. Students will understand the process of applying for external funding.\*

\* This objective is not applicable to M.S. degree students.

## Admissions

In addition to Loma Linda University (p. 24) application requirements, the applicant must also complete the following prerequisites:

- a bachelor's degree from an accredited U.S. college or the equivalent from an international university.
- general test of the Graduate Record Examination (GRE): A total (verbal plus quantitative) score of no less than the sum of the scores corresponding to the 50th percentile of each, with neither score less

than the 35th percentile; analytical writing 4.0. GRE scores older than 5 years from the date of matriculation are not considered.

- a full year of each of the following undergraduate courses:
  - general biology
  - general chemistry
  - organic chemistry
  - general physics.
  - biochemistry (a minimum of one quarter/semester)

Strongly Recommended:

- upper division biology (such as cell and molecular biology)
- a full year of biochemistry with labs
- research experience
- calculus

**PLEASE NOTE:** CLEP (College-Level Examination Program), pass/fail performances, and online classes are not acceptable for the science required courses. Additionally, science credits earned in professional schools (e.g., allied health professions, business, dentistry, nursing or pharmacy) do not fulfill requirements for admissions to the graduate program.

The program reserves the right to decide on the equivalence of courses presented by the applicant.

## M.S. requirements

A minimum of 45 units is required for the M.S. degree, as detailed in the table below. Two options, a research track and a course work track, are available. Students must maintain a G.P.A. of at least 3.0. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or "Student Guide." Policies and requirements are subject to change.

### Basic science core

IBGS 501	Biomedical Communication and Integrity	2
IBGS 502	Biomedical Information and Statistics	2
IBGS 511	Cellular Mechanisms and Integrated Systems I	6
IBGS 512	Cellular Mechanisms and Integrated Systems II	6
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club	2
IBGS 523	Cellular Mechanisms and Integrated Systems III Journal Club	2

### Major

MICR ____	Microbiology specific courses	12
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### Seminars

IBGS 607	Integrated Biomedical Graduate Studies Seminar	0
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### Religion

RELE 525	Ethics for Scientists <sup>2</sup>	3
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### Degree completion options

10

Coursework track:

MICR ____	Graduate Microbiology Elective (9 units)	
IBGS 604	Introduction to Integrative Biology Presentation Seminar (1 unit)	

Research track:

IBGS 605	Integrative Biology Presentation Seminar (1 unit)	
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MICR 697	Research (9 units)	
Total Units		45

<sup>1</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation

<sup>2</sup> May substitute with another religion course at the 500-level or greater.

### Noncourse requirements

Course work track: a comprehensive written examination over the graduate course work in lieu of preparing a thesis.

Research track: pass an oral examination given by his/her graduate guidance committee after the thesis has been completed.

### Normal time to complete the program

2 years – based on full-time enrollment; part time permitted

### Comparison

See the comparison (p. 275) of the M.S. Course work, M.S. Research and Ph.D. tracks of this program.

## Ph.D. requirements

For the Ph.D. degree, students must complete a minimum of 75 units—as detailed in the table below—and must maintain a G.P.A. of at least 3.0.

Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or "Student Guide." Policies and requirements are subject to change.

#### Basic science core

IBGS 501	Biomedical Communication and Integrity	2
IBGS 502	Biomedical Information and Statistics	2
IBGS 503	Biomedical Grant Writing	2
IBGS 511	Cellular Mechanisms and Integrated Systems I	6
IBGS 512	Cellular Mechanisms and Integrated Systems II	6
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club	2
IBGS 523	Cellular Mechanisms and Integrated Systems III Journal Club	2

#### Major

Choose from the following:		12
MICR 521	Medical Microbiology	
MICR 530	Immunology	
MICR 537	Selected Topics in Molecular Biology	
MICR 540	Physiology and Molecular Genetics of Microbes	
MICR 570	Mechanisms of Microbial Pathogenesis	

#### Seminars

IBGS 604	Introduction to Integrative Biology Presentation Seminar	1
IBGS 605	Integrative Biology Presentation Seminar <sup>3</sup>	2
IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>2</sup>	0

#### Religion

RELE 525	Ethics for Scientists <sup>4</sup>	3
RELR 588	Personal and Family Wholeness <sup>4</sup>	3
RELT 617	Seminar in Religion and the Sciences <sup>4</sup>	3

#### Research/Dissertation or Thesis

IBGS 696	Research Rotations <sup>3</sup>	2
MICR 697	Research (1.0-7.0) <sup>3</sup>	12
Total Units		60

<sup>1</sup> Must include at least 6 units in a didactic, literature-based course

<sup>2</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation

<sup>3</sup> Multiple registrations required to fulfill total units required.

<sup>4</sup> May substitute with another graduate religion course with the same prefix and numbered 500 or above.

### Noncourse requirements

- pass both written and oral comprehensive examinations in order to advance to candidacy.
- successfully defend the dissertation before their guidance committee prior to being awarded the Ph.D. degree.

### Normal time to complete the program

4 years – based on full-time enrollment; part-time permitted

### Comparison

See the comparison (p. 275) of the M.S. Course work, M.S. Research and Ph.D. tracks of this program.

## Microbiology and Molecular Genetics – M.S., Ph.D. Comparison

	Course Title	MS	PhD
<b>Basic Science Core</b>			
IBGS 501	Biomedical Communication and Integrity	2.0	2.0
IBGS 502	Biomedical Information and Statistics	2.0	2.0
IBGS 511	Cellular Mechanisms and Integrated Systems I	6.0	6.0
IBGS 512	Cellular Mechanisms and Integrated Systems II	6.0	6.0
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club	2.0	2.0
IBGS 523	Cellular Mechanisms and Integrated Systems III Journal Club	2.0	2.0
IBGS 503	Biomedical Grant Writing		2.0
Totals		20.0	22.0
	Course Title	MS	PhD
<b>Major</b>			
Select from the following			12.0
MICR 521	Medical Microbiology		
MICR 530	Immunology		
MICR 537	Selected Topics in Molecular Biology		
MICR 540	Physiology and Molecular Genetics of Microbes		
MICR 570	Mechanisms of Microbial Pathogenesis		
MICR ____ Graduate microbiology electives <sup>1</sup>		12.0	
Totals		12.0	12.0
	Course Title	MS	PhD
<b>Seminars</b>			
IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>2</sup>	0.0	0.0
IBGS 604	Introduction to Integrative Biology Presentation Seminar		1.0
IBGS 605	Integrative Biology Presentation Seminar <sup>3</sup>		2.0
Totals			3.0
	Course Title	MS	PhD
<b>Religion</b>			
RELE 525	Ethics for Scientists	3.0	3.0
RELR 588	Personal and Family Wholeness		3.0
RELT 617	Seminar in Religion and the Sciences		3.0
Totals		3.0	9.0
	Course Title	MS	PhD
<b>MS completion options</b>			
Required units		10.0	
Coursework track:			
MICR ____ Graduate microbiology electives (9 units)			
IBGS 604	Introduction to Integrative Biology Presentation Seminar (1 units)		
Research/Thesis track:			
IBGS 605	Integrative Biology Presentation Seminar (1 unit)		
MICR 697	Research ((9 units))		
Totals		10.0	
	Course Title	MS	PhD
<b>PhD research/dissertation</b>			
IBGS 696	Research Rotations <sup>3</sup>		2.0
MICR 697	Research <sup>3</sup>		12.0
Totals			14.0
Overall Totals		45.0	60.0

<sup>1</sup> Must include at least 6 units in a didactic, literature-based course.

<sup>2</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

<sup>3</sup> Multiple registrations required to fulfill total units required.

## Pharmacology – M.S., Ph.D.

### Program coordinator

John Buchholz

The School of Medicine's Division of Pharmacology offers curricula leading to the Master of Science and Doctor of Philosophy degrees. The core curriculum provides a broad background in pharmacology-related issues and approaches. Advanced courses allow each student to develop fully an area of interest. Research strengths of the program include: cardiovascular, neurological, developmental, pulmonary, and molecular pharmacology.

The Master of Science degree is not available as an option for entering students. These degree programs provide a broad biochemical background while allowing the student to fully develop a special area of research interest. The Master of Science degree provides content appropriate for persons preparing to teach at the secondary level or in related professional school areas, or for persons intending to pursue careers as research technicians. The Doctor of Philosophy degree is designed to prepare the graduate for a career in independent research and teaching in university, clinical, biotechnological, or government environments. Ph.D. degree students are expected to develop creativity and independence in addition to technical skills.

### Program student learning outcomes

1. Students will demonstrate a broad knowledge of the biomedical sciences.
2. Students will demonstrate subject mastery in molecular, cellular, and integrative aspects of pharmacology.
3. Students will interpret the current literature in pharmacology.
4. Students will make original contributions to the body of biomedical knowledge.
5. Students will demonstrate an understanding of the principles of scientific and professional ethics.
6. Students will understand the process of applying for external funding.\*

\* This objective is not applicable to M.S. degree students.

## Admissions

In addition to Loma Linda University (p. 24) application requirements, the applicant must also complete the following prerequisites:

- a bachelor's degree from an accredited U.S. college or the equivalent from an international university.
- results of the general test of the Graduate Record Examination (GRE): A total (verbal plus quantitative) score of no less than the sum of the scores corresponding to the 50th percentile of each, with neither score less than the 35th percentile; analytical writing 4.0. GRE scores older than 5 years from the date of matriculation are not considered.
- a full year of each of the following undergraduate courses:
  - general biology
  - general chemistry
  - organic chemistry

- general physics
- biochemistry (a minimum of one quarter/semester)

Strongly Recommended:

- upper division biology (such as cell and molecular biology)
- a full year of biochemistry with labs
- research experience
- calculus

**PLEASE NOTE:** CLEP (College-Level Examination Program), pass/fail performances, and online classes are not acceptable for the science required courses. Additionally, science credits earned in professional schools (e.g., allied health professions, business, dentistry, nursing or pharmacy) do not fulfill requirements for admissions to the graduate program.

The program reserves the right to decide on the equivalence of courses presented by the applicant.

## M.S. requirements

Two options, a research track and a course work track, are available. A minimum of 47 units is required for the M.S. degree, as detailed in the table below. Students must maintain a G.P.A. of at least 3.0, and they must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or "Student Guide." Policies and requirements are subject to change..

### Basic science core

IBGS 501	Biomedical Communication and Integrity	2
IBGS 502	Biomedical Information and Statistics	2
IBGS 511	Cellular Mechanisms and Integrated Systems I	6
IBGS 512	Cellular Mechanisms and Integrated Systems II	6
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club	2

### Major

PHRM 584	Drug Metabolism and Biochemical Pharmacology	4
PHRM ____	Pharmacology specific elective courses	12

### Seminars

IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>1</sup>	0
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### Religion

RELE 525	Ethics for Scientists <sup>3</sup>	3
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### Degree completion options

8

Coursework track:

PHRM 554	Neuropharmacology
PHRM 564	Cardiovascular and Renal Pharmacology
IBGS 604	Introduction to Integrative Biology Presentation Seminar

Research track:

IBGS 604	Introduction to Integrative Biology Presentation Seminar (1 unit)
IBGS 605	Integrative Biology Presentation Seminar (1 unit)

PHRM 697	Research (6 units) <sup>2</sup>	
Total Units		45

<sup>1</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

<sup>2</sup> Multiple registrations required to fulfill total unit requirement.

<sup>3</sup> May substitute with another religion course at the 500-level or greater.

### Noncourse requirements

Course work track: a comprehensive written examination over the graduate course work in lieu of preparing a thesis.

Research track: pass an oral examination given by his/her graduate guidance committee after the thesis has been completed.

### Normal time to complete the program

2 years – based on full-time enrollment; part time permitted

### Comparison

See the comparison (p. 278) of the M.S. Course work, M.S. Research and Ph.D. tracks of this program.

## Ph.D. requirements

For the Ph.D. degree, students must complete a minimum of 74 units, as detailed in the table below, and must maintain a G.P.A. of at least 3.0. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or "Student Guide." Policies and requirements are subject to change.

#### Basic science core

IBGS 501	Biomedical Communication and Integrity	2
IBGS 502	Biomedical Information and Statistics	2
IBGS 503	Biomedical Grant Writing	2
IBGS 511	Cellular Mechanisms and Integrated Systems I	6
IBGS 512	Cellular Mechanisms and Integrated Systems II	6
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club	2
IBGS 523	Cellular Mechanisms and Integrated Systems III Journal Club	2

#### Major

Choose from the following:		12
PHRM 515	Medical Pharmacology	
PHRM 554	Neuropharmacology	
PHRM 564	Cardiovascular and Renal Pharmacology	
PHRM 584	Drug Metabolism and Biochemical Pharmacology	

#### Seminars

IBGS 604	Introduction to Integrative Biology Presentation Seminar	1
IBGS 605	Integrative Biology Presentation Seminar <sup>2</sup>	2
IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>1</sup>	0

#### Religion

RELE 525	Ethics for Scientists <sup>3</sup>	3
RELR 588	Personal and Family Wholeness <sup>3</sup>	3
RELT 617	Seminar in Religion and the Sciences <sup>3</sup>	3

#### Research/Dissertation or Thesis

IBGS 696	Research Rotations <sup>2</sup>	2
PHRM 697	Research <sup>2</sup>	12
Total Units		60

<sup>1</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

<sup>2</sup> Multiple registrations required to fulfill total unit requirement.

<sup>3</sup> May substitute with another graduate religion course with the same prefix and numbered 500 or above.

### Noncourse requirements

- pass both written and oral comprehensive examinations in order to advance to candidacy.
- successfully defend the dissertation before their guidance committee prior to being awarded the Ph.D. degree.

### Normal time to complete the program

4 years – based on full-time enrollment; part-time permitted

### Comparison

See the comparison (p. 278) of the M.S. Course work, M.S. Research and Ph.D. tracks of this program.

## Pharmacology – M.S., Ph.D. Comparison

	Course Title	MS	PhD
<b>Basic Science Core</b>			
IBGS 501	Biomedical Communication and Integrity	2.0	2.0
IBGS 502	Biomedical Information and Statistics	2.0	2.0
IBGS 511	Cellular Mechanisms and Integrated Systems I	6.0	6.0
IBGS 512	Cellular Mechanisms and Integrated Systems II	6.0	6.0
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club	2.0	2.0
IBGS 503	Biomedical Grant Writing		2.0
IBGS 523	Cellular Mechanisms and Integrated Systems III Journal Club		2.0
Totals		18.0	22.0
	Course Title	MS	PhD
<b>Major</b>			
Choose from the following:			12.0
PHRM 515	Medical Pharmacology		
PHRM 554	Neuropharmacology		
PHRM 564	Cardiovascular and Renal Pharmacology		
PHRM 584	Drug Metabolism and Biochemical Pharmacology		
PHRM ____	Pharmacology specific elective courses	12.0	
Required course:		4.0	
PHRM 584	Drug Metabolism and Biochemical Pharmacology		
Totals		16.0	12.0
	Course Title	MS	PhD
<b>Seminars</b>			
IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>1</sup>	0.0	0.0
IBGS 605	Integrative Biology Presentation Seminar <sup>2</sup>		2.0
IBGS 604	Introduction to Integrative Biology Presentation Seminar		1.0
Totals			3.0
	Course Title	MS	PhD
<b>Religion</b>			
RELE 525	Ethics for Scientists <sup>3</sup>	3.0	3.0
RELT 617	Seminar in Religion and the Sciences <sup>3</sup>		3.0
RELR 588	Personal and Family Wholeness <sup>3</sup>		3.0
Totals		3.0	9.0
	Course Title	MS	PhD
<b>MS completion options</b>			
Required units		8.0	
Coursework track:			
IBGS 604	Introduction to Integrative Biology Presentation Seminar (1 unit)		
PHRM 554	Neuropharmacology		
PHRM 564	Cardiovascular and Renal Pharmacology		
Research track:			
IBGS 605	Integrative Biology Presentation Seminar (1 unit)		
PHRM 697	Research (6 units) <sup>2</sup>		
Totals		8.0	
	Course Title	MS	PhD
<b>PhD research/dissertation</b>			
IBGS 696	Research Rotations <sup>2</sup>		2.0



PHRM 697	Research <sup>2</sup>	12.0
Totals		14.0
Overall Totals		60.0

- <sup>1</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.
- <sup>2</sup> Multiple registrations required to fulfill total unit requirement.
- <sup>3</sup> May substitute with another graduate religion course with the same prefix and numbered 500 or above.

## Physiology – M.S., Ph.D.

### Program coordinator

John H. Zhang

The School of Medicine's Division of Physiology offers curricula leading to the Master of Science and Doctor of Philosophy degrees. The core curriculum provides a broad background in physiology. In this Christian environment in which students pursue study oriented to their specific interests, individual attention is assured by maintenance of a small student/faculty ratio.

The research-oriented curriculum leading to the Ph.D. degree is designed to provide students with the information and tools needed to succeed as independent, lifelong learners and investigators in careers that include independent research and teaching in university, clinical, biotechnological, or government environments. The program offers cutting-edge opportunities in areas of research excellence that are supported by nationally competitive extramural funding. These areas include perinatal biology, health disparities, neurosciences, and cardiovascular science. Doctoral degree students are expected to develop creativity and independence, in addition to technical skills.

The goal of the thesis or research Master of Science degree is to provide training opportunities for individuals who will pursue technical jobs in biomedical research laboratories either in universities or in biotechnology industry; or for students who will continue education in other professional schools, including medicine or dentistry.

### Program student learning outcomes

1. Students will demonstrate a broad knowledge of the biomedical sciences.
2. Students will demonstrate subject mastery in molecular, cellular, and integrative aspects of physiology.
3. Students will interpret the current literature in physiology.
4. Students will make original contributions to the body of biomedical knowledge.
5. Students will demonstrate an understanding of the principles of scientific and professional ethics.
6. Students will understand the process of applying for external funding.\*

\* This objective is not applicable to M.S. degree students.

## Admissions

In addition to Loma Linda University (p. 24) application requirements, the applicant must also complete the following prerequisites:

- a bachelor's degree from an accredited U.S. college or the equivalent from an international university.

- results of the general test of the Graduate Record Examination (GRE): A total (verbal plus quantitative) score of no less than the sum of the scores corresponding to the 50th percentile of each, with neither score less than the 35th percentile; analytical writing 4.0. GRE scores older than 5 years from the date of matriculation are not considered.
- a full year of each of the following undergraduate courses:
  - general biology
  - general chemistry
  - organic chemistry
  - general physics
  - biochemistry (a minimum of one quarter/semester)

### Strongly Recommended:

- upper division biology (such as cell and molecular biology)
- a full year of biochemistry with labs
- research experience
- calculus

**PLEASE NOTE:** CLEP (College-Level Examination Program), pass/fail performances, and online classes are not acceptable for the science required courses. Additionally, science credits earned in professional schools (e.g., allied health professions, business, dentistry, nursing or pharmacy) do not fulfill requirements for admissions to the graduate program.

The program reserves the right to decide on the equivalence of courses presented by the applicant.

## M.S. requirements

A minimum of 45 units is required for the M.S. degree, as detailed in the table below. Two options, a research track and a course work track, are available. Students must maintain a G.P.A. of at least 3.0. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or "Student Guide." Policies and requirements are subject to change.

### Basic science core

IBGS 501	Biomedical Communication and Integrity	2
IBGS 502	Biomedical Information and Statistics	2
IBGS 511	Cellular Mechanisms and Integrated Systems I	6
IBGS 512	Cellular Mechanisms and Integrated Systems II	6
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club	2
IBGS 523	Cellular Mechanisms and Integrated Systems III Journal Club	2

### Major

PHSL ___ Physiology specific elective courses	12
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### Seminars

IBGS 604	Introduction to Integrative Biology Presentation Seminar	1
IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>1</sup>	0
<b>Religion</b>		
RELE 525	Ethics for Scientists <sup>3</sup>	3
<b>Degree completion options</b>		9
Coursework track:		
PHSL___	Graduate physiology electives (and/or statistics courses to equal 6 units) (9 units)	
Research track:		
IBGS 605	Integrative Biology Presentation Seminar (1 unit)	
PHSL 697	Research (6 units) <sup>2</sup>	
PHSL___	Graduate Physiology Elective (and/or statistics courses) (2 units)	
Total Units		45

<sup>1</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

<sup>2</sup> Multiple registrations required to fulfill total units required.

<sup>3</sup> May substitute with another religion course at the 500-level or greater.

### Noncourse requirements

Course work track: a comprehensive written examination over the graduate course work in lieu of preparing a thesis.

Research track: pass an oral examination given by his/her graduate guidance committee after the thesis has been completed.

### Normal time to complete the program

2 years – based on full-time enrollment; part time permitted

### Comparison

See the comparison (p. 281) of the M.S. Course work, M.S. Research and Ph.D. tracks of this program.

## Ph.D. requirements

For the Ph.D. degree, students must complete a minimum of 73 units, as detailed in the table below, and must maintain a G.P.A. of at least 3.0. In addition, doctoral students are required to pass both written and oral comprehensive examinations in order to advance to candidacy.

They must successfully defend the dissertation before their guidance committee prior to being awarded the Ph.D. degree. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or "Student Guide." Policies and requirements are subject to change.

#### Basic science core

IBGS 501	Biomedical Communication and Integrity	2
IBGS 502	Biomedical Information and Statistics	2
IBGS 503	Biomedical Grant Writing	2
IBGS 511	Cellular Mechanisms and Integrated Systems I	6
IBGS 512	Cellular Mechanisms and Integrated Systems II	6
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club	2
IBGS 523	Cellular Mechanisms and Integrated Systems III Journal Club	2

<b>Major</b>		12
PHSL 519	Medical Physiology	
PHSL___	Graduate physiology elective (and/or statistics courses)	
<b>Seminars</b>		
IBGS 604	Introduction to Integrative Biology Presentation Seminar	1
IBGS 605	Integrative Biology Presentation Seminar <sup>2</sup>	2
IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>1</sup>	0
<b>Religion</b>		
RELE 525	Ethics for Scientists <sup>3</sup>	3
RELR 588	Personal and Family Wholeness <sup>3</sup>	3
RELT 617	Seminar in Religion and the Sciences <sup>3</sup>	3
<b>Research/Dissertation or Thesis</b>		
IBGS 696	Research Rotations <sup>2</sup>	2
PHSL 697	Research <sup>2</sup>	12
Total Units		60

<sup>1</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

<sup>2</sup> Multiple registrations required to fulfill total units required.

<sup>3</sup> May substitute with another graduate religion course with the same prefix and numbered 500 or above.

### Noncourse requirements

- pass both written and oral comprehensive examinations in order to advance to candidacy.
- successfully defend the dissertation before their guidance committee prior to being awarded the Ph.D. degree.

### Normal time to complete the program

4 years – based on full-time enrollment; part-time permitted

### Comparison

See the comparison (p. 281) of the M.S. Course work, M.S. Research and Ph.D. tracks of this program.

## Physiology – M.S., Ph.D. Comparison

	Course Title	MS	PhD
<b>Basic Science Core</b>			
IBGS 501	Biomedical Communication and Integrity	2.0	2.0
IBGS 502	Biomedical Information and Statistics	2.0	2.0
IBGS 511	Cellular Mechanisms and Integrated Systems I	6.0	6.0
IBGS 512	Cellular Mechanisms and Integrated Systems II	6.0	6.0
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club	2.0	2.0
IBGS 523	Cellular Mechanisms and Integrated Systems III Journal Club	2.0	2.0
IBGS 503	Biomedical Grant Writing		2.0
Totals		20.0	22.0
	Course Title	MS	PhD
<b>Major</b>			
PHSL ____	Graduate physiology elective courses		12.0
PHSL 519	Medical Physiology		
PHSL ____	Graduate physiology elective courses	12.0	
Totals		12.0	12.0
	Course Title	MS	PhD
<b>Seminars</b>			
IBGS 604	Introduction to Integrative Biology Presentation Seminar	1.0	1.0
IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>1</sup>	0.0	0.0
IBGS 605	Integrative Biology Presentation Seminar		2.0
Totals		1.0	3.0
	Course Title	MS	PhD
<b>Religion</b>			
RELE 525	Ethics for Scientists	3.0	3.0
RELR 588	Personal and Family Wholeness		3.0
RELT 617	Seminar in Religion and the Sciences		3.0
Totals		3.0	9.0
	Course Title	MS	PhD
<b>MS completion options</b>			
	Required units	9.0	
Coursework track:			
	PHSL ____ Graduate physiology electives (and/or statistics courses to equal 6 units) (9 units)		
Research track:			
	IBGS 605 Integrative Biology Presentation Seminar (1 unit)		
	PHSL 697 Research (6 units) <sup>2</sup>		
	PHSL ____ Graduate physiology elective (and/or statistics courses) (2 units)		
Totals		9.0	
	Course Title	MS	PhD
<b>PhD research/dissertation</b>			
IBGS 696	Research Rotations <sup>2</sup>		2.0
PHSL 697	Research		12.0
Totals			14.0
Overall Totals		45.0	60.0

<sup>1</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

# Department of Earth and Biological Sciences

## Graduate degree programs

### Master of Science and Doctor of Philosophy

The Department of Earth and Biological Sciences (EBS) within the School of Medicine at Loma Linda University offers

### Master of Science degrees in biology, geology, and natural sciences, Doctor of Philosophy degrees in biology and earth science BS degrees in geology and environmental sciences.

Our goal is to provide students with the best possible opportunities for graduate study in these areas, with strong preparation for careers in the application of research in, or teaching of biology, geology, paleontology, or earth systems science.

## Student life

The information on student life contained in this CATALOG is brief. The *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies; and is available to each registered student. Students need to familiarize themselves with the contents of the *Student Handbook* and the School of Medicine's "Orange Book" of *Student Guidelines, Policies, and Procedures*. Additional information regarding policies specific to a particular school or program within the University is available from the respective school.

## Financial information

### Schedule of charges (2016-2017)

EBS strives to make it possible for every qualified student to successfully complete his or her degree in a timely manner. For many students, financial arrangements may be key elements in providing opportunity for timely completion. The Department therefore makes available, to as many qualified students as possible, various forms of financial aid within the limits of the departmental budget and circumstances. Such financial aid may take the form of research assistantships (RA) and tuition waivers, or other special awards. It is hoped that these incentives will not only help make a student's graduate career possible, but will also strengthen and expand his or her opportunities for learning during the stay here. Other financial aid, such as student loans or other scholarships are available through the Student Financial Aid office, in the Student Services building. However, every student is responsible for the enrollment fee each quarter. It is not covered by tuition waivers. If a student is awarded an RA, he or she will be expected to document at least 30 hours per pay period (2 weeks) on departmental and research-related projects. Ph.D. degree students will be expected to document at least 40 hours per pay period on their project in order to continue receiving the RA. Please note that R.A.s are awarded on a set amount for the year (M.S. \$7,500, & Ph.D. \$17,000). This amount is paid out monthly after the first full month of work.

### Tuition

\$580	Per unit, graduate credit
\$290	Per unit, undergraduate credit; \$3,480 per quarter

\$350 Per unit, audit, graduate

### Special charges\*

\$60	Application fee
\$799	Enrollment fee per quarter
\$60	Fee for credit by examination
\$30	Per unit fee to have credit earned by examination appear on transcript

\* Programs may have additional fees.

### Chair

Suzanne E. Phillips

### Primary faculty

Leonard R. Brand

H. Paul Buchheim

Ronald L. Carter

Stephen G. Dunbar

Ricardo A. Escobar III

William K. Hayes

Kevin E. Nick

Suzanne E. Phillips

### Secondary faculty

V. Leroy Leggett

Samuel Soret

### Adjunct faculty

Gordon J. Atkins

Stanley M. Awramik

Roberto E. Biaggi

Douglas R. Britton

Benjamin Clausen

Raul Esperante

L. James Gibson, Jr.

H. Thomas Goodwin

Ronald Nalin

Timothy G. Standish

## Admissions

In addition to Loma Linda University admission requirements (p. 24), the applicant must also complete the following requirements:

### Application procedure

1. The application instructions, available on the Web at <llu.edu/central/apply>, allow students to apply online and begin an application, as indicated in the general University section.

2. A personal interview is often desirable and is recommended by the Department of Earth and Biological Sciences. The interview should be arranged with the coordinator of either the Geology Program or the Biology Program.

### Acceptance procedure

1. When the program that the student wishes to enter has evaluated the applications and made its recommendation, the dean of the school in which the program is housed takes official action and notifies the applicant. The applicant must respond affirmatively before becoming eligible to register for programs within the Department of Earth and Biological Sciences
2. As part of registration, accepted students will be asked to file with Student Health Service a medical history with evidence of certain immunizations.
3. New students are required to pass a background check before they register for classes.

### From master's to Ph.D. degree

A graduate student at this University may proceed first to a master's degree. If at the time of application the student wishes to qualify for the Doctor of Philosophy degree, this intention should be declared—even if the first objective is a master's degree.

If after admission to the master's degree program a student wishes to go on to the doctoral degree, an abbreviated application should be completed and submitted—along with appropriate supporting documents—to the school in which the program is housed. If the master's degree is sought, the student will be expected to complete that degree before starting any doctoral activity for credit. A student who bypasses the master's degree may be permitted, on the recommendation of the guidance committee and with the consent of the dean, to transfer courses and research that have been completed in the appropriate field and are of equivalent quality and scope to his/her doctoral program.

### Undergraduate programs

#### Admission requirements

High school and college subject requirements for each program are outlined in the respective programs. Students are required to provide evidence of completion (official transcript) of high school in order to be granted admission to undergraduate programs in any of the schools of the University. A high school diploma or its equivalent, the GED, is required.

To be eligible for admission, applicants must have completed a minimum of 96 quarter units or 64 semester units at an accredited college or university. A minimum grade of C (2.0) is required for all transfer courses unless otherwise specified in specific program requirements; C- grades are not acceptable for transfer. An overall college G.P.A. of at least 2.5 to 3.0 is expected, depending on the program to which the student applies.

### Graduate degree requirements

#### Admission requirements

A four-year baccalaureate degree (or its equivalent) from an accredited college or university is a prerequisite for admission to graduate programs in the Department of Earth and Biological Sciences. Transcripts of the applicant's scholastic record should show appropriate preparation, in grades and content, for the curriculum chosen. Since there is some variation in the pattern of undergraduate courses prescribed by different programs, the applicant should note the specific requirements of the

chosen program. Deficiencies may be fulfilled while enrolled; and prerequisites must be completed prior to matriculation.

### Scholarship

Applicants are expected to present an undergraduate record with a grade point average of B (3.0) or better in the overall program and in the major field. Depending on program-specific criteria, some students with an overall grade point average between 2.5 and 3.0 may be admitted provisionally to graduate standing, provided the grades during the junior and senior years are superior or there is other evidence of capability for completing the program.

### Graduate Record Examination

Scores on the general test of the Graduate Record Examination (GRE) are required for application for admission to many degree programs. New test scores are needed if it has been more than five years since the last test was taken. Applicants are advised to request information specific to their proposed program of study.

For complete information about the GRE, please visit their Web site at <<http://www.ets.org/gre/>>; or write to Educational Testing Service, 1947 Center Street, Berkeley, CA 94701 (for the West); and P.O. Box 6000, Princeton, NJ 08541 (for the East). For GRE publications (including study materials), call 800/537-3160.

## Programs

- Biology – M.S. (p. 283), Ph.D. (p. 283)
- Earth Science – Ph.D. (p. 287)
- Environmental Sciences – B.S. (p. 289)
- Geology – B.S. (p. 292), M.S. (p. 295)
- Natural Sciences – M.S. (p. 297)

## Biology – M.S., Ph.D.

The Biology Program leading to the Master of Science and Doctor of Philosophy degrees is offered by the Department of Earth and Biological Sciences. These curricula provide a broad and unified approach to the life sciences, as well as specialization—as evidenced by the conduct of significant, original research; and in the selection of courses related to the area of research interest. Study in various areas, from molecular biology to natural history, is available to the student seeking preparation for teaching or for research in modern biology. Some areas of specialization are animal behavior, animal physiology, molecular systematics, ecological physiology, behavioral ecology, conservation biology, marine biology, and paleontology.

## Objectives

The Biology Program strives to:

- instill in students the values of honesty, scientific integrity, careful research, and critical independent thinking.
- provide the tools and intellectual environment that will facilitate the biologist's attainment of the highest potential in scholarship, research, teaching, and interdisciplinary service learning.
- challenge graduate students to consider the relationships among science, faith, and societal responsibility.

## Rosario Beach summer courses

In cooperation with the Walla Walla University Marine Station at Anacortes, Washington, facilities are available for marine courses and research by students of this program, in consultation with their advisor.

## Programs

- Biology – M.S. (p. 284), Ph.D. (p. 285)

## Biology – M.S.

### Program director

Stephen G. Dunbar

## Learning outcomes

- Demonstrate advanced breadth and depth of biological knowledge.
- Plan and carry out independent research.
- Demonstrate professional writing and oral communication skills, and develop the ability to publish research findings.
- Demonstrate the ability to analyze and synthesize previous knowledge.
- Develop a professional aptitude and attitude.
- Develop critical evaluation skills in relation to faith, science, and public interest issues.

## Student financial aid

Assistantships for research and/or teaching are available in the Department of Earth and Biological Sciences on a competitive basis. Further information can be obtained, including contact information, from the department web page at <<http://www.llu.edu/medicine/ebs/index.page?>>. Qualified students are also encouraged to seek fellowships from federal and private agencies with the help of their advisor.

## General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the relevant sections of this CATALOG and of the school in which this program is housed.

### Seminar attendance requirements

All graduate students in residence must register for and attend Seminars (BIOL 607) at this University each quarter.

### Research proposal

Students are urged to select a research project early in their program, in consultation with a faculty member approved by the department. A written research proposal and oral defense of the student's proposed research should be completed early in the third quarter of study. A comprehensive plan for completion of the degree will be approved at this time.

### Registration and tuition after normative time

Our program design is for M.S. degree students to finish within the normative time of two years. In certain circumstances, students may require slightly more time for completion. Students who are past the normative time for completing their degree must register for two units without a tuition waiver each quarter until they complete their degree. After their normative time, students may request a one-year grace period that must be approved by the department faculty.

## Thesis

The written thesis must demonstrate the completion of significant, original research and must be written in the format of an appropriate scientific journal where the manuscript is likely to be submitted for publication.

## Admissions

In addition to Loma Linda University (p. 24) admission requirements, the applicant must also complete the following requirements:

- Expected undergraduate preparation includes a bachelor's degree with a biology major or equivalent from an accredited college or university, including the following corequisite courses:
  - Precalculus (required)
  - Calculus (recommended)
  - Statistics (one course)
  - General biology (one year)
  - General chemistry (one year)
  - Genetics (one course)
  - Organic chemistry (one year)
  - Biochemistry (recommended)
  - General physics (one year)
- Some of these courses may be taken during residence at this University, with the approval of the EBS admissions committee.
- An undergraduate G.P.A. of at least 3.0 is expected.
- an acceptable score on the general Graduate Record Examination (GRE) (the subject GRE is not required).

It is also recommended that applicants contact the department at <[ebs@llu.edu](mailto:ebs@llu.edu)>.

### Application time

Applications are accepted at any time, although students are usually admitted for Autumn Quarter. Review of applications begin in February for Autumn Quarter admission. Research assistantships are competitively awarded.

## Program requirements

A total of 48 units of courses and research is required, including at least 36 at or above the 500 level. See below for a list of courses.

All values below are in quarter units

### Required

Additional courses beyond those listed below will be chosen in consultation with the student's advisor		
BIOL 502	Orientation to Graduate Biology (Orientation to Graduate Biology)	1
BIOL 545	Genetics and Speciation	4
BIOL 558	Philosophy of Science <sup>1</sup>	4
BIOL 607	Seminar in Biology <sup>2</sup>	3
BIOL 616	Research and Experimental Design	2
BIOL 617	Proposal Writing and Grantsmanship	2
<b>Select one or more course(s) from any of the following areas for at least 6 units</b>		
Biological systems		
BIOL 517	Ecological Physiology	

BIOL 555	Molecular Genetics	
MICR 540	Physiology and Molecular Genetics of Microbes	
MICR 570	Mechanisms of Microbial Pathogenesis	
<b>Ecology</b>		
BIOL 444	Paleobotany	
BIOL 505	Marine Biology	
BIOL 515	Biogeography	
BIOL 539	Behavioral Ecology	
BIOL 546	Techniques in Vertebrate Ecology	
BIOL 549	Biodiversity and Conservation	
<b>Organismal</b>		
BIOL 409	Mammalogy	
BIOL 426	Invertebrate Paleontology	
BIOL 427	Vertebrate Paleontology	
BIOL 504	Biology of Marine Invertebrates	
BIOL 539	Behavioral Ecology	
GEOL 444	Paleobotany	
GEOL 545	Taphonomy	
<b>Religion</b>		
REL_5__	Graduate-level Religion	3
<b>Electives</b>		
Additional courses required by the student's guidance committee to complete the total units required for the degree <sup>3</sup>		8
ANAT 516	Neuroscience GS	
ANAT 542	Cell Structure and Function GS	
BCHM 515	Introduction to Bioinformatics	
<b>Research</b>		
Typically research units will be graded each quarter and can be repeated for additional credit		
BIOL 698	Thesis Research	15
<b>Total Units</b>		<b>48</b>

<sup>1</sup> BIOL 559 Philosophy of Science and Origins required for students who have taken BIOL 475 Philosophy of Science and Origins or equivalent

<sup>2</sup> Each quarter in residence; 0.5 unit per quarter (Total units required may vary depending on the number of quarters a student is on campus.)

<sup>3</sup> In addition to this list, courses may also be chosen from unused courses listed above for biological systems, ecology, and organismal biology. When choosing elective, keep in mind that a minimum of 44 units for the M.S. degree must be numbered 500 or above.

## Noncourse requirements

### Advancement to candidacy

Students may apply for advancement to candidacy by completing Form A, which requires:

- Completing all deficiencies and corequisites.
- Selecting a research committee.
- Completing an approved written research proposal.
- Passing the oral defense of the research proposal.
- Being recommended by the program faculty (should be completed by the end of the third quarter of study).

### Defense of thesis

An oral presentation and defense of the thesis, including final oral examination on the student's field of study, are required.

### Grade requirement for graduation

All courses applied toward a graduate degree must have a grade of B or higher.

### Length of program

2 years based on full-time enrollment; part time permitted

## Biology – Ph.D.

### Program director

Stephen G. Dunbar

## Learning outcomes

- Demonstrate advanced breadth and depth of biological knowledge.
- Demonstrate the ability to plan and carry out independent research.
- Demonstrate effective writing and oral communication skills, including the ability to publish research findings.
- Demonstrate the ability to analyze and synthesize previous knowledge.
- Demonstrate a professional aptitude and attitude.
- Demonstrate critical evaluation skills in relating faith and science and public interest issues.
- Demonstrate skills, knowledge, and techniques that provide evidence of the ability to be ethical, independent, and engaged contributors to scientific and social communities.

## General requirements

### Seminar attendance requirements

All graduate students in residence must register for and attend Seminars (BIOL 607) each quarter at Loma Linda University.

### Teaching experience

Teaching is recommended for at least one quarter. This experience may be obtained through laboratory teaching, or it may include presenting lectures for a course in consultation with the student's major professor and the course instructor.

### Research proposal

A written research proposal and oral defense of the student's proposed research should be completed early in the Spring Quarter.

### Comprehensive

A written and oral comprehensive is required of the student after the first summer of research. The student is required to provide a written report in the form of a publishable manuscript and to orally defend the previous research in front of his or her research committee by the end of the Winter Quarter following the first summer of research.

### Dissertation

The written dissertation must demonstrate the completion of significant, original research; and must be written in publishable paper format. At least one manuscript from the dissertation must be submitted for publication before the Ph.D. degree is granted.

## Professional development

Ph.D. degree students are expected to publish papers, present papers at scientific meetings, and submit research grant proposals.

## Registration and tuition after normative time

The program design is for Ph.D. degree students to complete their studies in the normative time of four years. In certain circumstances, students may require more time for completion. Students are required to be registered every quarter until the dissertation is completed, including defense. For details, see the continuous enrollment and personal leave of absence policies listed in the Academic Policies and Information (p. 35) section of this Catalog. Students who are past the normative time for completing their degree must register for 2 units without a tuition waiver each quarter until they complete their degree. After their normative time, students may request a one-year grace period that must be approved by the department faculty.

## Admissions

In addition to Loma Linda University (p. 24) admission requirements, the applicant must also complete the following requirements:

- Expected undergraduate preparation includes a bachelor's degree with a biology major (M.S. degree recommended) from an accredited college or university.
- an acceptable score on the general GRE examination (the subject GRE is not required).
- Recommended G.P.A. in a previous M.S. degree program is at least 3.5.
- Complete the following corequisite courses:
  - Precalculus (required)
  - Calculus (recommended)
  - Statistics (one course)
  - General biology (one year)
  - Genetics (one course)
  - General chemistry (one year)
  - Organic chemistry (one year)
  - Biochemistry (recommended)
  - General physics (one year)
- Some of these courses may be taken during residence at this University, with the approval of the EBS admissions committee.

## Application

Applications are accepted at any time. Review of applications begins in February for Autumn Quarter admission. Research assistantships are competitively awarded.

It is also recommended that applicants contact the department at <ebs@llu.edu>.

## Program requirements

A minimum of 65 units of courses and research is required, including at least 53 at or above the 500 level. See below for a list of courses. The student's advisory committee may require the student to take additional courses as electives

All values below are in quarter units.

### Required

Additional courses beyond those listed below will be chosen in consultation with the student's advisor		
BIOL 502	Orientation to Graduate Biology (Orientation to Graduate Biology)	1
BIOL 545	Genetics and Speciation	4
BIOL 558	Philosophy of Science <sup>1</sup>	4
BIOL 607	Seminar in Biology <sup>2</sup>	6
BIOL 616	Research and Experimental Design	2
BIOL 617	Proposal Writing and Grantsmanship	2
<b>Select course(s) from each of the following areas</b>		
Biological systems		2
BIOL 517	Ecological Physiology	
BIOL 555	Molecular Genetics	
MICR 540	Physiology and Molecular Genetics of Microbes	
MICR 570	Mechanisms of Microbial Pathogenesis	
Ecology		2
BIOL 444	Paleobotany	
BIOL 505	Marine Biology	
BIOL 515	Biogeography	
BIOL 539	Behavioral Ecology	
BIOL 546	Techniques in Vertebrate Ecology	
BIOL 549	Biodiversity and Conservation	
Organismal biology		2
BIOL 409	Mammalogy	
BIOL 426	Invertebrate Paleontology	
BIOL 427	Vertebrate Paleontology	
BIOL 444	Paleobotany	
BIOL 504	Biology of Marine Invertebrates	
BIOL 539	Behavioral Ecology	
GEOL 545	Taphonomy	
<b>Religion</b>		
Select one course with the RELT prefix:		3
RELT 527	The Bible and Ecology	
RELT 558	Old Testament Thought	
RELT 559	New Testament Thought	
RELT 560	Jesus the Revealer: The Message of the Gospel of John	
RELT 564	Apostle of Hope: The Life, Letters, and Legacy of Paul	
RELT 565	Vision of Healing: The Message of the Book of Revelation	
RELE_5__	Graduate-level Ethics	3
RELRL_5__	Graduate-level Relational	3
<b>Electives</b>		
Additional courses required by the student's guidance committee to complete the total units required for the degree <sup>3</sup>		
ANAT 516	Neuroscience GS	
ANAT 542	Cell Structure and Function GS	
BCHM 515	Introduction to Bioinformatics	
<b>Research</b>		
Typically research units will be graded each quarter and can be repeated for additional credit		



BIOL 699	Dissertation Research (21+)	21
Total Units		65

- <sup>1</sup> BIOL 559 Philosophy of Science and Origins required for students who have taken BIOL 475 Philosophy of Science and Origins or equivalent
- <sup>2</sup> each quarter in residence; 0.5 unit per quarter (Total units required may vary depending on the number of quarters a student is on campus.)
- <sup>3</sup> In addition to this list, courses may also be chosen from unused courses listed above for biological systems, ecology, and organismal biology. When choosing elective, keep in mind that a maximum of 12 units below the 500 level may be applied to the 65 units for the Ph.D. degree.

## Noncourse requirements

### Comprehensive examination

An oral comprehensive examination is given in connection with a written and oral presentation of an initial research project approved by the student's guidance committee.

The purpose is to measure the student's knowledge of his/her field of study; and his/her ability to find, understand, and synthesize the research literature on a topic, and to conduct original research. The oral examination covers the student's field of study, as well as defending the research. The comprehensive exam will take place during the Autumn Quarter of the second year, after the first summer of research.

### Advancement to candidacy

Students may apply for advancement to candidacy after:

- Completing all deficiencies and corequisites.
- Passing the comprehensive examinations.
- Selecting a research committee.
- Completing an approved written and oral research proposal and budget presentation for the research committee.
- Being recommended by the department faculty.

### Defense of dissertation

An oral dissertation presentation and defense are required.

### Grade requirement for graduation

All courses applied toward a graduate degree must have a grade of B or higher.

## Normal time to complete the program

4 years based on full-time enrollment; part time permitted

# Earth Science – Ph.D.

### Program director

H. Paul Buchheim

The Department of Earth and Biological Sciences offers the program leading to a Doctor of Philosophy degree in earth science. Emphasis is on research and courses in sedimentology, paleontology, and paleobiology that prepare the student to understand the history of the earth and life, its geological context, and the science involved in deciphering this history. Students are encouraged to think independently and to consider various approaches to understanding earth history. Areas of curricular strength and research emphases include sedimentology, limnogeology,

paleontology, paleoenvironments, paleoecology, taphonomy, and microbial carbonates. Research in paleontology can also be pursued through the Master of Science degree in geology curriculum and the Doctor of Philosophy degree in biology curriculum.

The specific research and academic interests and strengths of the faculty are in:

- vertebrate paleontology, taphonomy, philosophy of science
- limnogeology, sedimentology, paleoenvironments
- biostratigraphy, terrestrial paleoecology
- tropical marine and intertidal ecology and marine invertebrate ecophysiology, comparative physiology
- animal behavior and distribution
- paleomagnetism and sedimentology geographic information analysis and technology
- igneous petrology, nuclear physics, and geophysics
- vertebrate paleontology and biogeography
- microbial carbonates

## Objectives

The Earth Science Program strives to:

1. instill in students the values of honesty, scientific integrity, careful research, and critical, independent thinking.
2. provide the tools and intellectual environment that will facilitate the earth scientist's attainment of the highest potential in scholarship, research, and teaching.
3. challenge graduate students to consider the relationship among science, faith, and societal responsibility.

## Learning outcomes

1. Demonstrate advanced breadth and depth of knowledge in earth science.
2. Demonstrate the ability to plan and carry out independent research.
3. Demonstrate written and oral communication skills, as well as the integration of technology in communication.
4. Demonstrate ability to analyze and synthesize previous knowledge.
5. Demonstrate a professional aptitude and attitude.
6. Demonstrate critical evaluation skills in relation to philosophy of science and public interest issues.

## Student financial aid

Assistantships for research and/or teaching are available at the Department of Earth and Biological Sciences on a competitive basis. Further information can be obtained by contacting the department at <ebs@llu.edu>. Qualified students are also encouraged to seek fellowships from federal and private agencies with the help of their advisor.

## General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult relevant sections of this CATALOG, as well as general information pertinent to the school in which this program is housed.

## Registration and tuition after normative time

The program design is for Ph.D. degree students to finish in the normative time of four years. In certain circumstances, students may require more time for completion. Students who are past the normative time for completing their degree must register for two units each quarter without a tuition waiver until they complete their degree. After their normative time, students may request a one-year grace period that must be approved by the department faculty.

## Seminar attendance requirements

All graduate students in residence must register for and attend GEOL 607 Seminar in Geology seminars each quarter at Loma Linda University.

## Research proposal

Students are urged to select a research project early in their program, in consultation with a faculty member approved by the department. A written research proposal and oral defense of the student's proposed research should be completed by the end of the third quarter of study. A comprehensive plan for completion of the degree will be approved at this time.

## Comprehensive examination

Students must complete a comprehensive examination during Fall or Winter quarter of their second year of residence. The examination includes presentation of the results of a project approved by their advisement committee (usually part of their research proposal). A publishable style paper detailing the results of the research project is required at the time of the examination.

## Dissertation

The written thesis must demonstrate the completion of significant, original research and must be written in the format of an appropriate scientific journal where the manuscript is likely to be submitted for publication. At least one manuscript from the dissertation must be submitted for publication before the Ph.D. degree will be granted.

## Teaching experience

Teaching is recommended during at least one quarter. This experience may be obtained through laboratory teaching or it may include presenting several lectures for a course, in consultation with the student's major professor and the course instructor.

## Professional development

Ph.D. degree students are expected to publish papers, present papers at scientific meetings, and submit research grant proposals.

## Rosario Beach summer courses

In cooperation with the Walla Walla University Marine Station at Anacortes, Washington, facilities are available for marine courses and research by students of this program.

## Admissions

In addition to Loma Linda University (p. 24) admission requirements, the applicant must also complete the following requirements:

- achieve an acceptable score on the general GRE examination (the subject GRE is not required).
- minimum required G.P.A. in a previous M.S. degree program is at least 3.0.
- Expected undergraduate preparation includes:

- two quarters of college mathematics (including calculus)
- general physics with laboratory (one year)
- general chemistry with laboratory (one year)
- statistics (one course)
- undergraduate geology courses (see corequisites listed below)

Some of these courses may be taken during residence at Loma Linda University, with approval of the admissions committee.

Students may also contact the department at <ebs@llu.edu>.

## Application time

It is highly recommended that student complete the application process by January 31 of the year being considered for admission, for priority consideration. Review of applications begins in February for Autumn Quarter admission. Research assistantships are competitively awarded.

## Program requirements

A minimum of 72 quarter units of academic credit for courses, seminars, and research beyond the master's degree is required (including at least 55 at or above the 500 level); that is, a minimum of 120 units beyond the baccalaureate degree, including the following required courses:

(Advanced standing may be granted toward these requirements)

### Corequisites

May be taken during the program in addition to the units required for the degree (advanced standing may be granted for equivalent courses)

GEOL 204	Physical Geology	
GEOL 316	Mineralogy	
GEOL 317	Igneous and Metamorphic Petrology	
GEOL 416	Sedimentology and Stratigraphy	
GEOL 424	Structural Geology	
GEOL 431	Geochemistry	
GEOL 443	Historical Geology	
GEOL 456	Field Methods of Geologic Mapping	

### Core

GEOL 556	Paleoenvironments	3
GEOL 557	Paleoenvironments Field Trip	1
GEOL 566	Sedimentary Processes	4
GEOL 607	Seminar in Geology <sup>1</sup>	–
GEOL 617	Proposal Writing and Grantsmanship	2

One course required: GEOL 558 required except for students who have taken GEOL 475 or equivalent

GEOL 558	Philosophy of Science	
GEOL 559	Philosophy of Science and Origins	

### During the undergraduate or graduate program

GEOL 431	Geochemistry (Required)	4
Select one GIS course of the following:		2-3
HGIS 521	Cartography and Map Design	
HGIS 522	Principles of Geographic Information Systems and Science	
HGIS 524	GIS Software Applications and Methods	
HGIS 535	Integration of Geospatial Data in GIS	
HGIS 536	Spatial Analytic Techniques and GIS	

Select two paleontology courses of the following: 7-8

BIOL 426	Invertebrate Paleontology	
BIOL 427	Vertebrate Paleontology	
BIOL 444	Paleobotany	
GEOL 545	Taphonomy	

Select one course to be approved by PhD committee of the following: 3-4

STAT 509	General Statistics	
STAT 525	Applied Multivariate Analysis	

#### Religion

RELE_5__	Graduate-level Ethics	3
RELR_5__	Graduate-level Relational	3

Select one course with the RELT prefix of the following: 3

RELT 527	The Bible and Ecology	
RELT 558	Old Testament Thought	
RELT 559	New Testament Thought	
RELT 560	Jesus the Revealer: The Message of the Gospel of John	
RELT 564	Apostle of Hope: The Life, Letters, and Legacy of Paul	
RELT 565	Vision of Healing: The Message of the Book of Revelation	

#### Electives

Additional courses required by the student's guidance committee to complete total required units 18-69

#### Research

4 units minimum; will be graded each quarter and can be repeated for additional credit

GEOL 699	Dissertation Research (4 minimum)	4
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Total Units 76

<sup>1</sup> Registration is required for each quarter in residence, maximum units counted toward the degree total is 5

## Varied course offerings

In addition to the primary offerings of the department, the student, with committee approval, may take courses in other departments as part of the graduate work—according to special interests and needs.

## Non-course requirements

### Grade requirement for graduation

All courses applied toward the Ph.D. must receive a grade of at least a B.

### Advancement to candidacy

Students may apply for advancement to candidacy by completing Form A, which requires:

1. Completing all deficiencies and corequisites.
2. Selecting a research committee.
3. Completing an approved written research proposal and budget.
4. Passing the oral defense of the research proposal.
5. Passing the oral comprehensive exam.
6. Being recommended by the program faculty (should be completed by the end of the third quarter of study).

### Comprehensive examination

An oral comprehensive examination is given in connection with a written and oral presentation of an initial research project, approved by the

student's guidance committee. The written portion is in the form of a "publishable" paper in a specific journal style.

The purpose is to measure the student's knowledge of his/her field of study and his/her ability to find, understand, and synthesize the research literature on a topic and to conduct original research. The oral examination covers the student's field of study, as well as defense of the research.

### Defense of dissertation

An oral presentation and defense of the dissertation, including final oral examination on the student's field of study, are required.

### Normal time to complete the program

5 years based on full-time enrollment; part time permitted

## Environmental Sciences – B.S.

### Program director

Ricardo A. Escobar III

The Department of Earth and Biological Sciences (EBS) offers a program leading to the Bachelor of Science degree in environmental sciences (ENVS). This program builds upon a strong interdisciplinary breadth in natural, physical, and earth systems sciences to help understand the effect of human activities on environmental sustainability and management. In addition, since understanding the environment has become highly dependent on advanced technology, students will learn to use marketable geospatial applications, such as: geographic information systems (GIS), remote sensing, computer systems modeling, and global positioning systems (GPS). These tools will help students address environmental problems, such as: climate change, biodiversity decline, groundwater and soil contamination, use of natural resources, waste management, sustainable development, and air and noise pollution. Students have a choice of advanced expertise in conservation biology and biodiversity or environmental geology. Lastly, this program will encourage students to develop critical-thinking skills, healthy lifestyles, and service-oriented attitudes that are necessary to develop effective and ethical solutions to environmental problems on a local and global scale.

## Learning outcomes

- Demonstrate breadth and depth of knowledge of earth's environment by understanding the dynamic and interdependent nature of each of earth's component systems (atmosphere, hydrosphere, biosphere, and geosphere).
- Demonstrate the ability to critically evaluate the relation of science and faith within an environmental context.
- Demonstrate written, technical, oral, and problem-solving skills necessary to collect, analyze, and share environmental data with scientific and public communities.
- Demonstrate awareness of the professional and academic opportunities in the environmental science field, as well as knowledge of concurrent environmental science research.
- Obtain an understanding of the human and natural causes to some of earth's environmental problems and learn how the environmental scientist addresses them.

## Employment opportunities

Career options in the field of environmental sciences are diverse and abundant. The Environmental Sciences Program prepares students for entry-level jobs in environmental sciences or GIS fields. Graduates may

pursue jobs in the public sector through local, state, and federal agencies such as U.S. Fish and Wildlife Service, U.S. Geological Survey, and Department of Fish and Game. In the private sector, graduates may seek jobs in environmental consulting firms, foundations, and organizations. Some examples of career paths that environmental science graduates pursue include environmental engineering, science, and social policy; a wide variety of natural resources management fields, such as soil science, forestry, agriculture, watershed science, range management, wildlife conservation, recreation resources, land management, and ecology; landscape architecture, conservation science, geographic information science (GIS), climatology, diverse health sciences; as well as public policy, law, or planning careers.

Environmental scientists may also become involved through employment or volunteering with nonprofit organizations such as Adventist Development and Relief Agency (ADRA) International; and help world populations learn how to use the earth's resources to their advantage in a sustainable manner.

## Preparation for teaching

In addition to the environmental sciences major, a student preparing to teach at the elementary or secondary level will need to complete the requirements for a teaching credential. The student should consult the undergraduate program director for further information. General elective units can be used for education courses.

## Preparation for advanced programs

Because of the strong foundation in the natural and physical sciences acquired in the Environmental Sciences Program, students have the option of applying to a variety of graduate programs; as well as medical, dental, and engineering programs. In most cases, these programs require full-year courses in general biology, general chemistry, general physics, and organic chemistry. One or more courses in calculus may also be required. Students are strongly encouraged to contact the prehealth or graduate program of their choice early in their studies to ensure they meet specific course requirements.

## Environmental internship

The Environmental Sciences Program offers students the opportunity to engage in "hands-on" application of fundamentals learned in course work by enrolling in ENVS 487 Internship in Environmental Sciences. With the supervision of a faculty advisor, students will develop an academic component of the internship and will be permitted to earn up to 8 units of general elective credit towards the B.S. degree. All internship appointments are subject to Environmental Sciences Program director approval.

## Undergraduate research

Following approval of an academic advisor and research professor, students interested in field research may gain training and experience in one of the three concentration areas offered by the program. Under the supervision of a research professor, students will develop a project within the context of environmental conservation, health, or sustainability in an effort to find new solutions to environmental problems.

## Honors program

Students who have a G.P.A. of 3.0 or above, a sponsoring faculty member, and an approved research proposal may apply to be accepted in the environmental sciences honors program. The honors student must register for at least two units of undergraduate research, conduct

original research under a faculty member's direction, submit a written undergraduate thesis, and give a public oral presentation of his/her research.

## Required units and residence requirement

All unit requirements listed are quarter units. Minimum requirements include one year of full-time residence in Loma Linda University, completing 32 of the last 46 units; or a minimum of 45 total units of course work for the degree at Loma Linda University. If the student has attended an institution that does not grant bachelor's degrees, a maximum of 105 quarter units of transfer credit from a two-year junior or community college are allowed.

Please note: Grades of C- and below are not accepted for credit.

## Financial aid

The following tuition rate for Geology or Environmental Sciences programs apply—B.S.: \$290/unit; 12-18 units—\$3,480 per quarter.

### Scholarships and discounts

Scholarships and discounts available to eligible undergraduate students in the Department of Earth and Biological Sciences include:

- Academic scholarships based on test results
  - a. American College Test (ACT) score of 30 or above: \$1,600 (or 16 percent of tuition)—for a student who maintains a cumulative G.P.A. of at least 3.5, renewable for successive years.
  - b. Scholastic Aptitude Test (SAT): Student must maintain a 3.5 cumulative G.P.A., renewable for successive years. If a student qualifies for both an ACT and an SAT scholarship, the scholarship with the largest dollar value will apply.
    - National Merit Finalist Scholarship covers 100 percent of tuition.
    - National Merit Semifinalist Scholarship covers 34 percent of tuition.
    - National Merit Commended Scholarship covers 20 percent of tuition.
- Renewable G.P.A. scholarships (eligibility based on G.P.A. at the end of previous academic year). If a student is eligible for a National Merit Scholarship and/or an ACT scholarship, as well as a G.P.A. scholarship, the scholarship with the largest dollar value will apply—
  - G.P.A. between 3.75 and 4.00, \$1,480 per year (or 15 percent of tuition).
  - G.P.A. between 3.50 and 3.74, \$1,180 per year (or 12 percent of tuition).
  - G.P.A. between 3.25 and 3.49, \$900 per year (or 9 percent of tuition).

### Guidelines

- All scholarships or other financial awards cannot exceed costs for tuition and fees.
- If a student qualifies for more than one scholarship or reduced tuition award, the award with the largest dollar value applies.
- Scholarship or tuition reduction will be applied as a credit to the student's tuition account at the rate of one-third of the total per quarter, and is available to full-time students only.

- Loss of scholarship money may result when a student does not maintain the minimum cumulative G.P.A. required by the particular scholarship.
- The last day of final tests for the first quarter that a student is enrolled at LLU is the deadline for verifying with Student Financial Services that the student qualifies for a scholarship for the academic year.
- The scholarships and reduced tuition award listed here apply only to students enrolled in undergraduate programs in the Department of Earth and Biological Sciences.

Note: Determination of the amount of scholarships and awards at Loma Linda University is influenced by FAFSA data. State and federal grants, as well as other grants and subsidies, will be applied before Loma Linda University scholarships and discounts; therefore, some students may be eligible to receive only a portion of their scholarship award.

## Admissions

The student in the B.S. degree in Environmental Sciences (ENVS) Program will generally take the first two years of required corequisite course work (96-105 units) at any accredited community college or university, and the last two years of the ENVS curriculum at Loma Linda University. Students may obtain early entrance with the approval of the Earth and Biological Sciences Department after completing at least 48 quarter units of corequisites at a college of their choice. Students accepted early will concurrently take course work at a nearby community college in order to complete their outstanding corequisite requirements.

In addition to Loma Linda University admissions requirements (p. 24), the applicant must also complete the following requirements:

- have a 2.5 G.P.A.
- three letters of recommendation from faculty members at the institutions previously attended.
- course corequisites listed below

## Course corequisites

Domain 1: Religion and Humanities (20 quarter units minimum)

### Humanities (12 quarter units minimum)

Choose courses from three of the following areas: civilization/history, fine arts (art history and music history), literature, philosophy, and performing/visual arts (not to exceed 4 quarter units).

### Religion

An applicant who has attended an Adventist college or university is required to have taken four quarter units of religion from an Adventist institution for each year of attendance at an Adventist college or university. Up to 8 quarter credits may apply towards the 20 units needed in Domain 1. If the applicant has not attended an Adventist institution, there are no religion units required. In either case, however, the applicant must have completed 20 quarter/14 semester units in Domain 1: Humanities and Religion.

### Domain 2: Scientific Inquiry and Analysis (43 quarter units)

#### Natural Sciences (31 units)

- College algebra (4 units)
- Statistics (3 units) offered at LLU
- Two of the following full-year sequences:
  - General biology with laboratory (12 units)
  - General chemistry with laboratory (12 units)

- General physics with laboratory (12 units)

#### Social Sciences (12 units minimum)

- One course dealing with human diversity (e.g., cultural anthropology)
- Choose remaining units from the following areas: geography, economics, political science, psychology, sociology, etc.

#### Domain 3: Communication (9-13 quarter units)

- English composition (complete sequence)
- Elective areas may include courses in computer information systems, critical thinking, and public speaking

#### Domain 4: Health and Wellness (2-6 quarter units)

- Two activity courses in physical education
- Personal health or nutrition

#### Domain 5: Electives

Electives from the previous four domains may be selected to complete the general education minimum requirements of 68 quarter units.

For total unit requirements for graduation, see LLU General Education Requirements (p. 28).

Please note: Grades of C- and below are not accepted for credit.

## Program requirements

### Required core courses

BIOL 449	Biodiversity and Conservation	3
ENVH 414	Introduction to Environmental Health	3
ENVS 401	Earth System Science and Global Change	4
ENVS 455	Environmental Law and Regulation	4
ENVS 485	Seminar in Environmental Sciences <sup>1</sup>	0.5
GEOL 475	Philosophy of Science and Origins	4

### Concentration

Select a concentration in Conservation Biology and Biodiversity OR Environmental Geology (see descriptions below) 20

### Required environmental sciences electives

Select from any of the environmental sciences concentration areas 20 or the approved ENVS electives. A minimum of one course from each non-concentration area is required.

### Religion

REL_ 4__	Upper-division Religion <sup>2</sup>	6-10
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Select one course of the following: 2

RELT 406	Adventist Beliefs and Life
RELT 423	Loma Linda Perspectives
RELT 436	Adventist Heritage and Health
RELT 437	Current Issues in Adventism

### General electives

Any undergraduate courses taught at Loma Linda University or other regionally accredited college to meet the 192-unit total requirement

<sup>1</sup> All ENVS students are required to register and attend seminar every quarter while enrolled. Typically seminar units will add up to 3 units at the completion of the ENVS program.

<sup>2</sup> Total units required will be prorated based on total program units completed at LLU and other SDA colleges/universities.

## Concentrations

### Conservation biology and biodiversity

One year each of general biology and general chemistry are required for this concentration.

This concentration is suitable for students wishing to empirically analyze the health of an ecosystem, including population and distribution of plants and animals and environmental degradation and its causes, with the goal of proposing methods of improving the health of the ecosystem. Graduates in this track normally work closely with government, conservation agencies, and industry to develop land and water management plans and educate the public about threats to the health of ecosystems. This concentration is also appropriate as background for graduate study in such disciplines as biology, ecology, forestry, and environmental health. However, one year of organic chemistry and one year of physics is required of most graduate programs listed above.

BIOL 406	Marine Biology	4
BIOL 407	Herpetology	3
BIOL 409	Mammalogy	4
BIOL 414	Biology of Marine Invertebrates	4
BIOL 415	Ecology	4
BIOL 428	Genetics and Speciation	4
BIOL 456	Techniques in Vertebrate Ecology	3
BIOL 466	Multivariate Statistics	3
BIOL 488	Current Topics in Biology	1-4
BIOL 495	Undergraduate Research	1
BIOL 497	Special Projects in Biology	1-4
ENVS 487	Internship in Environmental Sciences	4,8
ENVS 488	Topics in Environmental Sciences	1-4
ENVS 495	Special Projects in Environmental Sciences	1-4
ENVS 497	Undergraduate Research	1-4
HGIS 421	Cartography and Map Design	3
HGIS 423	Practical Issues in GIS	4
HGIS 424	Desktop GIS Software Applications	4
HGIS 434	Advanced GIS Software Applications	3
HGIS 435	Sources, Capture, and Integration of GIS Data	3
HGIS 436	Spatial Analysis with GIS	4
HGIS 437	GIS in Public Health	2
HGIS 499	Directed Study/Special Project	1-4

### Environmental geology

One year of general chemistry and general physics is required for this concentration.

This track will prepare students to objectively study geologic information and apply it to contemporary environmental problems such as pollution, waste management, resource extraction, natural hazards, and human health. For example, an environmental geologist might evaluate the risk and damage potential from natural hazards such as floods, landslides, volcanoes, or earthquakes. They might be involved in a land-use planning process that assesses the impact a sanitary landfill would have on groundwater. This concentration is also appropriate as background for graduate study in areas such as geology and earth sciences.

GEOL 204	Physical Geology	4
GEOL 316	Mineralogy	4
GEOL 317	Igneous and Metamorphic Petrology	4

GEOL 416	Sedimentology and Stratigraphy	6
GEOL 424	Structural Geology	4
GEOL 426	Invertebrate Paleontology	4
GEOL 427	Vertebrate Paleontology	4
GEOL 431	Geochemistry	4
GEOL 443	Historical Geology	4
GEOL 455	Modern Carbonate Depositional Systems	3
GEOL 456	Field Methods of Geologic Mapping	4
GEOL 465	Hydrogeology	4
GEOL 488	Topics in Geology	1-4
GEOL 495	Special Projects in Geology	1-4
GEOL 497	Undergraduate Research	1
ENVS 487	Internship in Environmental Sciences	4,8
ENVS 488	Topics in Environmental Sciences	1-4
ENVS 495	Special Projects in Environmental Sciences	1-4
ENVS 497	Undergraduate Research	1-4
HGIS 421	Cartography and Map Design	3
HGIS 423	Practical Issues in GIS	4
HGIS 424	Desktop GIS Software Applications	4
HGIS 434	Advanced GIS Software Applications	3
HGIS 435	Sources, Capture, and Integration of GIS Data	3
HGIS 436	Spatial Analysis with GIS	4
HGIS 437	GIS in Public Health	2
HGIS 499	Directed Study/Special Project	1-4

### Normal time to complete the program

2 years (7 academic quarters) at LLU based on full-time enrollment; part time permitted

## Geology – B.S.

### Program director

Kevin E. Nick

The Department of Earth and Biological Sciences offers a program leading to the Bachelor of Science degree in geology. This program provides the student with a field-oriented education, emphasizing the application of geological principles. Sedimentary geology, paleontology, and environmental geology are areas of emphasis within the department. The curriculum is designed as a degree-completion program, which means two years of college-level course work should be completed before admission. The program aims to maintain affordability through tuition rates and scholarships. Please contact the department at <ebs@llu.edu> for any questions or comments.

## Objectives

The integrated core course (major) sequence of the geology degree provides students with a general background in geology as preparation for a career or graduate studies in stratigraphy, sedimentology, paleontology, and environmental geology. Fieldwork is emphasized because it provides the link to basic geological data beyond the classroom and laboratory. Throughout the geology curriculum, students are taught to apply the scientific method to resolve geologic problems. Students are encouraged to consider multiple working hypotheses during this process.

## Learning outcomes

1. Demonstrate knowledge of the composition and structure of the earth, geological processes, and earth and planetary models.
2. Demonstrate skill in finding reference materials and collecting and presenting field and laboratory data.
3. Demonstrate written, analytical, and oral skills with the integration of technology in communication.
4. Demonstrate ability to analyze and synthesize previous knowledge.
5. Demonstrate a professional aptitude and attitude.
6. Demonstrate critical evaluation skills in relating faith, science, and public interest issues.

## Curriculum

The Bachelor of Science degree in geology requires a total of 192 quarter units. The total units are divided between general studies requirements, major requirements, and electives.

The following summarizes the general categories and numbers of credits required for the degree and will help in planning the course schedule. All units are quarter units.

Major requirements—41 units

Major electives—20 units

Minimum general studies in the natural sciences—44 units

Minimum other general studies requirements—38 units

Other electives (this number will decrease if units in above categories are greater)—49 units

Total—192 units

## Residence requirements

Minimum requirements include one year of full-time residence at Loma Linda University, completing at least 32 of the last 48 units; or a minimum of 45 total units of course work for the degree at Loma Linda University. If the student has attended an institution that does not grant bachelor's degrees, a maximum of 105 quarter units of credit can be transferred from a two-year junior or community college.

## Honors program

Students may apply and be accepted into the geology honors program if they meet the following requirements: a G.P.A. of 3.0 or above, obtain guidance from a sponsoring faculty member, and submit an approved research proposal. Honor students must register for at least 2 units of undergraduate research, conduct original research under a faculty member's direction, submit a written undergraduate thesis, and deliver a public oral presentation.

## Geology careers

A baccalaureate degree in geology prepares a student to enter graduate programs in geology or paleontology, for employment in environmental and energy-related industries; or (with the necessary education courses) for teaching in secondary schools. Most employment opportunities in industry, research, or college teaching require a graduate degree.

In addition to the geology major, a student preparing to teach at the elementary or secondary level will need to complete the requirements for a teaching credential. The student should consult the Geology Program undergraduate director for further information. Education courses will count toward general studies requirements.

## Scholarships and discounts for earth and biological sciences undergraduate students

Tuition rate for courses offered by the Geology Program (B.S.): \$290/unit; 12-18 units—\$3,480 per quarter

- Academic scholarships based on test results
  - a. American College Test (ACT) score of 30 or above: \$1,600 (or 16 percent of tuition). For a student who maintains a cumulative G.P.A. of at least 3.5, renewable for successive years.
  - b. Scholastic Aptitude Test (SAT): Student must maintain a 3.5 cumulative G.P.A. renewable for successive years. If a student qualifies for both an ACT and an SAT scholarship, the scholarship with the largest dollar value will apply.
    - National Merit Finalist Scholarship covers 100 percent of tuition.
    - National Merit Semifinalist Scholarship covers 34 percent of tuition.
    - National Merit Commended Scholarship covers 20 percent of tuition.
- Renewable G.P.A. scholarships (eligibility based on G.P.A. at the end of previous academic year): If a student is eligible for a National Merit Scholarship and/or an ACT scholarship, as well as a G.P.A. scholarship, the scholarship with the largest dollar value will apply.
- G.P.A. between 3.75 and 4.00, \$1,480 per year (or 15 percent of tuition).
- G.P.A. between 3.50 and 3.74, \$1,180 per year (or 12 percent of tuition).
- G.P.A. between 3.25 and 3.49, \$900 per year (or 9 percent of tuition).

## Additional scholarship guidelines

- All scholarships or other financial awards cannot exceed cost for tuition and fees.
- If a student qualifies for more than one scholarship or reduced tuition award, the award with the largest dollar value applies.
- Scholarship or tuition reduction will be applied as a credit to the student's tuition account at the rate of one-third of the total per quarter and is available to full-time students only.
- Loss of scholarship money may result when a student does not maintain the minimum cumulative G.P.A. required by the particular scholarship.
- The last day of final tests for the first quarter that a student is enrolled at LLU is the deadline for verifying with Student Financial Services that the student qualifies for a scholarship for the academic year.
- The scholarships and reduced tuition award listed here apply only to students enrolled in undergraduate programs in the Department of Earth and Biological Sciences.

Note: Determination of the amount of scholarships and awards at Loma Linda University is influenced by FAFSA data. State and federal grants, as well as other grants and subsidies, will be applied before Loma Linda University scholarships and discounts; therefore, some students may be eligible to receive only a portion of their scholarship award.

# Admissions

## Applications

Applications are accepted at any time. Review of applications begins in February for Autumn Quarter admission.

In addition to Loma Linda University (p. 24) admission requirements, the applicant must also complete the following requirements for admission to the Geology BS program:

- complete two years (minimum of 96 quarter units) of general education and science courses at any accredited institution. This should include the majority of the General Studies requirements. Note this would typically include a year of general chemistry and general physics with associated laboratory sections, and mathematics. Please contact the program director if you have questions about this requirement.
- achieve a minimum of 2.5 G.P.A. during the first two years of course work.
- submit letters of recommendation from two faculty at institutions previously attended.

## General studies requirements

The information below provides a summary of the University's general education requirements for undergraduate students. For a complete description of Loma Linda University's general education requirements and criteria, the student should refer to the Division of General Studies (p. 28) section in this CATALOG.

### Domain 1: Religion and Humanities Humanities (12 quarter units minimum)

Choose courses from three of the following areas: civilization/history, fine arts (art history and music history), literature, philosophy, and performing/visual arts (not to exceed 4 quarter units).

#### Religion

An applicant who has attended an Adventist college or university is required to have taken four quarter units of religion from an Adventist institution for each year of attendance at an Adventist college or university. Up to 8 quarter credits may apply toward the 20 units needed in Domain 1. If the applicant has not attended an Adventist institution, no religion units are required. In either case, however, the applicant must have completed 20 quarter/14 semester units in Domain 1: Humanities and Religion.

### Domain 2: Scientific Inquiry and Analysis Natural Sciences (12 units minimum; additional units count toward Domain 5 and the total general studies requirement)

- Mathematics, including calculus (8-12 units)
- Statistics (4 units)
- General chemistry with laboratory—one full year, complete sequence
- General physics with laboratory—one full year, complete sequence
- Courses in genetics and ecology, or general biology with laboratory (8 units)

#### Social Sciences (12 units minimum)

- One course dealing with human diversity (e.g., cultural anthropology)
- Choose remaining units from the following areas: geography, economics, political science, psychology, sociology, etc.)

### Domain 3: Communication (9 units minimum)

- English composition (complete sequence)

- Elective areas may include courses in computer information systems, critical thinking, and public speaking.

### Domain 4: Health and Wellness (2-6 units)

- Two activity courses in physical education
- Personal health or nutrition

### Domain 5: Electives

Electives from the previous four domains may be selected to complete the general education minimum requirements of 68 quarter units.

Specific general studies requirements are detailed in the Division of General Studies (p. 28) section in this CATALOG. It is recommended that applicants contact the department at <ebs@llu.edu> for a review of their academic plan as early as possible.

Please note: Grades of C- and below are not accepted for credit toward the degree.

## Program requirements

### Major

GEOL 204	Physical Geology	4
GEOL 316	Mineralogy	4
GEOL 317	Igneous and Metamorphic Petrology	4
GEOL 416	Sedimentology and Stratigraphy	6
GEOL 424	Structural Geology	4
GEOL 431	Geochemistry	4
GEOL 443	Historical Geology	4
GEOL 456	Field Methods of Geologic Mapping	4
GEOL 475	Philosophy of Science and Origins	4
GEOL 485	Seminar in Geology	3

### Religion

Select at least one course from each prefix:		6
RELE 4__	Upper-division ethics	
RELR 4__	Upper-division relational	
Select one of the following:		2
RELT 406	Adventist Beliefs and Life	
RELT 423	Loma Linda Perspectives	
RELT 436	Adventist Heritage and Health	
RELT 437	Current Issues in Adventism	

### Geology electives

Select at least one course from the following:		4
GEOL 426	Invertebrate Paleontology	
GEOL 427	Vertebrate Paleontology	
GEOL 444	Paleobotany	
Select 16 units from the following or from the unused elective courses above:		16
BIOL 406	Marine Biology	
BIOL 407	Herpetology	
BIOL 409	Mammalogy	
BIOL 414	Biology of Marine Invertebrates	
BIOL 415	Ecology	
BIOL 449	Biodiversity and Conservation	
GEOL 434	Introduction to GIS for the Natural Sciences (2)	
GEOL 435	GIS Spatial Analysis for the Natural Sciences (3)	
GEOL 455	Modern Carbonate Depositional Systems	



GEOL 465	Hydrogeology
GEOL 484	Readings in Geology
GEOL 486	Research and Experimental Design
GEOL 487	Field Geology Studies
GEOL 488	Topics in Geology
GEOL 489	Readings in Paleontology
GEOL 495	Special Projects in Geology
GEOL 497	Undergraduate Research
HGIS 422	Principles of Geographic Information Systems
HGIS 424	Desktop GIS Software Applications
HGIS 434	Advanced GIS Software Applications

<b>General electives</b>	27
<b>Total Units</b>	96

### Seminar attendance requirements

All students must register for and attend GEOL 485 Seminar in Geology for each quarter of residence at this University.

### Normal time to complete the program

2 years [6 quarters] at LLU) based on full-time enrollment; part-time permitted

## Geology – M.S.

**Program director**  
H. Paul Buchheim

The Department of Earth and Biological Sciences offers the Master of Science degree in geology. Research and course work emphasize field and laboratory studies in sedimentology, paleontology, paleoenvironmental reconstruction, paleoecology, and taphonomy. Areas of curriculum strengths include sedimentary geology and paleontology. Research in paleontology may also be pursued through the M.S. and Ph.D. degree curricula in biology, and through the Ph.D. degree curriculum in earth science.

### Program objectives

The Geology Program focuses on field-oriented geology—particularly sedimentology, stratigraphy, and paleontology. The integrated core course sequence provides students with the tools to conduct research in the subdisciplines of sedimentology, paleontology, or environmental geology. Fieldwork is emphasized because it provides a first-hand experience with geological phenomena that cannot be satisfactorily grasped or understood solely from classroom or laboratory study. Throughout the geology curriculum, students are encouraged to develop an open-minded and investigative approach in the application of the scientific method to the resolution of geologic problems. Consideration of multiple working hypotheses is encouraged.

The Geology Program aims to instill in students the values of honesty, scientific integrity, careful research, and independent critical thinking; provide the tools and intellectual environment in which geologists can attain their highest potential in scholarship and research; and challenge graduate students to consider the relationships among science, faith, and societal responsibility.

### Learning outcomes

1. Demonstrate advanced breadth and depth of knowledge in earth science.

2. Plan and carry out independent research.
3. Demonstrate written and oral communication skills, and the integration of technology in communication.
4. Demonstrate ability to analyze and synthesize previous knowledge.
5. Demonstrate a professional aptitude and attitude.
6. Demonstrate critical evaluation skills in relation to faith, science, and public interest issues.

### Financial aid

Research and teaching assistantships are available at the Department of Earth and Biological Sciences on a competitive basis. Further information can be obtained by contacting the department at <ebs@llu.edu>.

Qualified students are also encouraged to seek fellowships and grants from federal and private agencies with the help of their advisors.

### Curriculum

#### Two-year track, for students with an undergraduate degree in geology

A minimum of 56 quarter units, including 44 at or above the 500 level, constitutes the curriculum for the Master of Science degree in geology. In addition to the general requirements of the school in which the program is housed, the following courses are required:

#### Three-year track, for students without an undergraduate degree in geology

Students with a variety of majors (including science and some nonscience majors) are encouraged to enter the M.S. degree program in geology. The three-year track courses are indicated in the table of course requirements. The total program consists of 78 units, including 22 units of undergraduate geology courses that are not part of the M.S. degree program in geology; and the M.S. degree curriculum in geology with a minimum of 56 quarter units, including 44 at or above the 500 level. Advanced standing may be granted toward cognate requirements.

### Other requirements

The remainder of the student's program will be planned in consultation with the major professor and graduate advisory committee. In addition to course work, students are expected to attend all program seminars while in residence, fulfill research and thesis expectations, and successfully pass a final oral examination.

#### Seminar attendance requirements

All graduate students in residence must register for and attend seminars (GEOL 607 Seminar in Geology) each quarter at this University.

#### Registration and tuition after normative time

Students who are past the normative time for completing their degree must register for two units without a tuition waiver each quarter until they earn their degree. After the normative time, students may request a one-year grace period. An extension may be granted contingent upon approval of the department faculty.

#### Research proposal

Students are urged to select a research project early in their program, in consultation with a faculty member approved by the department. A written research proposal and an oral defense of the student's proposed research should be completed by the end of the third quarter of study. A comprehensive plan for completion of the degree will be approved at this time.

## Advancement to candidacy

Students may apply for advancement to candidacy by completing Form A, which requires:

1. Selecting a research committee.
2. Receiving approval of the written research proposal.
3. Passing the oral defense of the research proposal.
4. Being recommended by the program faculty (should be completed by the end of the third quarter of study).

## Thesis

The written thesis must demonstrate the completion of significant, original research and must be written in the format of an appropriate scientific journal.

## Rosario Beach Summer courses

In cooperation with the Walla Walla University Marine Station at Anacortes, Washington, facilities are available for marine courses and research by graduate students of this department.

## Admissions

In addition to Loma Linda University (p. 24) admission requirements, the applicant must also complete the following requirements:

- a bachelor's degree from an accredited institution
- a G.P.A. of at least 3.0
- achieve an acceptable score on the general GRE examination
- completion of the following courses:
  - General chemistry—full year with laboratory (12 units)
  - Physics—full year with laboratory (12 units)
  - Mathematics, including calculus
  - Statistics
  - Biology—zoology, botany, ecology or general biology (8 units highly recommended, not required)

Some of the above courses may be taken as corequisites during residence at Loma Linda University, with approval of admission committee.

It is highly recommended that the applicant complete the application process by January 31 of the calendar year being considered for admissions, for priority consideration. Review of applications begins in February for Autumn Quarter to be submitted by March. Research assistantships are competitively awarded.

It is recommended that applicants contact the department at <ebs@llu.edu>.

## Program requirements

### 3-year Track additional requirements

#### Corequisites

The following courses are required of all students who have not completed a bachelor's degree in geology. Courses do not apply toward graduate credit.

GEOL 204	Physical Geology	4
GEOL 316	Mineralogy	4
GEOL 317	Igneous and Metamorphic Petrology	4
GEOL 416	Sedimentology and Stratigraphy	6

GEOL 424	Structural Geology	4
Total Units		22

### M.S. degree requirements for all students—both 2-year and 3-year tracks

#### Cognates

The following courses are usually taken during the undergraduate program. However, they may be completed during the graduate program and may apply toward the M.S. degree. Advanced standing may be granted toward these requirements.

GEOL 431	Geochemistry	4
GEOL 443	Historical Geology	4
GEOL 456	Field Methods of Geologic Mapping	4

#### Core

GEOL 556	Paleoenvironments	3
GEOL 557	Paleoenvironments Field Trip	1
GEOL 558	Philosophy of Science <sup>1</sup>	4
or GEOL 559	Philosophy of Science and Origins	

GEOL 565	Analysis of Sedimentary Rocks	4
GEOL 566	Sedimentary Processes	4
GEOL 567	Stratigraphy and Basin Analysis	4
GEOL 607	Seminar in Geology <sup>2</sup>	4
GEOL 617	Proposal Writing and Grantsmanship	2

Select two of the following: 8

GEOL 426	Invertebrate Paleontology	
GEOL 427	Vertebrate Paleontology	
GEOL 444	Paleobotany	
GEOL 545	Taphonomy	

#### Religion

REL_5__	Graduate-level Religion	3
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#### Electives

Select of the following: 3

BIOL 515	Biogeography	
BIOL 566	Multivariate Statistics	
GEOL 426	Invertebrate Paleontology (If not taken to meet a core requirement)	
GEOL 427	Vertebrate Paleontology (If not taken to meet a core requirement)	
GEOL 444	Paleobotany (If not taken to meet a core requirement)	
GEOL 455	Modern Carbonate Depositional Systems	
GEOL 487	Field Geology Studies	
GEOL 495	Special Projects in Geology	
GEOL 526	Introduction to GIS for the Natural Sciences	
GEOL 535	GIS Spatial Analysis for the Natural Sciences	
GEOL 545	Taphonomy (If not taken to meet a core requirement)	
GEOL 554	Limnogeology	
GEOL 555	Carbonate Geology	
GEOL 565	Analysis of Sedimentary Rocks	
GEOL 575	Hydrogeology	
GEOL 588	Topics in Geology	
GEOL 594	Readings in Geology	
GEOL 595	Readings in Limnogeology	

GEOL 618	Writing for Publication	
GEOL 658	Advanced Philosophy of Science readings (2)	
GEOL 695	Special Projects in Geology	
GEOL 697	Research (This is not for thesis research)	
HGIS 422	Principles of Geographic Information Systems	
HGIS 424	Desktop GIS Software Applications	
HGIS 434	Advanced GIS Software Applications	
<b>Research</b>		
GEOL 698	Thesis Research <sup>3</sup>	4
Total Units		56

<sup>1</sup> One course required: GEOL 588 Topics in Geology required except for students who have taken GEOL 475 Philosophy of Science and Origins or equivalent

<sup>2</sup> Registration required for each quarter in residence; maximum counted toward the degree total is 4.5

<sup>3</sup> 4 units minimum; will be graded each quarter and can be repeated for additional credit

## Noncourse requirements

### Defense of thesis

An oral presentation and defense of the thesis is required. This includes final oral examination on student's field of study.

### Grade requirement for graduation

An overall G.P.A. of 3.0 is required for graduation.

## Normal time to complete the program

27-month track – 2.33 years (7 academic quarters) based on full-time enrollment; part time permitted

36-month track – 3 years (9 academic quarters) based on full-time enrollment; part time permitted

# Natural Sciences – M.S.

### Program director

Leonard R. Brand

The Natural Sciences Program leads to the Master of Science degree. Course work is selected from the allied fields of biology, paleontology, geology, earth systems science, and geographic information systems. Areas of curriculum strength include ecology, genetics, systematics, sedimentary geology, paleontology, environmental geology, environmental science, and GIS.

## Objectives

Students completing the Master of Science degree in natural sciences will be:

1. fluent in the fundamental concepts of biology, geology, GIS, and environmental science.
2. qualified to seek endorsement for subject-teaching in secondary education and will be competent in either biological science or geoscience.
3. effective in written and oral communication.
4. familiar with the scientific method, hypothesis testing, and deductive reasoning.
5. familiar with key issues related to the integration of faith and science.

6. qualified to seek employment in K-12 teaching or civil or public service, or will be satisfied that the degree met other personal or professional development objectives.

## Program features

The Natural Sciences Program emphasizes ecology-oriented areas of biology and field-oriented geology—particularly sedimentology, stratigraphy, and paleontology. Fieldwork is emphasized because it provides a first-hand experience with biological and geological phenomena that cannot be satisfactorily grasped or understood solely from classroom or laboratory study. Throughout the natural sciences curriculum, students are encouraged to develop an open-minded and investigative approach in the application of the scientific method to the resolution of biological and geologic problems. Multiple working hypotheses are encouraged. The goal is to prepare students for effective careers in teaching or government.

## Learning outcomes

1. Demonstrate breadth of knowledge in the natural sciences.
2. Demonstrate written and oral communication skills and integrate technology in communication.
3. Demonstrate ability to analyze and synthesize previous knowledge.
4. Demonstrate a professional aptitude and attitude.
5. Demonstrate critical evaluation skills in relating faith and science with public interest issues.

## Rosario Beach summer courses

In cooperation with the Walla Walla University Marine Station at Anacortes, Washington, facilities are available for marine courses and research by graduate students of the Department of Earth and Biological Sciences.

## Admissions

In addition to Loma Linda University (p. 24) admission requirements, the applicant must also complete the following requirements:

- a bachelor's degree in biology, geology, chemistry, physics, or other degree with typical biology and geology prerequisites.
- undergraduate G.P.A. of at least 3.0 is expected.
- achieve an acceptable score on the general Graduate Record Examination (GRE). The subject GRE is not required.
- completion of prerequisite courses:
  - college mathematics—two quarter (calculus recommended)
  - biology—one-year
  - general physics with laboratory—one year
  - general chemistry with laboratory—one year
  - general ecology—one course

Some of the courses listed above may be taken during residence at Loma Linda University, with approval of the admissions committee.

## Application

Applications are accepted at any time. Review of applications begins in February for the Autumn Quarter admission. It is highly recommended that the applicant complete the application process by January 31 of the calendar year being considered for admissions, for priority consideration.

Research assistantships are competitively awarded. Applicants may contact the department at <ebs@llu.edu>.

## Program requirements

A minimum of 50 quarter units, including 34 at or above the 500 level, constitutes the curriculum for the Master of Science degree program in natural sciences. The following courses are required. Undergraduate courses must be at the 400 level.

Core		
BIOL 558	Philosophy of Science	4
or GEOL 558	Philosophy of Science	
GEOL 518	Earth Structure, Process, and History	4
BIOL 607	Seminar in Biology <sup>1</sup>	3
or GEOL 607	Seminar in Geology	
BIOL 616	Research and Experimental Design	2
or GEOL 616	Research and Experimental Design	
Select one course of the following:		3-4
BIOL 505	Marine Biology	
BIOL 515	Biogeography	
BIOL 517	Ecological Physiology	
BIOL 539	Behavioral Ecology	
BIOL 546	Techniques in Vertebrate Ecology	
BIOL 549	Biodiversity and Conservation	
Select one course of the following:		4
GEOL 512	Invertebrate Paleontology	
GEOL 513	Vertebrate Paleontology	
GEOL 514	Paleobotany	
GEOL 545	Taphonomy	
Religion		
REL_ 5__	Graduate-level Religion	3
Electives		
Selected in consultation with the student's faculty advisor		32-33
BIOL 415	Ecology	
BIOL 437	Animal Behavior	
BIOL 504	Biology of Marine Invertebrates	
BIOL 505	Marine Biology (If not taken to meet a core requirement)	
BIOL 507	Herpetology	
BIOL 515	Biogeography (If not taken to meet a core requirement)	
BIOL 517	Ecological Physiology	
BIOL 518	Readings in Ecology	
BIOL 529	Mammalogy	
BIOL 539	Behavioral Ecology (If not taken to meet a core requirement)	
BIOL 545	Genetics and Speciation	
BIOL 546	Techniques in Vertebrate Ecology (If not taken to meet a core requirement)	
BIOL 549	Biodiversity and Conservation (If not taken to meet a core requirement)	
BIOL 555	Molecular Genetics	
BIOL 566	Multivariate Statistics	
BIOL 588	Current Topics in Biology (If not taken to meet a core requirement)	
BIOL 589	Readings in Biology	
BIOL 618	Writing for Publication	
BIOL 695	Special Projects in Biology	
BIOL 697	Research	
ENVS 401	Earth System Science and Global Change	
ENVS 434	The Environmental Context of Community Health	
ENVS 495	Special Projects in Environmental Sciences	
ENVS 534	The Environmental Context of Community Health	
GEOL 416	Sedimentology and Stratigraphy	
GEOL 512	Invertebrate Paleontology (If BIOL 426 not taken to meet a core requirement)	
GEOL 513	Vertebrate Paleontology (If BIOL 427 not taken to meet a core requirement)	
GEOL 514	Paleobotany (If BIOL 444 not taken to meet a core requirement)	
GEOL 526	Introduction to GIS for the Natural Sciences	
GEOL 535	GIS Spatial Analysis for the Natural Sciences	
GEOL 545	Taphonomy (If not taken to meet a core requirement)	
HGIS 422	Principles of Geographic Information Systems	
HGIS 424	Desktop GIS Software Applications	
Total Units		56

<sup>1</sup> Registration required for each quarter in residence; 0.5 unit per quarter. Maximum counted toward the degree total is 3 (6 quarters of seminar).

## Noncourse requirements

### Seminar attendance requirements

All graduate students in residence must register for and attend Seminars (BIOL 607 Seminar in Biology or GEOL 607 Seminar in Geology) each quarter at Loma Linda University.

### Advancement to candidacy

Students may apply for advancement to candidacy by completing Form A, which requires: Completing all deficiencies and corequisites.

- Completing an approved written project proposal.
- Passing the written comprehensive examination.
- Being recommended by the program faculty (should be completed by the end of the third quarter of study).

### Final examinations

Students are expected to pass a written comprehensive examination during their penultimate quarter in residence.

### Project

As part of the core curriculum, the student will complete a project, in consultation with the advisor, involving 4 units of registration in research or special projects.

### Grade requirement for graduation

A grade of B (3.0) or better is required in all courses that count toward the degree.

**Normal time to complete the program**

2 years based on full-time enrollment; part time permitted

## Department of Pathology and Human Anatomy

The School of Medicine's Division of Anatomy offers curricula leading to the Master of Science or the Doctor of Philosophy degree. The core curriculum offers a broad biomedical background. Course work provides opportunities for qualified students not only to study all aspects of human morphology from both didactic and investigative points of view, but also to develop a special area of research interest. Study and research on other species and in other biomedical disciplines may be included in the student's curriculum. While working on a significant research problem, students are introduced to research methods both through scientific literature and the laboratory. They acquire experience in scientific communication by participating in seminars, writing critical reviews, and reporting results of research experience either in thesis/dissertation form or as publishable/published papers.

The Doctor of Philosophy degree is designed to prepare the graduate for a career in independent research and teaching in university, clinical, biotechnological, or government environments. In addition to technical skills, doctoral degree students are expected to develop creativity and independence.

The Master of Science degree provides content appropriate for persons preparing to teach at the secondary level or in related professional school areas, or for persons intending to pursue careers as research technicians.

### Student learning outcomes

1. Students will demonstrate a broad knowledge of the biomedical sciences.
2. Students will demonstrate subject mastery in molecular, cellular, and integrative aspects of anatomy.
3. Students will interpret the current literature in anatomy.
4. Students will make original contributions to the body of biomedical knowledge.
5. Students will demonstrate an understanding of the principles of scientific and professional ethics.
6. Students will understand the process of applying for external funding.\*

\* This objective is not applicable to M.S. degree students.

### First-year curriculum (Ph.D. degree)

The first-year curriculum includes a course sequence taught by interdisciplinary faculty that integrates all the disciplines of the biomedical basic science areas—moving from molecules through cellular mechanisms to integrated systems. In addition, a supplemental course covers research-related topics—such as scientific communication and integrity, information handling and statistics, and successful grant writing. Students learn of new developments in the biomedical sciences through weekly seminars, and they gain presentation skills of their own in a weekly student presentation seminar series. During the subsequent years, formal courses continue to broaden and integrate into a meaningful whole an understanding of the clinical consequences of cellular events.

### Religion requirement

Students in the Master of Science (M.S.) degree curriculum are required to complete one 3-unit, graduate-level religion class (RELT 617 Seminar

in Religion and the Sciences). Students in the Ph.D. degree curriculum are required to complete three graduate-level religion courses of 3 or more units each. These must include RELT 617 Seminar in Religion and the Sciences; as well as RELE 525 Ethics for Scientists and RELR 588 Personal and Family Wholeness. A course in biblical studies (RELT 559 New Testament Thought, RELT 560 Jesus the Revealer: The Message of the Gospel of John, RELT 564 Apostle of Hope: The Life, Letters, and Legacy of Paul, or RELT 565 Vision of Healing: The Message of the Book of Revelation) may be substituted for either the ethical or relational course.

### Research units

A student will, at all times, have registration in research units. An IP will be assigned until the student registers for new units. The units should be spread out over the course of time it takes to complete thesis or dissertation research satisfactorily. An IP may not be carried for longer than five quarters.

#### Chair

Paul C. Herrmann

#### Program coordinator

Kenneth R. Wright

#### Primary faculty

Denise L. Bellinger

Resa C. Chase

Bertha C. Escobar-Poni

Paul C. Herrmann

Michael A. Kirby

Zhongrong Luo

P. Ben Nava, Jr.

Kirby C. Oberg

Kimberly J. Payne

Kenneth R. Wright

#### Secondary faculty

William M. Hooker

#### Pathologists' Assistant Program primary faculty

Cheryl Germain

Michael Weitzel

#### Pathologists' Assistant Program clinical faculty

Maria Nieves G. Rabina

### Admissions

In addition to Loma Linda University (p. 24) application requirements, the applicant must also complete the following requirements:

- a bachelor's degree from an accredited U.S. college or the equivalent from an international university.
- general test of the Graduate Record Examination (GRE): A total (verbal plus quantitative) score of no less than the sum of the scores corresponding to the 50th percentile of each, with neither score less

than the 35th percentile; analytical writing 4.0. GRE scores older than 5 years from the date of matriculation are not considered.

- a full year of each of the following undergraduate courses:
  - general biology
  - general chemistry
  - organic chemistry
  - general physics
  - biochemistry (a minimum of one quarter/semester)
- Strongly recommended:
  - upper division biology (such as cell and molecular biology)
  - a full year of biochemistry with labs
  - research experience
  - calculus

**PLEASE NOTE:** CLEP (College-Level Examination Program), pass/fail performances, and online classes are not acceptable for the science required courses. Additionally, science credits earned in professional schools (e.g., allied health professions, business, dentistry, nursing or pharmacy) do not fulfill requirements for admissions to the graduate program.

The program reserves the right to decide on the equivalence of courses presented by the applicant.

## Programs

Anatomy – M.S. (p. 301), Ph.D. (p. 301) Comparison (p. 302)

Pathologists' Assistant – M.S. (p. 304)

## Anatomy – M.S.

A minimum of 45 units is required for the M.S. degree, as detailed in the table below. Two options, a research track and a course work track, are available. Students must maintain a G.P.A. of at least 3.0. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or "Student Guide." Policies and requirements are subject to change.

### Basic science core

IBGS 501	Biomedical Communication and Integrity	2
IBGS 502	Biomedical Information and Statistics	2

### Major

ANAT 516	Neuroscience GS	6
ANAT 541	Gross Anatomy GS	7
ANAT 542	Cell Structure and Function GS	7
ANAT 544	Human Embryology Lecture	2

### Seminars

IBGS 604	Introduction to Integrative Biology Presentation Seminar	1
IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>1</sup>	0

### Religion

RELT 617	Seminar in Religion and the Sciences	3
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### Degree completion options

Coursework track:		15
ANAT___	Anatomy/embryology electives (15 units)	

Research track:

ANAT 697	Research (14 units)	
IBGS 605	Integrative Biology Presentation Seminar (1 unit)	
Total Units		45

<sup>1</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

## Noncourse requirements

Course work option: a comprehensive written examination over the graduate course work in lieu of writing a thesis.

Research option: pass an oral examination given by student's graduate guidance committee after the thesis has been completed.

## Normal time to complete the program

Two (2) years – based on full-time enrollment; part time permitted

## Anatomy – Ph.D.

For the Ph.D. degree, students must complete a minimum of 88 units, as detailed in the table below, and must maintain a G.P.A. of at least 3.0. In addition, doctoral students are required to pass both written and oral comprehensive examinations in order to advance to candidacy. They must successfully defend their dissertation before their guidance committee prior to being awarded the Ph.D. degree. Students must adhere to all University and program policies as published in the *Student Handbook*, University CATALOG, or "Student Guide." Policies and requirements are subject to change.

### Basic science core

IBGS 501	Biomedical Communication and Integrity	2
IBGS 502	Biomedical Information and Statistics	2
IBGS 503	Biomedical Grant Writing	2
IBGS 511	Cellular Mechanisms and Integrated Systems I	6
IBGS 512	Cellular Mechanisms and Integrated Systems II	6
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club	2
IBGS 523	Cellular Mechanisms and Integrated Systems III Journal Club	2

### Major

ANAT 516	Neuroscience GS	6
ANAT 541	Gross Anatomy GS	7
ANAT 542	Cell Structure and Function GS	7
ANAT 544	Human Embryology Lecture	2

### Seminars

IBGS 604	Introduction to Integrative Biology Presentation Seminar	1
IBGS 605	Integrative Biology Presentation Seminar (1.0) <sup>2</sup>	2
IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>1</sup>	0

### Religion

RELE 525	Ethics for Scientists <sup>3</sup>	3
RELR 588	Personal and Family Wholeness <sup>3</sup>	3
RELT 617	Seminar in Religion and the Sciences <sup>3</sup>	3

### Research/Dissertation or Thesis

ANAT 697	Research (1.0-8.0) <sup>2</sup>	12
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IBGS 696	Research Rotations (1.0) <sup>2</sup>	2
Total Units		70

<sup>3</sup> May substitute with another graduate religion course with the same prefix and numbered 500 or above.

<sup>1</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

<sup>2</sup> Multiple registrations required to fulfill total units required.

### Normal time to complete the program

4 years based on full-time enrollment; part-time permitted

## Anatomy – M.S., Ph.D. Comparison

	Course Title	MS	PhD
<b>Basic Science Core</b>			
IBGS 501	Biomedical Communication and Integrity	2.0	2.0
IBGS 502	Biomedical Information and Statistics	2.0	2.0
IBGS 503	Biomedical Grant Writing		2.0
IBGS 511	Cellular Mechanisms and Integrated Systems I		6.0
IBGS 512	Cellular Mechanisms and Integrated Systems II		6.0
IBGS 522	Cellular Mechanisms and Integrated Systems II Journal Club		2.0
IBGS 523	Cellular Mechanisms and Integrated Systems III Journal Club		2.0
Totals		4.0	22.0
	Course Title	MS	PhD
<b>Major</b>			
ANAT 516	Neuroscience GS	6.0	6.0
ANAT 541	Gross Anatomy GS	7.0	7.0
ANAT 542	Cell Structure and Function GS	7.0	7.0
ANAT 544	Human Embryology Lecture	2.0	2.0
Totals		22.0	22.0
	Course Title	MS	PhD
<b>Seminars</b>			
IBGS 604	Introduction to Integrative Biology Presentation Seminar	1.0	1.0
IBGS 607	Integrated Biomedical Graduate Studies Seminar <sup>1</sup>	0.0	0.0
IBGS 605	Integrative Biology Presentation Seminar		2.0
Totals		1.0	3.0
	Course Title	MS	PhD
<b>Religion</b>			
RELT 617	Seminar in Religion and the Sciences	3.0	3.0
RELE 525	Ethics for Scientists		3.0
RELR 588	Personal and Family Wholeness		3.0
Totals		3.0	9.0
	Course Title	MS	PhD
<b>MS completion options</b>			
Required units		15.0	
Coursework track:			
ANAT ____ Anatomy/embryology electives (15 units)			
Research track:			
IBGS 605	Integrative Biology Presentation Seminar (1 unit)		
ANAT 697	Research		
Totals		15.0	
	Course Title	MS	PhD
<b>PhD research/dissertation</b>			
ANAT 697	Research <sup>2</sup>		12.0



IBGS 696	Research Rotations <sup>2</sup>		2.0
<hr/>			
Totals			14.0
<hr/>			
Overall Totals		45.0	70.0

<sup>1</sup> Registration and attendance required every quarter in residence, but units do not count toward total required for graduation.

# Pathologists' Assistant – M.S.

## Program director

Cheryl Germain

## Clinical Coordinator

Michael Weitzel

## Medical director

Jeremy Deisch

Loma Linda University offers a professional course of study leading to the M.S. degree in Pathology, Pathologists' Assistant. This degree prepares students for a career as mid-level health-care professionals in hospital pathology laboratories, private laboratories, universities, and industry.

## Program objectives

Upon completion of the program, the pathologists' assistant (PA) graduate will be qualified to (under the supervision of a pathologist):

### Surgical pathology

1. Ensure correct specimen identification and submission techniques prior to processing.
2. Supervise specimen accessioning and laboratory information systems for correct patient and specimen correlation.
3. Recognize and identify pathology in surgical specimens, correlating the correct technique for dissection and evaluation for tissue submission.
4. Order special testing on tissues as necessary to specimen management, including radiology, immunohistochemistry, flow cytometry, cytogenetics, immunofluorescence, microbiology, etc.
5. Perform stat frozen section and special testing procedures, such as kidney biopsy evaluation, intraoperatively.
6. Correlate the full patient history and treatment with pathologic findings for professional presentation.
7. Manage and train other health care professionals such as residents, medical students, and PA students in surgical pathology.
8. Manage the surgical pathology suite while acting as liaison to nursing, surgery, and other hospital services.

### Autopsy pathology

1. Ensure correct procedural permissions and patient identification.
2. Perform a full external examination for hospital and forensic autopsy cases.
3. Conduct a complete evisceration utilizing various techniques as required by permissions and patient history, ordering and variously performing special testing as necessary.
4. Formulate a preliminary anatomic diagnosis within 24 hours of the procedure.
5. Compile a complete autopsy report for submission to the pathologist.
6. Review and report pathologic findings to pathologists and other pertinent clinical practitioners.
7. Act as liaison to patient families and outsourced services for the department.
8. Train other health-care professionals—including residents, medical students, nurses, and PAs—in autopsy technique and management.

9. Develop and maintain procedural and training manuals for the autopsy service.
10. Manage the autopsy service and staff and act as liaison to other hospital departments and outsourced services.

### Other

1. Teach at the university level.
2. Work in research and/or industry (pharmaceuticals, biotechnology, medical equipment and devices, etc.).

## Program outcomes

In addition to the stated institutional learning outcomes, (p. 19) the M.S. degree in Pathology, Pathologists' Assistant student is expected to meet the following program learning outcomes:

1. Demonstrate basic science knowledge in pathology and clinical laboratory sciences.
2. Demonstrate competence, knowledge, and clinical skills in anatomic pathology.
3. Demonstrate critical thinking skills in pathology and clinical laboratory sciences.

## Accreditation

Loma Linda University is regionally accredited by the WASC Senior College and University Commission (WSCUC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501; telephone: 510/748-9001; fax: 510/748-9797; Web site: <<http://www.wascsenior.org>> or <<http://www.wascsenior.org/contact>>.

### Pathologists' Assistant Program accreditation

Accreditation is a long and complicated process. Preliminarily, the Pathologists' Assistant Program will be comprehensively reviewed by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) to achieve "serious applicant status" prior to graduation of the first class. This designation makes the program's graduates eligible to take the national certification examination administered by the American Society of Clinical Pathology (ASCP).

NAACLS is the premier accreditation for pathologists' assistant programs. Strict standards required for this accreditation ensure a quality education and preparation for the certification examination and competence in the field as a pathologists' assistant. The Loma Linda University School of Medicine Pathologists' Assistant Program will adhere to those standards to produce high-quality and competent pathologists' assistants.

For further information, please visit <http://www.naacls.org> or contact:

National Accrediting Agency for Clinical Laboratory Sciences  
5600 North River Road, Suite 720  
Rosemont, IL 60018-5119

847/939-3597  
773/714-8880

## Admissions

The application period for the inaugural class (Class of 2017) is February 15, 2015- May 31, 2015. Dates are strict for acceptance of application materials and only select applicants will be invited for an individual

interview (no group interviews). The first class will include 10-12 students. The accepted students will be notified by July 15 to begin the Autumn, 2015 quarter.

In addition to Loma Linda University (p. 24), the applicant must all fulfill the following requirements:

1. A baccalaureate degree from an accredited institution, completed by May of the year of application (final transcripts must be submitted before May 31).
2. A cumulative GPA of at least 3.0 or higher.
3. All prerequisite courses must be completed at an accredited college or university in the United States prior to admission. Transcripts from international institutions are not accepted.
  - a. Human anatomy and physiology with laboratory (complete sequence), 12 quarter units/ 8 semester units
  - b. General chemistry with laboratory (complete sequence), 12 quarter units/ 8 semester units
  - c. Organic chemistry (complete sequence), 12 quarter units/ 8 semester units
  - d. Microbiology with laboratory, 4 credits
  - e. College algebra or higher, 3 credits
  - f. English composition (complete sequence)
  - g. Strongly recommended: medical terminology and conversational Spanish
4. Three letters of recommendation. Suggestions:
  - a. A laboratory professional (clinical or research) with whom you've worked (no relatives or friends)
  - b. An undergraduate professor
  - c. A work supervisor who can speak to your work ethic and dependability

These are suggestions, but family members or friends are NOT acceptable. DO NOT use the Pathologists' Assistant with whom you've shadowed for a recommendation.

Recommendations:

- Speak with the person you are asking for the recommendation and be sure they know you well, understand the program to which you're applying and why, make sure they can speak to your abilities, not just that you are a nice person.
- Be sure the person supplying the recommendation understands that NO PAPER RECOMMENDATIONS ARE ACCEPTED! All recommendations must follow the electronic procedure. If the recommendation does not have an e-mail account, help them to create a free e-mail account on yahoo or google.

Proof of shadowing:

- During the interview the student will be asked to relate what a Pathologists' Assistant does during a normal working day. While there is no required number of hours to shadow, the student must be interactive, asking questions to learn the duties of a PA (ASCP). Contact information of the PA with whom you shadowed must be provided.
- We do not require GRE or any other pre-graduate school standardized testing.

- NOTE: There are no transfers of credit into the Pathologists' Assistant program. All courses in the curriculum must be completed at Loma Linda University.

Preference given to:

- Seventh-day Adventists
- Loma Linda University graduates
- Applicants from under-represented populations

## Program requirements

### First Year

Autumn Quarter		Units
ANAT 544	Human Embryology Lecture	2
IBGS 501	Biomedical Communication and Integrity	2
PATH 501	Anatomy and Pathology I	4
PATH 521	Anatomical Techniques I	3
RELE 505	Clinical Ethics	3
Winter Quarter		
AHCJ 538	Histology	3
AHCJ 542	Pathology I	4
AHCJ 515	Curriculum Development in Higher Education	3
PATH 502	Anatomy and Pathology II	4
PATH 522	Anatomical Techniques II	3
Spring Quarter		
AHCJ 543	Pathology II	3
PATH 524	Clinical Microbiology for Pathologists' Assistants	3
PATH 551	Disease Mechanisms I	3
PATH 581	Basic Pathologic Microanatomy	2
PHSL 588	Pathophysiology	4
Summer Quarter		
PATH 552	Disease Mechanisms II	3
PATH 564	Biomedical Photography	1
PATH 582	Advanced Microanatomy	2
PATH 598	Clinical Laboratory Management	2
PATH 644	Clinical Pathology Seminar	2
Second Year		
Autumn Quarter		
PATH 741	Pathology Review I	2
PATH 761	Pathologists' Assistant Practicum I	9
Winter Quarter		
PATH 742	Pathology Review II	2
PATH 762	Pathologists' Assistant Practicum II	9
Spring Quarter		
PATH 743	Pathology Review III	2
PATH 763	Pathologists' Assistant Practicum III	9
Summer Quarter		
PATH 744	Pathology Review IV	2
PATH 764	Pathologists' Assistant Practicum IV	9
Total Units:		100

Multiple clinical rotations are assigned by the Program Director to ensure a varied and comprehensive clinical experience for each student. Rotations will include surgical pathology in academic and community

settings, private laboratories, pediatric pathology, medical examiners offices and hospital autopsy services.

### Normal time to complete the program

2 years (24 months) – full-time enrollment required

## Biomedical Sciences – M.M.S.

### Program Coordinator

Kenneth R. Wright

Students accepted into the Master of Medical Science degree in biomedical sciences enroll in basic science courses with first-year medical students. Faculty responsible for teaching students in the MMS Program will be those who teach these first-year basic sciences courses.

The program enables students to complete their studies in one academic year of full-time commitment. The program is intended to provide experience in the rapidly changing area of biomedical sciences; and it prepares students to apply to professional programs in medicine or to pursue other career options—such as high school teaching, patent law, or biotechnology management.

The curriculum includes 4 units of critical thinking, 4 units of medical practice management, 3 units of religion, and a capstone project of 3 units. The remaining units come from the first-year medical curriculum—which includes gross anatomy/embryology, physiology, cell structure and function, and biochemistry/genetics. Although the courses share lecture/laboratory experiences and tests with the Doctor of Medicine degree program, such courses will not be transferred to the M.D. degree program; a student subsequently admitted to the M.D. degree program should expect to take, and pay for, the normal M.D. degree curriculum.

The program will culminate with a capstone project, which will give the student the opportunity to demonstrate proficiency/knowledge in the biomedical sciences and understanding of current clinical literature, etc.

## Admissions

Applicants to the Master of Medical Science must satisfy the same requirements (p. 313) as those applying to the Medicine Program at Loma Linda University; that is, they will have completed a baccalaureate degree (or its equivalent) with a course of study that includes a year each of general biology, general chemistry, organic chemistry, and general physics and a course in biochemistry. Applicants are required to take the Medical College Admission Test (MCAT).

## Program requirements

### Summer quarter courses

BHCJ 501	Critical Thinking	4
MDCJ 509	Introduction to Medical Practice Management	4

### Year-long courses

ANAT 510	Gross Anatomy	8.5
ANAT 515	Human Embryology	2
BCHM 510	Fundamentals of Human Biochemistry	2.5
MDCJ 508	Cell Structure and Function	8.5
MDCJ 560	Basis of Medical Genetics	2
PHSL 519	Medical Physiology	7.5

### Spring quarter course

MDCJ 510	Capstone Project	3
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REL R 588	Personal and Family Wholeness	3
Total Units		45

### Normal time to complete the program

1 year – full-time enrollment required

# Professional

## Academic information

The academic progress of each student is monitored by the Academic Review Committee. Specific policies for handling misconduct (academic or nonacademic) are published in the *Student Handbook* available at <llu.edu/central/handbook>.

### Communications

Communications to the medical student regarding academic and clinical assignments, scholarship opportunities, and other important information are routed through the Office of the Dean. A student bulletin board is located in the student lounge. It is the responsibility of students to check their e-mail daily.

### Required supplies

#### Microscope

Microscopes will be provided to students and a rental fee will be charged. If a student chooses to use his/her own microscope, it must be approved by the histology faculty in the Division of Anatomy.

#### Textbooks

Students are required to purchase the textbooks adopted by the School of Medicine Curriculum Committee.

#### Instruments

Students are required to purchase the instruments adopted by the physical diagnosis course.

### Practice and regulations

#### Course exemptions

Students who seek exemption from registering for courses that they took prior to entering the School of Medicine must qualify for the exemption by passing a comprehensive examination covering the course material in question.

Should the student qualify, in lieu of the regular course, s/he will be required to participate in an advanced program that may include additional studies, research activities, and/or teaching. A written paper will be required from all students completing the advanced program.

The course director, the senior associate dean of medical student education, and the student will work together to determine the content of the advanced program. Full tuition, equivalent to that of the regular program, will be charged.

#### Examinations

In order to sit for an examination, students must be present when the chief proctor reads the examination instructions at the designated start time. Students who arrive late to an examination will be denied entrance. If, due to special circumstances, a student has been given permission by the Office of Medical Student Education to arrive late to an examination, the number of minutes the student is late will be deducted from their allotted examination time. Students who arrive after any other student has left the examination for any reason *will not be permitted* to take the examination. For national board subject examinations, students will be denied entrance once the examination has started, without exception.

#### Missed examinations

Students who have an excused absence for one day of a three-day midterm examination will receive their two-day score, and the percentage earned on the cumulative final examination (including NBME subject

examinations) for each course will be substituted for the missed examination. Students who miss two or three days of a three-day midterm examination are required to take a makeup examination within two weeks of the missed examination dates at a date and time scheduled by the course director. Makeup examinations may differ in content and/or format from the missed examinations. In addition, course directors may require other remediation at their discretion.

Should a student miss an in-house final examination because of an excused absence, arrangements must be made with the course directors to make up the missed examinations. The course directors, at their discretion, may opt to have the student take an examination that is different in format, content, or length from the final examination that was administered to the class.

Should a student miss a national board subject examination because of an excused absence, the student will be allowed one opportunity at the end of the academic year to take and pass the subject examination upon completing all other course work for that year. Arrangements for the makeup examination must be made through the Office of Medical Student Education.

#### Conditions to be met for an excused absence

In order to have an excused absence, the student must get a written excuse from the Office of the Senior Associate Dean for Medical Student Education prior to the administration of the test in question. Students missing examinations for health reasons must provide written documentation of their illness from Student Health Center or another examining physician. Whether or not this documentation is an adequate excuse for missing an examination will be left to the discretion of the senior associate dean for medical student education. Under no circumstances are students allowed to take examinations early.

In the event of a bona fide emergency, where prior approval is not feasible, the Office of the Senior Associate Dean for Medical Student Education (909/558-4255) must be contacted as soon as possible. Failure to do so will result in an unexcused absence.

Students who miss examinations without prior approval from the Office of the Senior Associate Dean for Medical Student Education have an unexcused absence. As a result, the student will receive a zero for the missed examination(s). Missing more than one examination in any course or combination of courses could result in a student having to repeat the course(s) during the next academic year.

#### Grading policy

Course/Clerkship directors assign grades at the end of each course/ clerkship. Grades reflect the success or failure of the student in meeting the objectives of the course in terms of knowledge, skills, attitudes, values, and behaviors.

The University transcript records grades for completed courses/ clerkships as Satisfactory (S), Marginal Satisfactory (MS), or Unsatisfactory (U). For the purposes of determining eligibility for promotion, the School of Medicine utilizes grades of Satisfactory (S), Marginal Satisfactory (MS), Unsatisfactory (U), or In Progress (IP). Course/Clerkship directors assign a grade of Satisfactory (S) when a student's performance clearly exceeds the requirements of the course/ clerkship. A grade of Marginal Satisfactory (MS) is assigned when the course/clerkship director judges that student performance meets but does not exceed the minimal requirements of the course. A grade of Unsatisfactory is assigned when a student's performance fails to meet the minimal requirements for the course/clerkship. A notation of In Progress (IP) is used to identify students having unfinished course/

clerkship requirements. Subjective narrative descriptions of student performance are submitted to the Office of the Senior Associate Dean for Medical Student Education and may be used in the medical student performance evaluation (MSPE/dean's letter).

Students who wish to contest a grade should discuss the grade first with the course/clerkship director, then with the department chair. If the student is not satisfied, s/he may then appeal the grade to the Office of the Senior Associate Dean for Medical Student Education.

### Determination of Dean's letter grade

For the Medical Student Performance Evaluation (MSPE/dean's letter), students will be assigned one of the following five designations for each course/clerkship:

- H (honors)
- HP (high pass)
- P (pass)
- MP (marginal pass)
- U (unsatisfactory)

Each designation will be based on predetermined criteria established by the course/clerkship director in collaboration with the Office of Medical Student Education. The criteria for ranking may include student performance on faculty-generated examinations, national standardized subject examinations, active and computer-based learning activities, patient-care activities, objective structured clinical examinations (OSCEs), medical simulations, and other academic activities as set forth by the course/clerkship director. Students who have failed a course or clerkship-specific NBME subject examination are not eligible to receive dean's letter grades of honors or high pass in that course/clerkship.

Junior and Senior year medical students will not be ranked against each other. Clerkship grades and performance on school-required activities will be reported on the MSPE (dean's letter).

### Promotion

Promotion from year to year is contingent upon satisfactory academic performance and attainment of competency milestones. Cognitive and noncognitive (including personal suitability to assume the responsibilities of the medical profession) academic progress are monitored by the Academic Review Committee. The committee evaluates cumulative academic performance, not just performance in current or most recent course work. Students must pass each course and/or attain competency milestones to demonstrate overall satisfactory performance.

The *Student Handbook* contains additional details regarding the criteria used by the Academic Review Committee for promotion decisions.

### Decelerated program—freshman curriculum

Students who experience academic difficulty during their first year of medical school may be assigned to a decelerated program with a reduced load. This reassignment will ordinarily occur within the first two weeks following the second midterm examination when, in the judgment of the dean's office, it appears the student will be unlikely to pass the year while carrying out a full load.

### Academic probation

A student whose overall performance is judged to be unsatisfactory by the Academic Review Committee is placed on academic probation. For more information concerning the terms of academic probation, please see the *Student Handbook*.

### Withdrawal

To withdraw from a course(s), the student must meet with the senior associate dean for medical student education to determine educational appropriateness and file a change of program form. To completely withdraw from school, the student must complete the online withdrawal form. These forms should be completed and submitted on the last day of class attendance. The date of withdrawal used in calculating tuition refunds will be the date on which the properly completed form is submitted to the Office of University Records.

### USMLE Steps I and II policy

States vary in the number of times a student can attempt USMLE examinations and still be eligible for licensure. A significant number of states allow no more than three attempts. The school has defined its own limits for number of attempts allowed. School policy requires students enrolled in the Loma Linda University School of Medicine to pass Step I in no more than three attempts.

Students must complete the clinical course work required for graduation within three years of starting the clinical curriculum; they are permitted a maximum of three sequential attempts to pass Step II of the USMLE. The student's first attempt at passing Step II of the USMLE must take place only after s/he has satisfactorily passed all junior clerkships and prior to his/her completion of all required senior clinical course work.

A student who has failed Step II but who has completed all course curriculum requirements must remain enrolled in the School of Medicine as a directed study student until s/he has either passed Step II of the USMLE or failed Step II of the USMLE for the third time.

The *Student Handbook* provides conditions and deadlines for taking and passing USMLE examinations.

## Program requirements

We are instituting a competency-based curriculum with full implementation in 2018.

### Competencies for medical student education

**Patient Care** - Students must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health in the context of whole person care.

- *History Taking* - Obtain relevant and accurate information about the patient.
- *Physical Examination* - Perform appropriate, complete and accurate physical examination.
- *Oral Case Presentation* - Effectively communicate case orally with content appropriate for the clinical case, context, and audience.
- *Medical Documentation* - Document history and physical, differential diagnosis, problem list, and plan.
- *Procedures and Skills* - Perform skills and procedures required for patient care.
- *Patient Management* - Provide patient care that is compassionate, appropriate, and effective.
- *Psychosocial and Spiritual Care* - Integrate psychosocial and spiritual care with patient care.

**Medical Knowledge** - Students must demonstrate the ability to effectively source and validate medical information, possess an adequate foundation of basic science knowledge, and apply this knowledge and

information to the care of patients using clinical reasoning and problem solving skills with a whole person care approach.

- *Fundamental Medical Knowledge* - Comprehend the established and evolving basic and clinical biomedical sciences, including epidemiological and social/behavioral sciences.
- *Health Promotion and Disease Prevention* - Promote health and prevent disease.
- *Ethics and Spirituality* - Employ ethical principles and knowledge of religious beliefs and spirituality of patients and their families to enhance patient care.
- *Sourcing and Evaluation of Medical Information* - Use information technology to optimize delivery of patient care.
- *Problem Solving and Clinical Reasoning Skills* - Demonstrate problem solving and clinical reasoning skills

**Professionalism** - Students must demonstrate professional behaviors, attitudes and beliefs that allow patients, colleagues, members of the healthcare team and society to approach each physician encounter with an expectation of trustworthiness.

- *Personal Attributes* - Show ownership for one's choices, attitudes and behaviors.
- *Relationship Attributes* - Demonstrate compassion, integrity and respect for others, including sensitivity and responsiveness to a diverse patient population.
- *Societal Responsibilities* - Fulfill obligation to patients, colleagues, and society.

**Systems-Based Practice** - Students must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources, including interprofessional teams, in the system to provide optimal health care.

- *Health Care Delivery Systems* - Explain health care delivery systems and their potential effects on the health of patients and communities.
- *System Resources* - Apply system-level approaches to improve quality of healthcare.
- *Interprofessional Education* - Enable effective collaboration and improve health outcomes.

**Practice-Based Learning and Improvement** - Students must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and lifelong learning.

- *Evidence-Based Medicine* - Use principles of evidence-based medicine to optimize patient care.
- *Feedback, Self-assessment and Reflection* - Develop lifelong learning skills through seeking feedback, self-assessment and reflection.
- *Practice-based Quality Improvement* - Engage in improvement of health care systems.

**Interpersonal and Communication Skills** - Students must be able to demonstrate culturally sensitive interpersonal and communication skills that result in effective information exchange and teaming with patients, their families, and professional associates.

- *Relationship-Building Skills* - Demonstrate relational versatility in relationships with colleagues, patients, and their families.
- *Effective Listening Skills* - Actively engage in the skill of listening.

- *Information Sharing Skills with Patients and their Families* - Communicate effectively within the context of the cultural beliefs, practices, and needs presented by patients and their communities.
- *Information Sharing with Professional Associates* - Present and document patient information to professional associates.
- *Communication with the Medical Team* - Work cooperatively with interprofessional health care teams.

**Whole Person Care** - Through the study and application of whole person care, student will develop a knowledge of wholeness that can be applied to their personal and professional lives and the care of patients.

- *Whole Person Care of Patients* - Apply whole person care model to the care of patients.
- *Personal Wholeness of Students* - Implement whole strategies for personal development.

## Goals for each year

Medical education will begin to establish a foundation in the sciences basic to the practice of medicine, with emphasis on the principles and mechanisms of normal development, structure, and function—including normal changes of aging and the behavioral considerations that influence normal development. Course content will be organized around individual organ systems whenever possible. The first year will also begin to develop the skills, values, attitudes, and professional behaviors that are integral to the safe, competent, compassionate, ethical, and biblical practice of medicine—both now and in the future. The educational program will make use of a wide variety of pedagogical methods, including but not limited to: traditional lecture; small-group, problem-based, and case-based learning; personalized computer-based instruction; quantitative laboratory experiences; and patient care experiences.

The second year of medical education will continue to establish a foundation in the sciences—basic to the practice of medicine—with emphasis on the principles and mechanisms of abnormal structure and function, principles of therapy, and behavioral considerations that affect disease treatment and prevention. Course content will be organized according to individual organ systems whenever possible. The second year will also continue to develop the skills, values, attitudes, and behaviors that are integral to the safe, competent, compassionate, ethical, and Christian practice of medicine—both now and in the future. The educational program will make use of a wide variety of pedagogical methods, including but not limited to: traditional lecture; small-group, problem-based, and case-based learning; personalized computer-based instruction; quantitative laboratory experiences; and longitudinal patient-care experience.

The third year of medical education will establish a body of knowledge, skills, values, attitudes, and behaviors in seven core clinical science disciplines to build foundational and comprehensive experiences for patient care in ambulatory and hospital-based settings. Students will attain these experiences through a process of self-directed learning, independent study, and guided supervision and teaching by house staff and faculty. Students will have ample opportunity to learn the value of honor, shared responsibility, and accountability by directly participating in patient-care activities as junior colleagues on the health-care team.

The didactic program will emphasize: a) understanding the pathophysiology of disease, b) establishing diagnoses through interpretation of physical examination and diagnostic data, and c) the application of management principles to patients with acute and chronic

conditions. Recurring experiences in whole person care, medical ethics, laboratory medicine, health maintenance, and disease prevention will be integrated into the seven core disciplines. Students will have the opportunity to explore an area of interest during an elective experience for the purpose of beginning the process of choosing a career in medicine.

The fourth year of medical education will require students to integrate the entirety of their medical knowledge, skills, values, and attitudes gained during the first three years and apply it more autonomously to patient care. Students will participate in mandatory supervised patient-care experiences in emergency medicine, intensive care medicine, preventive medicine and public health; and a subintern-level experience in internal medicine, surgery, family medicine, or pediatrics. Although repetitive clinical duties during the fourth year are a necessary part of preparing students for the rigors of postgraduate training, students will still have ample opportunity to pursue individual interests during the eighteen weeks of elective rotations. To reestablish the importance of science in medical practice, at least two weeks of electives will be in a basic science discipline of the student's choosing. Students will have adequate vacation time to study for Step II of the USMLE and successfully participate in the residency selection process.

## Doctor of Medicine degree requirements

The School of Medicine requires that a candidate for a degree or certificate from the school must have met the following requirements for the Doctor of Medicine degree:

- Completed all requirements for admission.
- Attended an accredited medical school for four academic years, the last two of which must have been spent at this school.
- Completed honorably all requirements of the curriculum, including specified attendance, level of scholarship, length of academic residence, and credit units.
- Completed additional special examinations covering any or all subjects of the medical curriculum, as may be required.
- Successfully completed USMLE examinations (Steps I and II), as specified—both clinical skills and knowledge components.
- Given evidence of moral character, of due regard for Christian citizenship, and of consistent responsiveness to the established aims of the University and of the school.
- Discharged financial obligations to the University.

The candidate is required to participate in graduation exercises upon completion of the academic program. If the candidate is out of sequence with his/her current class but would like to participate in the commencement exercises, s/he must have completed a minimum of three months of the required senior clerkships, i.e., medicine, pediatrics, family medicine or surgery subinternship, preventive medicine and public health, intensive care and emergency medicine by April 1 of the year of graduation. Consent for the student to be absent, granted by the president of the University, is contingent on the recommendation of the dean to the president.

The families and friends of graduates are invited to be present at the official conferring of degrees service.

## Licensing examinations

### National

The graduate who holds credentials from the USMLE may be granted a license by endorsement of the examining board of most states.

Additional requirements made by some states are given in a pamphlet that may be obtained from the Federation of State Medical Boards, 400 Fuller Wiser Road, Suite 300, Euless, TX 76039-3855.

## Postgraduate training

### Graduate specialty medical education residencies

Loma Linda University is affiliated with a variety of accredited residency programs in two sponsoring institutions. The first is Loma Linda University Medical Center and the second Loma Linda-Inland Empire Consortium for Healthcare Education. Additional nonaccredited fellowships are available.

Graduate physicians wishing to apply for entrance into these programs should contact the director of the program.

These programs are sponsored by Loma Linda University Medical Center and Loma Linda Inland Empire Consortium for Healthcare Education.

### Postgraduate training

In harmony with the needs of medicine today, the curriculum leading to the Doctor of Medicine degree is planned with the assumption that all students will take standard postgraduate training in one of the fields of medicine. This means serving as a resident for a minimum of three years in a hospital approved for this training by the Council of Medical Education and Hospitals of the American Medical Association.

The Office of the Senior Associate Dean for Medical Student Education supplies information and assistance for the arrangement of residencies. Since the school participates in the National Residency Matching Program, selection through this means constitutes approval by the School of Medicine.

### Continuing medical education

Recognizing the imperative of lifelong learning for professionals, the School of Medicine supports a program of continuing medical education for physicians beyond their formal postgraduate years. The Office of Continuing Medical Education is accredited by the Accreditation Council for Continuing Medical Education to provide Category I continuing medical education credit for physicians. Course offerings include weekly, bi-weekly, and monthly School of Medicine departmental grand rounds and a large number of one-day and multiday conferences and workshops that are presented locally and nationally for School of Medicine faculty, alumni, and practicing physicians within the geographic area in which the conferences are presented.

For more information please write to:

Dana Gonzalez, Administrative Assistant  
Loma Linda University School of  
Medicine  
Continuing Medical Education Office  
11175 Campus Street, CP A1116G  
Loma Linda, CA 92354  
909/558-4963  
909/558-0330 fax  
<dmmgonzalez@llu.edu (mmorrell@llu.edu)>

## Clinical facilities

Clinical instruction takes place primarily at Loma Linda University Medical Center, which includes the Loma Linda University Children's Hospital, Loma Linda University East Campus Specialty Hospital, Loma Linda University Heart and Surgical Hospital, Faculty Medical Offices



(FMO), and the Loma Linda University Behavioral Medicine Center. Additional local training sites include the Jerry L. Pettis Memorial Veterans Medical Center, Riverside County Regional Medical Center, and White Memorial Medical Center. Also utilized are Arrowhead Regional Medical Center; Kaiser Permanente; and Kettering Medical Center in Dayton, Ohio.

## The instructional resources

### Loma Linda University Medical Center (LLUMC)

Loma Linda University Medical Center is a major teaching center serving San Bernardino and Riverside counties. In addition to its large population of referred patients, the medical center is also a Level 1 trauma center for the region and is a tertiary care center for high-risk obstetrics and neonatal intensive care. An extension houses the Loma Linda Cancer Center and the Proton Treatment Center for cancer therapy. Patients in the medical center are available for medical student, resident, and fellowship training.

### Loma Linda University Children's Hospital

Loma Linda University Children's Hospital provides a single, centralized location where newborns, infants, and children can receive comprehensive medical care. Being seen at a comprehensive center for children's health care assures parents and their children that all aspects of the child's health will be closely monitored and understood. Loma Linda University Children's Hospital staff—pediatric nurses, physicians, surgeons, anesthesiologists, radiologists, and other professionals—work together to assure that every patient receives the highest possible quality of medical attention.

The organization of a children's hospital also means that the hospital staff is chosen from among people who are specially trained and have a deep interest in children's health care. Every Loma Linda University Children's Hospital employee is highly skilled in dealing with children and has made the care of children a personal priority. The children's hospital is known as "the place for little faces."

### Loma Linda University East Campus Specialty Hospital

East Campus Specialty Hospital (formerly Loma Linda Community Hospital) is a teaching resource for students in family medicine, physical medicine and rehabilitation, orthopaedics, and clinical neuroscience. In addition, it serves as the primary inpatient training site for house staff in family medicine.

### Loma Linda University Heart and Surgical Hospital

Loma Linda University Heart and Surgical Hospital is a specialty hospital that serves as a teaching resource in the specialties of urology, gynecology, otolaryngology, and cardiovascular disorders.

### Faculty Medical Offices

The Faculty Medical Offices (FMO) include facilities for multiple specialties and an outpatient surgery suite that handles approximately 30 percent of all the surgery done at the Loma Linda University Medical Center. The FMO is utilized for student outpatient experience in nearly all specialties.

### Jerry L. Pettis Memorial Veterans Medical Center

The Jerry L. Pettis Memorial Veterans Medical Center serves a wide geographic area and cares for a large population of veterans. Outpatient clinics and inpatient wards are available for student and resident teaching. The residency programs are integrated with the Loma Linda University Medical Center and are under the supervision of the faculty of the School of Medicine.

### Riverside County Regional Medical Center

The Riverside County Regional Medical Center is located ten miles southeast of Loma Linda in the city of Moreno Valley. The patient population reflects an inner-city profile with a large concentration of urgent medical and surgical, trauma, obstetrics, and pediatrics cases. Patients are available for student, resident training.

### Loma Linda University Behavioral Medicine Center

Loma Linda University Behavioral Medicine Center—a freestanding, full-service psychiatric hospital—opened in early 1991. Loma Linda University Behavioral Medicine Center offers adult, child, adolescent, and chemical dependency services—including inpatient and partial hospitalization. Special emphasis is given to services that provide the integration of Christian faith with psychiatric care for patients desiring such.

### White Memorial Medical Center

White Memorial Medical Center is located approximately sixty miles west of Loma Linda in the city of Los Angeles. The patient population reflects an inner-city profile with a large concentration of urgent medical and surgical, trauma, obstetrics, and pediatrics cases. Patients are available for student, resident, and fellowship training.

## Medical Scientist – M.D./Ph.D.

### Program director

Penelope J. Duerkson-Hughes

## Objectives

Loma Linda University is committed to fostering the investigative skills of its medical students. Students interested in pursuing careers in academic medicine and medical research may wish to enroll in one of the combined degrees programs.

The Medical Scientist Program is designed to develop a student's independence and competence as an investigative scientist and clinician. It provides students with a broad educational base for the practice of medicine and related research. The program is administered by the School of Medicine in cooperation with the Faculty of Graduate Studies.

## Program description

The program is designed to attract students who are energized by doing research and want to contribute substantially to this enterprise.

Students enter this combined degrees course through the graduate program. In the first year, students participate in a new and revised, scientifically integrated program that includes biochemistry, molecular biology, physiology, pharmacology, and anatomy. While in the first year, students also rotate through the laboratories of selected faculty members.

In the second year, students increase their involvement with individual laboratory projects while continuing to complete graduate course requirements. Students in selected areas may also be asked to serve as teaching assistants for graduate or medical classes. Students pursuing the combined degrees will also be involved with joint basic science and clinical meetings and conferences with the aim of understanding the interrelationships between laboratory-based and clinical research.

Upon demonstration of laboratory success, as indicated by completion of a first-author manuscript, the student will continue on to the traditional first two years of the medical school curriculum. It is anticipated that the amount of time required to demonstrate laboratory success will be

two-to-three years. Successful students who have acquired essential laboratory skills should continue their affiliation with the host laboratory and continue research progress as time permits while in the medical school curriculum.

Upon successful completion of the first two years of the medical curriculum and Step 1 of the USMLE, students will begin a series of rotations between the clinical sciences and the research laboratory. During these later years, students will complete all of the standard clinical rotations and continue progress on laboratory projects with the stipulation that all requirements for the Ph.D. degree must be completed by no later than December 31 of the year the student graduates from the M.D. degree program. It is the intent of this program that students acquire the requisite skills needed for a successful career at the interface of laboratory-based and clinical research.

## Admissions

Admission into the Medical Scientist Program is competitive and requires evidence that the student is likely to develop into a successful medical scientist. The student must submit separate applications to the School of Medicine for both the M.D. and the Ph.D. degree programs, and meet the stated admissions requirements for each of these programs. The application package for the Ph.D. degree requires scores for the general test of the Graduate Record Examination. Both programs must accept the student's scores before s/he is admitted to the Medical Scientist Program. Students entering the M.D./Ph.D. combined degrees program who determine that a research career is inappropriate may elect to complete the M.D. degree program independently. Students entering the Ph.D. degree program who desire a career in academic medicine may choose to apply for admission to the M.D./Ph.D. combined degrees program at a point after their entry into the Ph.D. degree program; however, the standard medical school application process will be required at that point.

## Financial assistance

Financial assistance to students in the Medical Scientist Program *may* provide:

1. Cost-of-living stipends during those periods in which students are most directly involved in graduate education. The amount of the stipend is equivalent to that available to Ph.D. degree students in the basic science graduate programs.\*
2. Tuition waivers for all graduate program course work.
3. Tuition deferment for the first and second years of the M.D. degree curriculum. When a student completes an M.S. or Ph.D. degree, tuition deferred from the first and second years is canceled.
4. Tuition waiver for both the third and fourth years of the M.D. curriculum, upon completion of a Ph.D. degree.

Tuition assistance for the MD portion of the combined degree program is not given to all students who earn both degrees. Assistance for the MD portion will only be given in cases where an applicant has received approval from the School of Medicine MD/PhD Admissions Committee prior to beginning the MD coursework. Assistance that is received will be in the form of an institutional loan which will cover MD tuition and fees but will not include living expenses. The School of Medicine makes provision for the loan to be forgiven when a recipient meets the terms described below and in the loan agreement.

Loans for the first two years of the MD curriculum will be canceled when a student completes the PhD within the time schedule described below

and according to the terms of the loan agreement. Loans for the third and fourth year of the MD curriculum may be canceled when a student completes the PhD degree within the time schedule described below and according to the terms described below and according to the terms of the loan agreement.

M.D./Ph.D. degree students are ordinarily expected to complete their Ph.D. degree before beginning the third year of medical school. Students who have not completed the Ph.D. degree may apply for a tuition deferment for their third year of the medical curriculum, and, in unusual cases, for the first term of their fourth year. Applications for tuition deferment beyond the first two years must be approved by the student's dissertation committee and signed by the dissertation advisor, the associate dean for basic sciences, and the dean of the School of Medicine. Under no circumstances will a student be granted a tuition deferment or be allowed to register for the last term of medical school until s/he has finished the requirements for the Ph.D. degree. If a student withdraws from the Ph.D. degree program his/her tuition deferments will be converted to a loan. Completion of the M.D. degree terminates the student's participation in the Medical Scientist Program and ends the availability of tuition waiver. Any tuition deferments then in force will convert to loan obligations at that time.

- \* Stipends from the School of Medicine will be awarded for the first two years of the graduate program, provided that the student makes satisfactory academic process and remains in good and regular standing. Stipends covering study beyond the first two years should ordinarily be obtained from the individual laboratories or departments in which the student conducts research.

## Medicine – M.D. Curriculum

The curriculum in medicine consists of four academic years. The first two academic years are oriented to the sciences basic to the practice of medicine. Exposure to patient care is integrated within these two years. The remaining two academic years consist of clinically-oriented core instruction and twenty weeks of clinical electives.

THE FIRST YEAR of medical education will begin to establish a foundation in the sciences basic to the practice of medicine—with emphasis on the principles and mechanisms of normal development, structure, and function—including the normal changes of aging and the behavioral considerations that influence normal development. Course content will be organized around individual organ systems whenever possible. The first year will also begin to develop the skills, values, attitudes, and professional behaviors that are integral to the safe, competent, compassionate, ethical, and Christian practice of medicine—both now and in the future. The educational program will make use of a wide variety of pedagogical methods—including but not limited to traditional lecture, small group, problem-based and case-based learning, personalized computer-based instruction, quantitative laboratory experiences, and patient-care experiences.

THE SECOND YEAR of medical education will continue to establish a foundation in the sciences basic to the practice of medicine—with emphasis on the principles and mechanisms of abnormal structure and function, principles of therapy, and behavioral considerations that affect disease treatment and prevention. Course content will be organized according to individual organ systems whenever possible. The second year will continue to develop the skills, values, attitudes, and behaviors that are integral to the safe, competent, compassionate,

ethical, and Christian practice of medicine—both now and in the future. The educational program will make use of a wide variety of pedagogical methods, including but not limited to traditional lecture; small group, problem-based, and case-based learning; personalized computer-based instruction; quantitative laboratory experiences; and longitudinal patient-care experiences.

THE THIRD YEAR of medical education will establish a body of knowledge, skills, values, attitudes, and behaviors in seven core clinical science disciplines to build a foundation for patient care in ambulatory and hospital-based settings. Students will obtain this foundation through a process of self-directed learning, independent study, and guided supervision and teaching by house staff and faculty. Students will have ample opportunity to learn the value of honor, shared responsibility, and accountability by directly participating in patient-care activities as junior colleagues on the health-care team.

The didactic program will emphasize: a) understanding the pathophysiology of disease, b) establishing diagnoses through interpretation of physical examination and diagnostic data, and c) applying management principles to patients with acute and chronic conditions. Recurring experiences in whole person care, medical ethics, laboratory medicine, radiology, health maintenance, and disease prevention will be integrated into the seven core disciplines. Students will have the opportunity to explore an area of interest during an elective experience for the purpose of beginning the process of choosing a career in medicine.

THE FOURTH YEAR of medical education will require students to integrate the entirety of their medical knowledge, skills, values, and attitudes gained during the first three years and apply it more autonomously to patient care. Students will participate in supervised patient-care experiences in emergency medicine, intensive care medicine, and preventive medicine and public health; and a subintern-level experience in medicine, surgery, family medicine, or pediatrics. Although repetitive clinical duties during the fourth year are a necessary part of preparing students for the rigors of postgraduate training, students will still have ample opportunity to pursue individual interests during a minimum twenty weeks of elective rotations. To reestablish the importance of science in medical practice, up to one month of elective must be in the basic science discipline of the student's choosing. Students will have adequate vacation time to study for Step II of the USMLE and successfully participate in the residency selection process.

## Departments

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## Admissions

The program admissions committees of the University intend that an applicant to any of the schools is qualified for the proposed curriculum and is capable of profiting from the educational experience offered by this University. The admissions committees of the school accomplish this by examining evidence of scholastic competence, moral and ethical standards, life experience, and significant qualities of character and personality.

### The study of medicine

Preparing for a career in medicine, students should quest for a broad understanding in the major areas of knowledge—the natural sciences, the behavioral sciences, and the humanities—which assists them in the process of learning throughout their life.

In selecting students, the Admissions Committee of the School of Medicine looks for applicants who are best suited to fulfill the mission of the school and to successfully practice medicine. The school desires students who demonstrate the ability to learn independently, to think critically, and to articulate clearly—both orally and in written form—their ideas and opinions. It is important that students in the School of Medicine demonstrate excellent interpersonal skills and show evidence of sensitivity to the needs of humanity.

The Admissions Committee of the School of Medicine puts forth considerable effort to ensure that an applicant is qualified for medical school. The applicant's credentials are reviewed to assess scholastic performance. The committee also looks for prerequisite qualities of character and personality, potential for self-direction and the use of discriminating judgment, and dedication to the ideal of service to society.

### General entrance information

A minimum of 85 semester (128 quarter) units of credit from an accredited institution of higher education is required for acceptance by the School of Medicine. Preference is given, however, to college graduates. Credit must be presented for the following subjects:

**Semester/quarter hours**

General biology or zoology with laboratory—8/12

General or inorganic chemistry with laboratory—8/12

Organic chemistry with laboratory—8/12

Physics with laboratory—8/12

Biochemistry-3/3

English as required for baccalaureate degree

Religion as required by the college attended

Science credits earned in professional schools (e.g., allied health professions, business, dentistry, nursing or pharmacy) do not fulfill requirements for admission to medicine. CLEP and Pass/Fail, and online performances are not acceptable for the required courses.

**Required**

Keyboard and computer skills.

Medical College Admission Test (MCAT). Scores older than three years will not be considered.

**Recommended**

Introductory course in basic statistics

Introductory course in psychology

Introductory course in sociology

Provide evidence of experience with direct involvement in providing healthcare, thus informing the applicant's decision to pursue medicine as a career.

**Application procedure and acceptance**

It is important to know the specifics of the application process and to begin the application process well in advance of the date of anticipated (or desired) entrance to medical school.

**Where to write**

The School of Medicine is a member of the American Medical College Application Service (AMCAS). Applications must be submitted through AMCAS. Their application is available on the Web at <aamc.org/students/applying/amcas (https://www.aamc.org/students/applying/amcas)>.

**AMCAS deadline**

Application should be made directly to AMCAS between June 1 and November 1 for entry in August of the following year.

**Fees**

The AMCAS fee is required each time an application is submitted. An additional fee to the School of Medicine is required with each supplementary application.

**Procedure**

The application procedure is as follows:

1. The applicant submits a formal application through the AMCAS Web site, with fee and requested transcripts. The applicant's verified data are forwarded to the School of Medicine by AMCAS.
2. When the application is received from AMCAS, Loma Linda University School of Medicine requests the applicant to complete an online supplementary application.

3. After the supplementary application and letters of reference have been submitted and reviewed, the applicant may be invited for an interview.
4. The information submitted by the applicant through AMCAS, the supplementary application, the letters of reference, and the interview reports are then evaluated by the Admissions Committee of the School of Medicine. This committee determines whether an applicant is accepted or rejected. All applicants are notified of the final decision of the Admissions Committee regarding their application. Acceptance notices are sent to regular applicants beginning December of the year preceding admission to the School of Medicine, continuing until the class is filled.
5. The accepted applicant responds online to his/her offer of admissions as a student, and accepts the technical standards.
6. In summary, the Admissions Office requires the following:
  - Verified AMCAS application.
  - Loma Linda University School of Medicine supplementary application and \$85 application fee.
  - Appraisal of the applicant's character, ability, and suitability for a medical career by persons knowledgeable about the applicant's past performance.
  - A preprofessional recommendation packet, if available, from the applicant's undergraduate college/university.
  - Applicant's availability for interviews, should an offer for an interview be extended.

**Pre-entrance health requirement and health coverage**

Exposure to patients takes place during year one of medical education. Because of this, it is necessary for students to have immunizations against certain infectious diseases. In order to complete registration for the first academic quarter, students must give evidence in the form of physician records or college health service records that they have met immunization requirements. Students without proper verification will be required to receive immunizations, and the charges will be billed to the students' account. The pre-entrance requirements may be found at <http://home.llu.edu/campus-and-spiritual-life/student-health/new-students.>. Students are also required to have certain injections and immunizations repeated at various intervals during their enrollment. Including an annual skin test for tuberculosis.

Medical students will be required to have flu shots on an annual basis in order to meet the requirements of clinical sites where students will be working. These will be given by the Student Health Center at the beginning of each flu season.

In addition, students are expected to have routine dental and medical care and elective surgery attended to before registering for medical school.

All School of Medicine students are provided with health coverage through the University's Department of Risk Management. The Student Health Plan remains in effect for students who are regularly enrolled, provided they register and pay tuition and fees on time each quarter.

For Student Health Plan benefit information, visit <http://home.llu.edu/campus-and-spiritual-life/student-health/services-and-fees>. The plan does not cover optical care and provides only limited dental care.

For these reasons it may be to the student's advantage to maintain a current personal policy if they have one. A student who does not have health insurance coverage for his/her spouse/children may purchase it through the University's Department of Risk Management at the time of registration or during specified enrollment periods. Government

regulations prohibit the use of student loan funds to provide medical insurance or services for a student's spouse or children.

Students who wish to review a copy of the current student health plan or have further questions about the plan should call Risk Management at (909) 651-4010. Annual tuition also covers the cost of disability insurance. Details will be presented during orientation or upon request.

### Early decision program

A highly qualified applicant to medical school may apply between June 1 and August 1 and be guaranteed a decision by October 1. During that period of time, the applicant may not apply to any other medical school; and if the applicant is accepted at Loma Linda University, s/he is committed to that decision. If the applicant is not accepted by October 1, s/he may apply to any school desired. An applicant not accepted by October 1 will be considered in the regular applicant pool. On the AMCAS application, the applicant indicates that s/he is an early decision applicant and agrees to comply with the constraints of that program.

### Deadlines

- June 1 to November 1 (of the year preceding the year of matriculation to the School of Medicine) is the period for submission of application for the first year class.
- August 1 (of the year preceding the year of matriculation) is the deadline for submission of application under the Early Decision Program.
- August 15 (of the year preceding the year of matriculation) is the deadline for submission of the supplementary application for the Early Decision Program.
- November 15 (of the year preceding the year of matriculation) is the deadline for receipt of the supplementary application for the regular applicant pool.
- May 15 (of the year of admission) is the date beyond which the acceptance deposit of \$100 is not refundable.

### Transfer

Applicants may be considered for transfer into Loma Linda University School of Medicine depending on space availability and if the applicant meets the criteria for transfer.

Criteria for Transfer:

1. Enrolled student in good standing at an accredited United States allopathic medical school.
2. Successful completion of the first two years of medical school with immediate continuation into the third year.
3. Endorsement from the Office of the Dean at the medical school attended.
4. Contingent on successful completion of USMLE Step 1.
5. Evidence of compelling circumstances.

### Loma Linda University School of Medicine technical standards

Loma Linda University School of Medicine candidates for the M.D. degree must have abilities and skills of five varieties, including: observation; communication; motor; intellectual (conceptual, integrative, and quantitative); behavioral and social. Technological compensation can be made for some handicaps in certain areas, but a candidate should be

able to perform in a reasonably independent manner without the use of a surrogate.

**OBSERVATION:** The student must be able to observe demonstrations and experiments in the basic sciences, including but not limited to physiologic and pharmacologic demonstrations in animals, microbiologic cultures, and microscopic studies of microorganisms and tissues in normal and pathologic states. A student must be able to observe a patient accurately at a distance and close at hand. Observation necessitates the functional use of the senses of vision, touch, hearing, and somatic sensation. It is enhanced by the functional use of the sense of smell.

**COMMUNICATION:** A student must be able to speak, to hear, and to observe patients in order to elicit information; describe changes in mood, activity, and posture; and perceive nonverbal communications. A student must be able to communicate effectively and sensitively with patients, colleagues, and other personnel. Communication includes not only speech but also reading and writing. The student must be able to communicate effectively and efficiently in oral and written form with all members of the health-care team.

**MOTOR:** Students should have sufficient motor function to elicit information from patients by palpation, auscultation, percussion, and other diagnostic maneuvers. A candidate should be able to do basic laboratory tests (urinalysis, CBC, etc.); carry out diagnostic procedures (proctoscopy, paracentesis, etc.); and read EKGs and X-rays. A candidate should be able to execute motor movements reasonably required to provide general care and emergency treatment of patients. Examples of emergency treatment reasonably required of physicians are cardiopulmonary resuscitation, the administration of intravenous medication, the application of pressure to stop bleeding, the opening of obstructed airways, the suturing of simple wounds, and the performance of simple obstetrical maneuvers. Such actions require coordination of both gross and fine muscular movements, equilibrium, and functional use of the senses of touch and vision.

**INTELLECTUAL-CONCEPTUAL INTEGRATIVE AND QUANTITATIVE ABILITIES:** These abilities include measurement, calculation, reasoning, analysis, and synthesis. Problem solving, the critical skill demanded of physicians, requires all of these intellectual abilities. In addition, the candidate should be able to comprehend three-dimensional relationships and to understand the spatial relationships of structures.

**BEHAVIORAL AND SOCIAL ATTRIBUTES:** Medical students must possess the emotional health required for appropriate utilization of their intellectual abilities; the exercise of good judgment, and the timely completion of all responsibilities attendant to their academic work, team work, and patient care. They must demonstrate the ability to develop mature, sensitive and effective professional relationships with peers, faculty, staff, members of the health-care team, and patients. Medical students must demonstrate empathy, and concern for others while respecting appropriate personal and professional boundaries. Medical students must demonstrate integrity as manifested by truthfulness, acceptance of responsibility for one's actions, accountability for mistakes, and the ability to place the wellbeing of the patient above their own when necessary. They must be able to tolerate demanding workloads and to function effectively under stress. They must be able to adapt to changing environments, to display flexibility, and to learn to function in the face of uncertainties inherent in the medical education and clinical practice settings.

## Program requirements

### First Year

ANAT 529	Gross Anatomy and Embryology	10.5
MDCJ 519	Doctoring	17
MDCJ 527	Cell Structure and Function	8.5
BCHM 518	Fundamentals of Human Biochemistry	2.5
MDCJ 520	Basis of Medical Genetics	2
MDCJ 528	Evidence-Based Medicine and Information Sciences	3.5
MDCJ 538	Medical Neuroscience	3.5
PHSL 526	Medical Physiology	7.5
RELE 704	Medicine and Ethics	2
RELR 701	Orientation to Religion and Medicine	2
Select two of the following:		4
RELR 725	Wholeness for Physicians	
RELR 749	Marriage and Family Wholeness	
RELT 706	Adventist Beliefs and Life	
RELT 707	Medicine, Humanity, and God	
RELT 767	Apostle of Hope: The Life, Letters, and Legacy of Paul	

### Second Year

MDCJ 530	Pathophysiology and Applied Physical Diagnosis	11
MDCJ 539	Diseases of Neuroscience	4
MDCJ 521	Applications of Clinical Genetics	2
MICR 547	Medical Microbiology	4.5
PATH 517	Human Systemic Pathology	9.5
PHRM 515	Medical Pharmacology	6
PRVM 517	Lifestyle and Preventive Medicine	4
PSYT 526	Psychopathology	4.5
RELR 775	Art and Science of Whole Person Care	2
Select one of the following:		2
RELR 749	Marriage and Family Wholeness (if not taken 1st year)	
RELT 716	God and Human Suffering	
RELT 734	Anthropology of Mission	

### Third Year

1.5 units = 1 week of clinical clerkship

FMDN 701	Family Medicine Clerkship (4 weeks)	6
GYOB 701	Gynecology and Obstetrics Clerkship (6 weeks)	9
MEDN 701	Medicine Clerkship (10 weeks)	15
MNES 791	Third-year Elective (2 weeks)	3
NEUR 701	Neurology Clerkship (4 weeks)	6
PEDS 701	Pediatrics Clerkship (8 weeks)	12
PRVM 791	Applied Preventive Medicine	2
PSYT 701	Psychiatry Clerkship (6 weeks)	9
RADS 791	Integrated Clinical Radiology	2
RELE 714	Advanced Medical Ethics	2
SURG 701	Surgery Clerkship (10 weeks)	15

### Fourth Year

Clinical clerkships

EMDN 821	Emergency Medicine Clerkship (2 weeks)	3
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MDCJ 821	Preventive Medicine and Population Health (4 weeks)	6
Select one rotation (4 weeks):		6
MEDN 822	Medicine Intensive Care	
PEDS 822	Pediatrics Intensive Care	
SURG 822	Surgery Intensive Care	
Subinternship: Select one rotation (4 weeks)		6
FMDN 821	Family Medicine Subinternship	
MEDN 821	Medicine Subinternship	
PEDS 821	Pediatrics Subinternship	
SURG 821	Surgery Subinternship	
Select 30 units (20 weeks) of the following:		30
ANAT 891	Anatomy Elective	
ANES 891	Anesthesiology Elective	
BCHM 891	Biochemistry Elective	
DERM 891	Dermatology Elective	
EMDN 891	Emergency Medicine Elective	
FMDN 891	Family Medicine Elective (General Family Medicine)	
GYOB 891	Gynecology and Obstetrics Elective	
MDCJ 891	Whole Person Care	
MEDN 891	Medicine Elective	
NEUR 891	Neurology Elective	
NEUS 891	Neurosurgery Elective	
OPHM 891	Ophthalmology Elective	
ORTH 891	Orthopaedic Surgery Elective	
OTOL 891	Otolaryngology Elective	
PATH 891	Pathology Elective	
PEDS 891	Pediatrics Elective	
PHRM 891	Pharmacology Elective	
PHSL 891	Physiology Elective	
PMRH 891	Physical Medicine and Rehabilitation Elective	
PRVM 891	Preventive Medicine Elective	
PSYT 891	Psychiatry Elective	
RADS 891	Radiology Elective	
RDMN 891	Radiation Medicine Elective	
SURG 891	Surgery Elective	
UROL 891	Urology Elective	

Total Units 244.5

### Normal time to complete the program

4 years – full-time enrollment required

# Anesthesiology

The goals of the Department of Anesthesiology are to:

1. Provide necessary anesthesia, analgesia, pain control, and intensive care of the highest caliber and with Christian empathy to patients of Loma Linda University Medical Center and its affiliated facilities.
2. Educate medical students, dentists, nurse anesthetists, and anesthesiology residents in the fields of anesthesia, critical care, perioperative medicine, and pain control.
3. Increase knowledge on the use of anesthetic and analgesic agents.

## Chair

Robert D. Martin

## Vice Chair

Stanley Brauer

## Division of Critical Care

Ihab Dorotta

## Primary faculty

Allison Miller-Kruger A'Court

Shelley F. Abdel-Sayed

Zulficar Ahmed

Martin W. Allard

Donald L. Anderson

Sherif A. Azer

Abigail Baker

Kristen R. Bandy

Alexandra Bandy

Brent J. Barker

Steven J. Barr

Michael Benggon

Jia-Yi Bian

Baher N. Boctor

Baher Boctor

Bernard J. Brandstater

Allen L. Brandt

Stanley D. Brauer

Douglas C. Brockmann

James J. Butler

Alba Carpenter

Harmony F. Carter

Melody Chang

Emilie Chang

Carl E. Collier

Francis L. Comunale

Mark E. Comunale

Carmencita J. Coronel

Jennifer B. Cristall

Dana S. Darwish

Ihab R. Dorotta

Sue A. Field

Joseph P. Galura

Jason W. Gatling

Elizabeth A. Ghazal

Tiffany Hadley

Richard Hall

Bryan E. Halverson

Michelle D. Handal

Amgad Hanna

Andrew W. Hesseltine

Justin E. Horricks

JulieAnn Hsu

Lei Huang

Daniela S. Karagyozyan

Jonathan G. Kelling

Abraham M. Kiani

David S. Y. Kim

Carol A. Lau

Ryan E. Lauer

Martin M. Le

Anita E. Lee

Sandra H. Lee

John Lenart

Samuel Loh

Mathew Malkin

Robert D. Martin

Linda Martin

Linda J. Mason

Edward McCluskey

Deborah W. McIvor

Shannon M. Mulder-Michaelson

Kevin A. Nasser-Noori

Monica M. Neumann

Michelle Love Newsom

Laura H. Ngo

Paul K. Nguyen

Mohamed B. Nour

Ioana Pasca

Rebecca J. Patchin

Thomas Rasmussen

Ronak Raval

Lowell W. Reynolds

Elena M. Rudoy

Nitin Shah

Gary W. Shih

Melinda Sloan

Joseph Soo

Joel Spencer

Jean E. Sprengel

Gary R. Stier

Jason A. Tan

Shirley L. Tan

Teresa L. Thompson-Razzouk

Tarrah Tokishi

Samuel E. Torres

Mihn Chau Tran

Marissa Vadi

Michele VandenHoven

Sabrina Ward

Linda I. Wat

Mark Wittman

Michelle Woodfin

Po-chin J. Wu

### **Secondary faculty**

Gregory A. B. Cheek

John H. Zhang

### **Emeritus faculty**

Allen Brandt

Burton A. Briggs

## **Basic Science**

The objectives of the Department of Basic Sciences are to:

1. Offer relevant course work for the various professional curricula that will provide essential foundational content, an understanding of the current state of the field, and the skills required to maintain currency.
2. Offer a graduate curriculum leading to M.S. and Ph.D. degrees that are designed to provide graduate students with the information and tools needed to succeed as independent educators and investigators.
3. Conduct and publish peer-reviewed research that contributes to knowledge in the biomedical sciences.
4. Support Loma Linda University colleagues through collaborations and consultations that will assist in research and instruction.

### **Chair**

Penelope J. Duerksen-Hughes

### **Division of Biochemistry**

Penelope J. Duerksen-Hughes

Head

### **Division of Microbiology**

Hansel M. Fletcher

Head

### **Division of Pharmacology**

John Buchholz

Head

### **Division of Physiology**

John H. Zhang

Head

### **Division of Radiation Research**

Michael Pecaut

Head

### **Primary faculty**

Danielyn M. Angeles

Wilson Aruni

Vladimir Bashkirov

Erik Behringer

Danilo Boskovic

Marie Claire Boutrin

Eileen J. Brantley

John N. Buchholz



Edouard M. Cantin

Carlos A. Casiano

Xiang-Qun Hu

Daisy D. De Leon

Marino A. De Leon

Charles A. Ducsay

Penelope J. Duerksen-Hughes

Valeri Filippov

Maria Filippova

Ronald R. Fiscus

Hansel M. Fletcher

Ravi Goyal

Daila S. Gridley

David A. Hessinger

Salma Khan

William H. Langridge

Tim Lekic

Qing Yi Ma

Xiao W. Mao

Eugenia I. Mata-Greenwood

Gregory A. Nelson

Stephen A. Nyirady

William J. Pearce

Christopher C. Perry

Gordon G. Power

Hongyu Qiu

John J. Rossi

Keith E. Schubert

Ihsan Solaroglu

Ubaldo A. Soto-Wegner

Lawrence C. Sowers

Richard S. Sun

Jiping Tang

Julia J. Unternaehrer-Hamm

Roman Vlkolinsky

Nathan R. Wall

Charles Wang

Kylie J. Watts

R. Bruce Wilcox

Christopher G. Wilson

Sean M. Wilson

David L. Wolf

Daliao Xiao

Zhice Xu

Steven M. Yellon

John H. Zhang

Lubo Zhang

Anthony J. Zuccarelli

**Secondary faculty**

Nancy J. Anderson

Richard L. Applegate II

Jerome Badaut

Besh R. Barcega

Brenda L. Bartnik-Olson

David J. Baylink

Arlin B. Blood

Murray E. Brandstater

Nathan R. Brandstater

David A. Bush

Cindy X. Cai

Philip J. Chan

Chien-Shing Chen

Wayne K. Cheng

Kathleen J. Clem

Keith K. Colburn

Bradley A. Cole

Khashayar Dashtipour

Willie L. Davis, Jr.

T. Kent Demark

Ronald S. Fernando

Kendra L. Fisher

Carlos A. Garberoglio

Elizabeth A. Ghazal  
 Nirmalya Ghosh  
 June-Anne Gold  
 Susan L. Hall  
 Mark G. Haviland  
 Barbara A. Holshouser  
 Lei Huang  
 Christian S. Jackson  
 Alan K. Jacobson  
 Paul J. Jacobson  
 T. Michael Kashner  
 Daniel K. Kido  
 Michael A. Kirby  
 Wolff M. Kirsch  
 Steve C. Lee  
 John E. Lewis  
 Xian Luo-Owen  
 Saied Mirshahidi  
 Subburaman Mohan  
 Monica M. Neumann  
 H. Bryant Nguyen  
 Andre Obenaus  
 Thomas A. O'Callaghan  
 Bryan T. Oshiro  
 Peter H. Pham  
 Xue Zhong Qin  
 Mark E. Reeves  
 E. Ellen Reibling  
 Philip J. Roos  
 Lawrence Sandberg  
 Reinhard W. Schulte  
 Kristin A. Seiberling  
 Matilda Sheng  
 Wei-Xing Shi  
 Sam Siddighi  
 Douglas C. Smith

Dustin D. Smith  
 Jason C. Smith  
 Salvador Soriano Castell  
 Donna D. Strong  
 Karen A. Tong  
 Abel Torres  
 Joe E. Wergedal  
 Leonard S. Werner  
 Beverly P. Wood  
 N. Dan Wycliffe  
 Gary Y. Yang  
 Xiangpeng Yuan  
 Junchan J. Yune  
 Xiao-Bing Zhang

## Cardiovascular and Thoracic Surgery

The Department of Cardiovascular and Thoracic Surgery is dedicated to providing comprehensive, quality surgical care to patients with heart, vascular, and thoracic disease. The department's clinical services include adult cardiac surgery, congenital cardiac surgery, adult and pediatric heart transplantation, general thoracic surgery, vascular surgery, and trauma.

Other equally important goals of the department are to:

1. Educate medical students through lectures, clinical rotations, research projects, and faculty role modeling.
2. Train the next generation of competent surgeons in the specialty. The department provides opportunities for ACGME-approved residencies in vascular surgery (two-year program) and in cardiothoracic surgery (three-year program).
3. Partner with the Global Health Institute of Loma Linda University by providing expert surgical help to other countries in need.
4. Provide support for innovation and promotion of clinical research.
5. Promote collaboration with adult cardiology to offer advanced therapies to select patients with complex cardiovascular disease, e.g., transcatheter aortic valve replacement (TAVR), percutaneous mitral valve repair (MitraClip), mechanical circulatory support (LVADs).
6. Provide clinical support and professional resources to the community-based cardiac surgery program at LLUMC-Murrieta.

### Chair

Anees J. Rozzouk

### Division of Thoracic

Anees J. Razzouk  
 Head

### Division of Vascular

Ahmed M. Abou-Zamzam

Head

### Primary faculty

Ahmed M. Abou-Zamzam

Paul K. Aka

Leonard L. Bailey

Juan G. Bastidas

Christian Bianchi

Jason T. Chiriano

Rosario Florida

Joshua T. Gysbers

Nahidh W. Hasaniya

Jeffery H. Hsu

George I. Kafrouni

James D. Killeen, Jr

Sharon C. Kiang

Craig R. Larson

Afshin M. Molkara

Sheela T. Patel

Robert Pereyra-Suarez

David G. Rabkin

Darin J. Rampton

Alfredo L. Rasi

Anees J. Razzouk

O. Howard Shattuck

Steven R. Sparks

Majid Tayyarah

Theodore H. Teruya

Salman Zaheer

## Dermatology

### Chair

Abel Torres

### Primary faculty

Nancy J. Anderson

John H. Bocachica

Richard D. Doty

Desmond D. Gibson

Linda Golkar

Jane M. Hirokane

Sharon E. Jacob-Soo

Shawna K. Langley

Donna LaTour

Justin D. Love

Jariene D. Luke

Kenneth D. Macknet, Jr.

LaVonne M. Meadows

Tanya Nino

Kristin Carter Smith

Fred F. Soeprono

Abel Torres

Hubert C. Watkins

John F. Zdrojewski

### Secondary faculty

Farhad Ardeshirpour

David Isaacs

Justin Kerstetter

Takkin Lo

## Emergency Medicine

The philosophy of the Department of Emergency Medicine centers on a commitment to quality in its service, teaching, and research missions. This department functions as a crossroads interface between the community and the medical center services—providing a point of access to medical care for many people who are seriously and unexpectedly ill, and whose condition may be compromised by geographic isolation and socioeconomic disadvantage.

The objectives of the department are to:

1. Provide and coordinate cost-effective, empathic, and compassionate prehospital, emergency, and trauma services of excellent quality.
2. Support and contribute to the achievement of medical education competency for all categories of emergency care professionals.
3. Develop initiatives that promote increased understanding of and improved techniques and skills in emergency care practice, heighten positive perception of this specialty, and contribute to quality research in this area.
4. Promote teamwork skills among the various services and professionals comprising the emergency medical system.

### Chair

Kathleen J. Clem

**Vice chair**

Tamara L. Thomas

**Division of General Emergency Medicine**

Lance A. Brown

Interim Head

**Division of Pediatric Emergency Medicine**

Lance A. Brown

Head

**Primary faculty**

Shamel A. Abd-Allah

John Abdelshehid

Jason K. An

Nelson H. Bansil

Besh R. Barcega

Joshua P. Bobko

Ryan Brenchley

Lance A. Brown

Sarah J. Christian-Kopp

Samuel C. Chua

Kathleen J. Clem

Stephen W. Corbett

Lynda Daniel-Underwood

T. Kent Denmark

Vi A. Dinh

David M. Englander

Jeff T. Grange

Steven M. Green

Gregory T. Guldner

Mindi J. Guptill

Richard H. Guth

Aqeel S. Kahn

Melvyn L. Harris  
Voluntary Appointment

Korbin N. Haycock

David A. Hecht

Aqeel S. Khan

Grace J. Kim

Steven S. Kim

Tae Eung J. Kim

Tommy Y. H. Kim

Dallas T. Koperski

Eduardo D. Lam

Lionel H. Lee

Chin-Yu Jean Lo

Michael A. Lowe

R. Daniel Luther II

Claire L. McArthur III

Timothy G. McNaughton

James A. Moynihan

Dan Nadler

John C. Naftel

Timothy P. Nesper

Olen A. L. Nettenburg  
Voluntary Appointment

H. Bryant Nguyen

Kenneth L. Nickson

Humberto R. Ochoa

John E. Osborne

Stephen C. Patterson

Mary J. Piroutek

E. Ellen Reibling

James W. Rhee

Thomas S. Sherwin

Dustin D. Smith

Robert C. Steele

Gail M. Stewart

Carl B. Stilson

Heather M. Tassone

Milton R. Teske

Mark E. Thomas

Tamara L. Thomas

Andrea S. Thorp

David D. Tito

Louis P. Tran

Matthew B. Underwood

Marcus T. Voth

David K. Wagner

Justin B. Wagner

E. Lea Walters

Deborah L. Washke

Samuel G. Wilson

Ryan S. Windemuth

Brian J. Wolk

Ernest S. Woodhouse

Carmela Yomtoubian

Timothy P. Young

Kimberly R. Zimmerman

### **Secondary and adjunct faculty**

Jason Prystowsky

Volunatry Appointment

## **Family Medicine**

The objectives of the Department of Family Medicine are to:

1. Provide medical students and residents with education and training that exemplifies excellence, compassion, and wholeness in the specialty of family medicine.
2. Educate students and residents to provide evidence-based, best-practice, chronic disease care that spans the arc of care—from prevention to management to palliative care.
3. Teach students to evaluate and manage common problems at the primary care level, providing continuing and comprehensive health care for individuals of both genders and all ages.
4. Teach students and residents the skills necessary to take a spiritual history and incorporate the spiritual and psychosocial into the biomedical aspects of clinical care.
5. Introduce students and residents to the use of a systems approach and quality improvement techniques to improve patient safety and assure the delivery of best-practice, evidence-based care to a population of patients.
6. Introduce students to family physician role models so that students will be able to make informed choices regarding family medicine as a career option.

### **Chair**

Roger D. Woodruff

### **Primary faculty**

Carolina Abrew-Quimbaya

Anita Adorador

Wil Alexander

Lora L. Allsman

James Appel

Prashath Bhat

Ron K. Brathwaite

Julie H. Bryson

Liming Bu

Mauricio Bueno

Zachary J. Cash

Jian Chen

Heidi Choi

Micah Clement

James E. Crouse

Janet A. Cunningham

Dai V. Du

Khaled El Said

N. Margarete Ezinwa

Lisa D. Flores

William L. Gerling

Herbert N. Giebel

Claire-Alyce Gobble

Rio Guterrez

Rami Haddad

Calvin Hagglov

Sara E. Halverson

Mary A. Hanna

Joan E. Haynes-Lee

Yvonne Heung

Julie A. Howard

Ramon Issa

William W. Jih

Jennifer A. Keehbauch

Sirvard Khanoyan

Isaac Kim

Jean J. Kim

Jeffrey L. Kim

Richard Kim

Sunghee Kim

Ann Klega  
Wessam K. Labib  
Hobart H. Lee  
Allen Liu  
Yi Liu  
Jason Lohr  
Maria B. Lohr  
J. Seth Lukens  
Daniel Maldonado  
Kyle Masi  
Matthew McCarty  
Laurie McNaughton  
Moradak Meas  
Gilberto Medina  
Masoud Mehraban  
Scott Miller  
Shishin Miyagi  
Gina J. Mohr  
Kelly R. Morton  
Juan Najarro  
Scott Nass  
Hieu T. M. Nguyen  
Van Nguyen  
James K. Nozaki  
Dipika R. Pandit  
Edward Perry  
Robert Quigley  
Maisara I. Rahman  
Michelle E. Reeves  
Daniel Reichert  
Michelle I. Rhiner  
Julianna D. Rhode  
Michael J. Robinson  
Luis Samaniego  
Karen Shannon  
Kevin C. Shannon

Fabiola Sianturi  
Lauren M. Simon  
Randy Stinnett  
Mark S. Sutton  
Lucila Tarin  
John K. Testerman  
Lori Urban  
Roger D. Woodruff  
Jack N. Yu  
Qi Tong Yu

**Secondary faculty**

Marc Debay  
Wayne S. Dysinger  
Linda Ferry  
Nancy Testerman

**Clinical faculty**

Rasha Abdrabou  
Javier A. Armijo  
Edna Arteaga-Hernandez  
Robert Bourne  
Warren B. Churg  
Andre de Leon  
Tate de Leon  
Allen C. Felix  
Christopher V. Flores  
Daniel Franco  
Raul Hernandez  
Kevin R. Herrick  
Mark E. Holthouse  
Jonathan W. Horstmann  
Sharon Jamie  
Kamal Kejriwal  
Gilbert H. Lee  
Tony B. Lee  
Tarek Z. Mahdi  
Kenneth D. McCarty

Elliot A. Meltzer  
 Walter C. Morgan  
 Scott Nass  
 Barbara J. Orr  
 Shantharam R. Pai  
 Erik G. Palmer  
 Magda L. Robinson  
 Joseph F. Ruda  
 Joseph Scherger  
 Nancy Testerman  
 Robert K. Yamada

#### **Adjunct faculty**

Randy Beddoe  
 Romeo C. Castillo  
 Daniel L. Engeberg  
 Murlan E. Grise  
 Karl F. Pean  
 Daniel Roquiz  
 Michael D. Shepherd  
 John L. Torquato  
 Humberto J. Villalvazo  
 David C. Ward  
 Sarah Winslow  
 John Zweifler

#### **Emeritus**

Raymond West

## **Gynecology and Obstetrics**

The purpose of the Department of Gynecology and Obstetrics is to provide an academic environment that encourages learning, teaching, and research.

The objectives of the department are to:

1. Provide medical students with a broad base of knowledge in obstetrics and gynecology for entrance into a primary care specialty.
2. Instill a standard of medical excellence that will lead to a continuing program of medical education reaching through and beyond the residency years.
3. Provide faculty who function as role models for the students and residents.

#### **Chair**

Melissa M. Kidder

#### **Primary faculty**

Teresa P. Avants  
 Kevin C. Balli  
 Barry S. Block  
 Emerald B. Caruso  
 Philip J. Chan  
 Ai-Mae Chee-Watkins  
 Sum C. Cheung  
 Johannah Corselli  
 Steven W. Crawford  
 Sandy S. Chuan  
 Dean E. Dagermangy  
 Shareece A. Davis  
 David J. Doucette  
 Dale W. Drollinger  
 Hai-Lang Duong  
 Shirley A. Fong  
 Yvonne G. Gollin  
 Jeffrey S. Hardesty  
 Elaine E. Hart  
 Lori Hemmelgarn  
 Beverly K. Hudson  
 John D. Jacobson  
 Chasity D. Jennings-Nunez  
 Ronald B. Johnson  
 Lisa A. Kairis  
 Elden D. Keeney  
 Melissa M. Kidder  
 Kathleen M. Lau  
 Peter K. Y. Leung  
 Danielle M. Mason  
 William M. McCullough, Jr.  
 Rick D. Murray  
 John M. Norian  
 Bryan T. Oshiro  
 William C. Patton

Leroy A. Reese

Noah Rodriguez

Elmar P. Sakala

Herminia S. Salvador

Kathryn J. Shaw

John M. Shie

Sam Siddighi

E. Laurence Spencer-Smith

Darrell L. Vaughn

Robert J. Wagner, Jr.

Ruheena Waheed

Kaimin A. Wei

Cinna T. Wohlmuth

Kenneth H. Wong

Junchan J. Yune

### **Secondary faculty**

Arlin B. Blood

Charles A. Ducsay

Eugenia I. Mata-Greenwood

Gordon G. Power

Steven M. Yellon

## **Medical Education**

### **Chair**

Tamara Thomas

### **Primary faculty**

Rebekah Bartos Specht

Nancy J. Heine

Barbara A. Hernandez

Kathy A. Herzberger

Loretta B. Johns

Khiet D. Ngo

Robert D. Orr

Martie L. Parsley

Christiane Schubert

### **Secondary faculty**

Bradley A. Cole

Lynda Daniel-Underwood

T. Kent Denmark

Daniel W. Giang

Lawrence K. Loo

Tamara M. Shankel

Tamara L. Thomas

Leonard S. Werner

### **Clinical faculty**

Donna Carlson

### **Adjunct faculty**

Peter Landless

## **Medicine**

The goal of the Department of Medicine is to innovate and provide leadership in:

- Healing
- Education
- Discovery
- Integrated health-care delivery
- Shaping institutional and public policy

The Department of Medicine supports the missions of Loma Linda University and the Loma Linda University Medical Center.

### **Vision**

The Department of Medicine becomes a greater regional clinical resource.

The Department of Medicine fosters a spirit of inquiry expressed in research and teaching. Its faculty advance clinical practice and understanding.

### **Themes**

- Renewal
- Growth
- Teamwork

\* This statement of goals should be a "living document," periodically updated and revised with input from the Department of Medicine faculty and its stakeholders.

### **Chair**

Douglas R. Hegstad

### **Executive vice chair, Medicine**

David K. Bland

### **Vice chair**

Kenneth R. Jutzy

### **Vice chair, Medicine, RCRMC**

Daniel I. Kim

### **Vice chair, Medicine, Pettis Veterans Medical Center**

Philip J. Roos



**Vice chair, Education and Faculty Development**

Lawrence K. Loo

**Vice Chair, Humanities**

Philip M. Gold

**Vice chair, Research**

H. Bryant Nguyen

**Associate chair, Education Research**

T. Michael Kashner

**Associate chair, Resident Education**

Sonny C. Lee

**Associate chair, Student Education**

Amy C. Hayton

**Associate Chair, Continuing Medical Education**

Leah A. Tuddud-Hans

**Division of Cardiology**

Kenneth R. Jutzy

Head

**Division of Endocrinology**

Kevin Codorniz

Head

**Division of Gastroenterology and Nutrition**

Michael L. Volk

Head

**Division of Hematology and Oncology**

Chien-Shing Chen

Head

**Division of Hospitalist Medicine**

David H. Kim

Head

**Division of Infectious Diseases**

Ingrid K. Blomquist

Head

**Division of General Internal Medicine**

Raymond Y. Wong

Head

**Division of Geriatric Medicine**

James P. Larsen

Head

**Division of Nephrology**

Siegmond Teichman

Head

**Division of Pulmonary/Critical Care**

H. Bryant Nguyen

Head

**Division of Regenerative Medicine**

David J. Baylink

Head

**Division of Rheumatology and Immunology**

Karina D. Torralba

Head

**Primary faculty**

Ramadas Abboy

Amir Abdipour

Islam Abudayyeh

Sasikanth Adigopula

Imdad Ahmad

Mazna T. Ahmad

Shobha S. Aiyar

Zebayel Akele

M. Reza Amini

Bradley T. Andersen

James D. Anholm

Patricia J. Applegate

Tim Arakawa

Zarshid Arbabi

Yona R. Ardiles

Mihran H. Ask

Marian Assal

Syed A. Athar

Armine Avanesyan

Lydia L. Aye

Ramin Assadi

Amany S. Azab

Catherine A. Bacheller

Hesuk H. Baek

Sanjoy Banerjee

Daljeet B. Bansal

Ramesh C. Bansal

Juan C. Barrio

Swapna Boppana

Sicily Bradley

Sicily A. Bradley

Charles Brinegar

Kaveh Brumand

Pamela Bullock

Frances P. Batin	Alejandro R. Calvo
David J. Baylink	Ethelred E. Carter
Samuel Baz	Daniel Castro
David M. Bee	Bobby S. Chan
Diane J. Berriman	Suzanne E. Chang
Sanjay D. Bhojraj	Zeno L. Charles-Marcel
Joann K. Bischoff	Kendrick M. Che
Moe H. Bishara	Kay Chea
David K. Bland	Gregory A. B. Cheek
Pamela L. Bullock	Chien-Shing Chen
Marven G. D. Cabling	Shaw S. Chen
Vince P. Cacho	Jason T. Cheng
Thomas J. Chen	Doris Y. Chih
David M. Chooljian	Jun R. Chiong
Camille A. Clarke	Morteza Chitsazan
Tahmeed A. Contractor	David P. Choe
Nasim Daoud	Steven W. Chong
Brittany A. Doremus	Sahil Chopra
Farzin Farajzadeh	Ara A. Chrissian
Arianne S. Furman	Kevin A. Codorniz
Joe R. Gamboa	Keith K. Colburn
Frank Gavini	David S. Condon
Timothy R. Gobble	Adrian N. Cotton
Gati A. Goel	Alfred C. Cottrell
Nandini N. Gowda	James J. Couperus
Troy Handojo	Debra D. Craig
Kalpita M. Hatti	Chitra Damodaran
L. Aimee Hechanova	Nagamani Dandamudi
Patrick P. Hu	Patricia P. Dang
Edward O. Blews III	Lino J. DeGuzman
Ingrid K. Blomquist	James R. Dexter
Reiner B. Bonnet	Keith R. Doram
Gary W. Brown	Ralph Downey III
Evert A. Bruckner	Bouchra Edderkaoui
John M. Byrne	Harvey A. Elder
Cindy X. Cai	Bassem Elgohary

Marvin L. Elias	Steven S. Henley
Mohamed M. El-Kabany	Jan M. Herrman
Suzanne Enloe-Whitaker	J. Thomas Heywood
Dwight C. Evans	Anthony A. Hilliard
George Everett	Su Su Hline
Ramiz A. Fargo	Andrew T. Ho
Siavash Farshidpanah	Thanh X. Hoang
Marian A. Fedak	Frank D. Howard
Earl W. Ferguson	Alexander W. Jahng
Ronald S. Fernando	Russell E. Hoxie, Jr.
David R. Ferry	Sheri W. Hsu
Anthony F. Firek	Chung-Tsen Hsueh
Franz P. Fisher	James J. Huang
Olha Fomenko	Amando J. Huaranga
Steven C. Forland	Enacio G. Hunt
Gerald S. Friedman	Jason S. Hwang
Helmuth F. Fritz	Shazia Hyder
Geir P. Frivold	Earl P. Ilano
Roger C. Garrison	Sergio Infante
Christian Gastelum	Michael B. Ing
Alma Gerona	George M. Isaac
Bevan A. Geslani	Dale M. Isaeff
Van F. Geslani	Mohamed H. Ismail
Paresh C. Giri	Christian S. Jackson
Philip M. Gold	Alan K. Jacobson
Alma A. Gonzaga	Navin Jaipaul
Eduardo J. Gonzaga	Bhavini J. Jaiswal
Alan E. Gorenberg	Suchaya Jinamornphongs
Prashanth G. Gowda	Kenneth R. Jutzy
Harvey S. H. Hahn	Jay Kahng
Susan L. Hall	Tejinder M. Kalra
Paul G. Hammond	Ilho Kang
Steven B. Hardin	S. Amir Kashani
Robert A. Hawkins	T. Michael Kashner
Amy C. Hayton	Emmanuel P. Katsaros
Douglas R. Hegstad	Anas Kawayeh

Asma M. Kazi  
Casey M. Kennedy  
Chandrasekhar Kesavan  
Todd S. Kessler  
Sadia S. Khan  
Christina K. Kim  
Daniel I. S. Kim  
David H. T. Kim  
Dennis Y. Kim  
John J. Kim  
Mi Ye Kim  
Ook Kim  
Walter F. Klein  
Shawn S. W. Koh  
Faher E. Koteira  
Alan C. Lau  
Sophia S. Li  
Rajagopal Krishnan  
Mei Y. Lai  
Euly M. Langga-Sharifi  
Wilson D. Lao  
James P. Larsen  
K. H. William Lau  
Scott W. Lee  
Steve S. Lee  
Duncan Leung  
Terence D. Lewis  
Jennifer N. Li  
Reed T. W. Liang  
Michael B. Lilly  
Ju-an Lin  
Takkin Lo  
Ronald Lo  
Takkin Lo  
Evelyn B. Lomarda  
Lawrence K. Loo  
Kanwaljeet K. Maken  
Ariel Malamud  
Priya Malik  
Anna Malkina  
Nirav M. Mamdani  
Ramesh K. Manchanda  
Krish J Manchandia  
Manoucher Manoucheri  
Gary E. Marais  
H. John Marais  
Axa I. Martell  
J. Todd Martell  
Michael J. Matus  
Stephen D. McDonald  
James I. McMillan  
Ather Mehboob  
Sukh S. R. Mehta  
Leonidas V. Mejia  
Alan W. Michel  
Carrie R. Minnelli  
Hamid R. Mirshahidi  
Saied Mirshahidi  
Aarti C. Mittal  
Yvette M. Modad  
Subburaman Mohan  
Ioana Moldovan  
Patrick M. Moloney  
Devadas S. Moses  
Ali Motabar  
Ashis Mukherjee  
J. Lamont Murdoch  
Zaw W. Myint  
Gayathri Nagaraj  
Daniel A. Nash  
Brandon L. Nathaniel  
Taranjit Natt

Bruce L. Nelson	Donald J. Portocarrero
Tarik Ngab	Tiffany C. Priester
Phat H. Ngo	Nishant Puri
Hoa T. Nguyen	Winola R. Purushotham
Truclinh T. Nguyen	Lakshmi K. Puvvula
Chau L. Nguyen	Xue Zhong Qin
H. Bryant Nguyen	Haixia Qin
Mike C. Nguyen	Gulnara Rackauskas
Sunil K. Nowrangji	Murli Raghavan
William G. Ochoa	John A. Rambharose
Jillian R. Oft	Rajender Reddy
Edmond K. Ohanian	Venkataramana Reddy
Snorri Olafsson	Michael H. Ree
Matthew J. Oman	Surakshya Regmi
Takahiro Otsuka	Teri L. Rhetta
Daniel R. Owyang	Rhodes L. Rigsby
Ramdas G. Pai	Suzanne S. Rizkalla
Sudha M. Pai	Daniel K. Rogstad
Zahra Pakbaz	Maher A. Roman
Zahra Pakbaz	Thomas J. Romano
Dennis D. Palmer	Philip J. Roos
Dennis D. Palmer	Carolan R. Rosario
Neha Pandey	Giorgio Roveran
Ivy C. Pandit	Katja Ruh
James M. Pappas	Cynthia C. Ruiz
Kitae K. Park	Charles H. Rundle
Bhaveshkumar J. Patel	Gergette Sacay
Chandra Patel	Seyed-Ali Sadjadi
Mark C. Patuszynski	Prem Sahasranam
Daniel Pearce	Leena Sahay
Mario L. Perez	Adarsh Sai
Tara Pernot	Antoine Sakr
Jon G. Persichino	Tisha L. Salary
Prashant V. Phatak	Huma Y. Samar
Anita V. Phatak	Daniel R. Sanchez
Gerald M. Pohost	Vaneet K. Sandhu

David A. Saunders	Christine H. Sun
Shivani R. Scharf	Richard J. Swabb
Amy E. Schill-Depew	Hossein Tabriziani
Brian P. Schwartz	Daniel J. Tambunan
Lyndetta R. Schwartz	Lionel G. Tan
Craig A. Seheult	Shirley M. Tan
Roger D. Seheult	Laren D. Tan
Khaled Selim	Xiaolei Tang
Cynthia L. Serabyn	Siegmund Teichman
Steve Serrao	Douglas W. Teller
Tahseen N. Shareef	Mie Mie Thinn
Richard L. Sheldon	David H. Thio
Wei Shen	Gary J. Thompson
Matilda H. Sheng	Conny Tirtaman-Sie
John A. Shrader	Bhoodev Tiwari
Danish S. Siddiqui	Duc D. To
Raman M. Sidhar	Karina D. Torralba
Vasthi V. Silva	Denise L. Townsend
Helme Silvet	Joshua M. Trabin
Ajeet R. Singhvi	James Y. Tsai
Ambika Sivanandam	Leah A. Tuddud-Hans
Lynnetta E. Skoretz	John S. Uniat
Robert T. Smith	Anna L. Ursales
Robert E. Soderblom	Padmini Varadarajan
Hae Young A. Song	Arturo R. Vega
N. Lennard Specht	Ashok K. Verma
Wichit Srikureja	Bertrand H. Vipond
Malathy Sriskandarajah	Michael L. Volk
Betty Stepien	Kenny D. Vu
Liset N. Stoletniy	Michael H. Walter
Debra L. Stottlemyer	John H. Wang
Donna D. Strong	Mark A. Welch
Richard M. Strong	Jon E. Wergedal
David B. Stultz	Leonard S. Werner
Made Sutjita	David W. Wilbur
Chao H. Sun	Angela C. Williams

Brian A. Wong  
 Raymond Y. Wong  
 Sammy S. Wong  
 Jeffrey E. Wonoprabowo  
 Michael K. Woo  
 Weirong Xing  
 Pamela E. Yamanishi  
 Hongrun Yu  
 Minh Yu  
 Yasmin A. Yusufaly  
 Tommy Zaharakis  
 Manila Zaman  
 Xiao-Bing Zhang  
 Zhiwei Zhang  
 Rui-Tao Zhang  
 Yan S. Zhao

### **Secondary Faculty**

Abigail Benitez  
 Vince Patrick R. Cacho  
 Carlos A. Casiano  
 Francis D. W. Chan  
 Marc J. Debay  
 Vi Dinh  
 Gary E. Fraser  
 David Hecht  
 Nancy J. Heine  
 Kathy A. Herzberger  
 Jayakaran S. Job  
 Sonny C. Y. Lee  
 Ravi Mandapati  
 Traci L. Marin  
 Claire L. McArthur III  
 Pushpa Nowrangi  
 Kimberly J. Payne  
 Joan Sabate  
 Lawrence Sandberg

Tamara M. Shankel  
 Lawrence C. Sowers  
 Rebekah Bartos Specht  
 Gary R. Stier  
 Javad Tafreshi  
 Sigve K. Tonstad  
 Chad J. Vercio  
 Sean M. Wilson

### **Emeritus faculty**

Charles Brinegar  
 C. Joan Coggin  
 Stanley C. Condon  
 Raymond B. Crawford  
 Glenn L. Foster  
 Thomas E. Godfrey  
 Walter S. Graf  
 George M. Grames  
 Raymond A. Herber  
 G. David Jang  
 Donald John  
 Roy V. Jutzy  
 Edwin H. Krick  
 Irvin N. Kuhn  
 Francis Y.K. Lau  
 Paul A. Levine  
 Robert J. Marsa  
 Robert D. Mitchell  
 Jerald C. Nelson  
 Stewart W. Shankel  
 Vilma I. Torres

## **Neurology**

The goal of the Department of Neurology is to deliver the highest quality of neurological care to patients by integrating academic medicine with whole person care, research, and education. With the rapid development of technology, it is essential that medical students learn to recognize and treat a variety of neurological disorders. The objective of the department's four-week rotation is to further God's work of restoring wholeness to people by teaching the essentials of clinical neurology

through compassionate patient care, bedside teaching, and a focused didactic curriculum.

**Chair**

Bryan E. Tsao

**Primary faculty**

Firas Bannout

Thomas W. Bohr

Thomas Bravo

Bradley A. Cole

Dorothee L. Cole

Khashayar Dashtipour

Sandra E.D. Estrada

Rodolfo O. Escutin

Daniel W. Giang

Yujian Guo

Izabella Isaac

Ruby E. Koshy

Theresa LaBarte

Travis E. Losey

David J. Michelson

Laura D. Nist

Michael J. Olek

Jignasa G. Patel

Farzin Pedouim

Gordon W, Peterson

Jeffrey Rosenfeld

A. Dean Sherzai

R. Richard Sloop

Bryan E. Tsao

Philip Tseng

**Secondary faculty**

Gregory S. Aaen

Stephen Ashwal

Murray E. Brandstater

Jack J. Chen

Ali Makki

John H. Zhang

**Emeritus faculty**

Donald I. Peterson

## Neurosurgery

**Chair**

Warren W. Boling

**Primary faculty**

Traian T. Cojocaru

Walter D. Johnson

Esther J. Kim

Wolff M. Kirsch

Yuthana Kong

Kenneth DeLosReyes

Promod Pillai Kumar

Venkatraman Sadanand

Alexander Zouros

**Secondary faculty**

J. Paul Jacobson

John H. Zhang

## Ophthalmology

The Department of Ophthalmology is committed to:

1. Provide an academic environment that will foster an in-depth understanding of the specialty of ophthalmology.
2. Provide education for students, residents, and fellows that prepares them for an academic, community, or mission practice.
3. Encourage and support clinical research.
4. Inspire students and residents to promote preventive ophthalmology.

**Chair**

Michael E. Rauser

**Vice chair, Academic Affairs**

Ernest S. Zane

**Vice chair, Clinical Affairs**

Jennifer A. Dunbar

**Director of Research**

Joseph T. Fan

**Primary faculty**

John C. Affeldt

Sandra M. Akamine-Davidson

Pamela Y. Bekendam

Peter D. Bekendam

David T. Beverly



Josef F. Bille	Willaim H. Kiernan
Frank M. Bishop	Benjamin P. Kronberg
Paul A. Blacharski	Harvey M. Lashier
Larry D. Bowes	Janie H. R. Lee-Yoo
Leslie A. Bruce-Lyle	Steve G. Lin
John P. Carlson	Priscilla K. Luke
John Cason	Patrick G. McCaffery
Clement K. Chan	Scott K. McClatchey
Eric Chin	David R. McGrew
Joyce E. Choe	Todd J. Mondzelewski
David M. Choi	Enoch H. Nam
Paul Y. Chung	Julio Narvaez
Denis J. Cline	Rosalynn H. Nguyen
Jan L. Cooper	Richard D. Pesavento
James L. Davidian	Barratt L. Phillips
Kimberly D. Davis	Kristiane M. Ransbarger
Loren L. Denler	Michael E. Rauser
Andrew P. Doan	Steven O. Rimmer
Jesse A. Dovich	Robert C. Rosenquist, Jr.
Jennifer A. Dunbar	Paul K. Row
Joseph T. Fan	Nathan J. Rudometkin
Eric J. Friedrichsen	Arvind Saini
Howard V. Gimbel	Kimber L. Schneider
Pedro Gomez-Bastar	Gerald R. Schultz
Sanjeev Grewal	Mark D. Sherman
Elizabeth M. Hofmeister	Mark D. Sherman
Kenneth W. Houchin	David M. Skale
Lynn L. Huang	Jodi O. Smith
Gary G. Huffaker	Balachandran D. Srinivasan
Jennifer I. Hui	Kris J. Storkersen
Jeffrey J. Ing	Mukesh B. Suthar
David K. Isaacs	Richard R. Tamesis
Wayne B. Isaeff	Laura A. Teasley
Shyun Jeng	Sharon Theodore
Kevin Kaplowitz	Donald G. Tohm
Leila M. Khazaeni	Keith G. Tokuhara

Tom S. Tooma

Ira A. Vidor

Samantha E. Perea

David L. Wilkins

Brian R. Will

Hilary L. Wilson

Terry D. Wood

Robert R. Wresch

Janie H. Yoo

Ernest S. Zane

Steven E. Zane

### **Secondary and adjunct faculty**

Carlindo da Reitz Pereira

Arthur W. Giebel

David L. Gano

Kelly S. Keefe

Matthew S. Niemeyer

Young-Hyun Oh

Sayjal J. Patel

## **Orthopaedic Surgery**

The Department of Orthopaedic Surgery provides a lecture series to junior medical students. The objectives of the series are to:

1. Introduce the specialty of orthopaedic surgery.
2. Teach physical diagnosis of the musculoskeletal system.
3. Review care of common orthopaedic conditions.
4. Survey orthopaedic subspecialties and orthopaedic surgery.
5. Stimulate students to consider a career in orthopaedic surgery.
6. Stimulate interactive discussion of various orthopaedic conditions
7. Communicate high-yield orthopaedic board topics for future self-study.

### **Chair**

Gary D. Botimer

### **Assistant chair**

M. Daniel Wongworawat

### **Division of Arthroplasty Service**

Thomas R. Burgdorff

Head

### **Division of Hand Surgery**

M. Daniel Wongworawat

Head

### **Division of Spine Service**

vacant

### **Primary faculty**

Duane R. Anderson

Hrayr G. Basmajian

William S. Beal

Gary D. Botimer

William P. Bunnell

Thomas R. Burgdorff

Paul D. Burton

Wayne K. Cheng

John M. Chrisler

Ian C. Clarke

Olumide Danisa

Terry J. Dietrich

Thomas K. Donaldson

Peter Elsisy

James A. Foley

Gary K. Frykman

Ronny G. Ghazal

Eric C. Gokcen

Barry S. Grames

Theodore K. Gregorius

Zachary S. Hadley

Gail E. Hopkins

Christopher M. Jobe

Connor LaRose

James D. Matiko

Clifford D. Merkel

Martin J. Morrison

M. Kenneth Mudge

Scott C. Nelson

Matilal C. Patel

Wesley P. Phipatanakul

Philip H. Reiswig

Barth B. Riedel

Daniel K. Ruggles  
 Roy M. Rusch  
 Lorra M. Sharp  
 James E. Shook  
 John W. Skubic  
 John C. Steinmann  
 Hasan M. Syed  
 G. Carleton Wallace  
 Barry E. Watkins  
 George J. Wiesseman  
 Andrew S. Wong  
 M. Daniel Wongworawat  
 David L. Wood III  
 Virchel E. Wood, Jr.  
 Leisure Yu  
 Lee M. Zuckerman

#### **Adjunct faculty**

Shyam Kishan

Giuseppe Pezzotti

## **Otolaryngology and Head and Neck Surgery**

#### **Chair**

Alfred A. Simental

#### **Vice chair**

Steve C. Lee

#### **Primary faculty**

Farhad Ardeshipour

George D. Chonkich

Christopher A. Church

Brianna Crawley

Allie A. Davids

Wei Dong

Robin A. Dyleski

Laurence D. Fechter

Pedro DeAndrade Filho

Amy L. Heller

Jared C. Inman

Timothy T. K. Jung

Priya D. Krishna

Miguel Krishnan

Steve C. Lee

Brenda Lonsbury-Martin

Glen K. Martin

David G. McGann

George H. Petti, Jr.

Nathaniel Peterson

Kristin A. Seiberling

Alfred A. Simental, Jr.

Charles E. Stewart III

Paul Walker

Helen X. Xu

#### **Secondary and adjunct faculty**

Mia C. Perez

## **Pathology and Human Anatomy**

The primary goal of the Department of Pathology and Human Anatomy is to educate capable, compassionate, scientifically minded physicians dedicated to the mission and objectives of Loma Linda University School of Medicine. The courses offered by the department provide a bridge to the clinical sciences, spanning the entire two years of the preclinical curriculum—from foundational principles of gross, microscopic, and developmental anatomy to modern pathophysiologic concepts. Progressive emphasis is placed on cultivating the student's ability to integrate basic knowledge of structure, function, and dysfunction of the human body with analytical skills in solving clinical problems.

The department is strongly committed to facilitating the development of both teaching and investigative skills on the part of faculty, graduate students, medical students, and residents.

#### **Chair**

Paul C. Herrmann

#### **Division of Anatomy**

P. Benigno Nava, Jr.

Vice Chair and Head

#### **Division of Pathology**

Darryl G. Heustis

Vice Chair

#### **Division of Anatomic Pathology**

G. William Saukel

Head

#### **Division of Human Anatomy**

P. Benigno Nava

Head

**Division of Laboratory Medicine**

James Pappas  
Head

**Division of Pediatric Pathology**

Craig W. Zuppan  
Head

**Pathology primary faculty**

Marie-Rose M. L. Akin

Brian S. Bull

Denise L. Bellinger

Brian S. Bull

Kenneth A. Cantos

Jeffrey D. Cao

Shobha L. Castelino-Prabhu

Donald R. Chase

Resa L. Chase

Evelyn B. Choo

Camilla J. Cobb

Jeremy K. Deisch

Diane K. Eklund

Joy I. Fridey

Paul C. Herrmann

Darryl G. Heustis

W. William Hughes III

Yuichi Iwaki

Kelly S. Keefe

Justin C. Kerstetter

Ralph A. Korpman

John E. Lewis

Roland E. Lonser

Yamil Lopez

Pedro B. Nava

Kerby C. Oberg

Norman H. Peckham

Mia C. N. Perez

Ravi Raghavan

Anwar S. S. Raza

Heather L. Rojas

Edward H. Rowsell

Lawrence B. Sandberg

G. William Saukel

Frank R. Sheridan

Wesley T. Stevens

Kevin S. Thompson

Steven J. Trenkle

Jun Wang

Pamela J. Wat

Craig W. Zuppan

**Pathology secondary and adjunct faculty**

Marie-Rose M. L. Akin

J. Bruce Beckwith

Lee S. Berk

**Anatomy primary faculty**

Denise L. Bellinger

Salvador Soriano Castell

Resa L. Chase

Bertha C. Escobar-Poni

John C. Banks, Jr.

Mary K. Kearns-Jonker

Michael A. Kirby

Zhongrong Luo

Pedro B. Nava

Kerby C. Oberg

Kimberly J. Payne

Kenneth R. Wright

**Anatomy secondary and adjunct faculty**

William M. Hooker

**Pediatrics**

The mission of the Department of Pediatrics is to provide patient services, educational programs, research endeavors, child advocacy, and community service in a manner consistent not only with state-of-the-art science, but also with Judeo-Christian values.

**Chair**

Richard E. Chinnock

**Vice chair**

Francis Chan

**Division of Pediatric Allergy and Immunology**

Yvonne F. Fanous

Head

**Division of Pediatric Forensics and Child Abuse**

Clare M. Sheridan-Matney

Section Chief

**Division of Pediatric Gastroenterology**

Manoj C. Shah

Head

**Division of General Pediatrics and Adolescent Medicine**

Ravindra Rao

Head

**Division of Pediatric Genetics**

Robin D. Clark

Head

**Division of Pediatric Hematology/Oncology**

Antranik A. Bedros

Head

**Division of Pediatric Infectious Disease**

Jane N. Bork

Head

**Division of Pediatric Neonatology**

Douglas D. Deming

Head

**Division of Pediatric Nephrology**

Shobha Sahney

Head

**Division of Pediatric Neurology**

Stephen Ashwal

Head

**Division of Pediatric Cardiology**

Michael A. Kuhn

Head

**Division of Pediatric Endocrinology**

Eba H. Hathout

Head

**Division of Pediatric Intensive Care**

Shamel A. Abd-Allah

Head

**Division of Pediatric Pulmonary**

Yvonne F. Fanous

Head

**Division of Pediatric Rheumatology**

Wendy L. de la Pena

Head

**Primary faculty**

Gregory S. Aaen

Shamel A. Abd-Allah

Maria R. Abesa

Borhaan S. Ahmad

Nicole M. Antonio

Barbara K. Ariue

Stephen Ashwal

Huy D. Au

Jerome Badaut

Thomas J. Bahk

Freddie B. Balguma

Heather M. Barr

Nerida T. Bates

Marti F. Baum

Lindsay N. Bautista

Antranik A. Bedros

Arlin B. Blood

Jane N. Bork

Vince Patrick R. Cacho

Bronwyn Carlson

Cameo A. Carter

Francis D. W. Chan

Yvonne W. Chan

Richard E. Chinnock

Jessica R. Claridge

Alexandra M. Clark

Robin D. Clark

Drew C. Cutler

Adam J. Czynski

Althea P. Daniel

Wendy L. de la Pena

Douglas D. Deming

Jimmy H. Eguchi

Janeth C. Ejike

Edward N. Elmendorf III

David G. Erickson

Yvonne F. Fanous

Elba E. S. Fayard

Aprille D. Febre

Nancy R. Fernando

Ross Fisher

Matthew B. Fong

Maria C. Garberoglio

Ada K. Garcia

Nirmalya Ghosh

Donna A. Goff

Shadi Farzin Gohar

June-Anne Gold

Mitchell R. Goldstein

Brent M. Gordon

Agnes K. S. Gugan

Shilpa Gupta

Ernie Guzman

Stephen W. Hamra

William S. Hamra

Aijaz Hashmi

Eba H. Hathout

Phuong Thao Hoang

Andrew O. Hopper

Mary M. Hung

Yomna A. Ibrahim

Mariam M. Ischander

Monhammad R. Jam

Leo C. Jeng

Nim Yeh K. Jiffry

Anup C. Katheria

William A. Kennedy

Albert Kheradpour

Soo Youn Kim

Sunhwa J. Kim

Wonha Kim

Marquelle J. Klooster

Vidhya Krishnamurthy

Micahael A. Kuhn

Mary P. K. Lam

Andrea Lambert

Ranae L. Larsen

Adrian P. Lavery

Sonny C. Y. Lee

Guillermo E. Loew

Michelle H. Loh

John W. Mace

Ravi Mandapati

Gilbert I. Martin

Lily B. Martorell-Bendezu

Mark Massi

Mudit Mathur

Erika A. B. McClure

Thurman A Merritt

David J. Michelson

Farrukh Mirza

Houchang D. Modanlou

Kyrra Moffatt

Ryan Mooradian

Christopher L. Morris

Joan D. Morris

Neda F. Mulla

Lanelle V. Nakamura

Cinda L. Nauertz

Mun-Wah Ng

Khiet D. T. Ngo

Yona Nicolau

Pushpa Nowrangi

Andre Obenaus

Kimberly N. Otsuka

Andrea Pardo

Ricardo L. Peverini

Raylene M. Phillips

Robert E. Piecuch

Allison A. Przekop

Emmeline R. Pulido

Sonea I. Qureshi  
Ravindra Rao  
Jason T. Read  
Sharon K. Riesen  
Sarah M. Roddy  
Sharis N. Rostamian  
Shobha Sahney  
Gerald Saks  
Cheryl Sanchez  
Linette M. Sande-Lopez  
Manoj C. Shah  
Tamara M. Shankel  
Clare M. Sheridan-Matney  
Rita Sheth  
Kozue Shimabukuro  
Stanford K. M. Shu  
Melissa D. Siccama  
Tabitha E. Solomon  
Maulin S. Soneji  
Catherine A. Tan  
Linh A. Tieu  
Cynthia H. Tinsley  
Stephen B. Treiman  
Giang Sinh T. Truong  
Trinh T. Truong  
Diana L. Trupp  
Samantha F. Tschen  
Daved W. van Stralen  
Chad J. Vercio  
Sharon M. Weinberger  
Stacey D. Wiles  
Karen A. Winston  
Valerie Y. M. Wong  
Sidney S. C. Wu  
Linda L. Yang  
George S. Yanni

Amy D. Young-Snodgrass

Xiangpeng Yuan

**Secondary faculty**

Danilyn M. Angeles

Joanne E. Baerg

Leonard L. Bailey

Besh R. Barcega

Lance E. Brown

David A. Chamberlin

Kay Chea

Kathleen J. Clem

Stephen W. Corbett

T. Kent Denmark

Steven M. Green

Gregory T. Guldner

Aqeel S. Kahn

Grace Jee-Eun Kim

Tommy Y. H. Kim

Miguel Krishnan

Lilit Minasyan

Donald C. Moores

James A. Moynihan

Kimberly J. Payne

Peter R. Przekop

Anees Y. Razzouk

Tamara L. Thomas

Andrea W. Thorp

Deborah L. Washke

Christopher G. Wilson

Lionel W. Young

Timothy P. Young

Kimberly R. Zimmerman

Alexander Zouros

**Emeritus faculty**

B. Lyn Behrens

## Physical Medicine and Rehabilitation

The Department of Physical Medicine and Rehabilitation was established to develop clinical services in rehabilitation medicine and to offer resources for teaching and research in the field of rehabilitation. These clinical and academic activities cover a wide spectrum of clinical medicine, but they have as a central basis the notion that rehabilitation is a complex process involving not only multiple disciplines but also consideration of the patient in the broader context of the family and community. The psycho-social-spiritual aspects of rehabilitation complete the whole-person focus, thus providing an opportunity for faculty and students to observe and experience patient care while meeting the goals and objectives of the School of Medicine.

### Chair

Justin T. Hata

### Primary faculty

Krystle Barrera

Murray E. Brandstater

Beryl H. Bull

Anne T. Cipta

Michael J. Davidson

Travis G. Fogel

Michael J. Gilewski

Sarah Humbert

Mary I. Kim

Robertus H. Kounang

Giang-Tuyet Lam

Esther C. Lee

Nancy Lin

Douglas K. Mack

Scott R. Strum

Duc Tran

Thaddeus Wilson

### Secondary faculty

Gordon W. Peterson

## Plastic and Reconstructive Surgery

### Chair

Subhas C Gupta

### Primary faculty

Ghada Y. Afifi

Dennis K. Anderson

Troy J. Andreasen

Della C. Bennett

Walter T. Y. Chang

Gyu Chin

James Chui

Derek G. Cody

Andrew T. Cohen

Norberto E. Collins

Brian J. Eichenberg

Grace S. Elias

Stacey H. Francis

Subhas C. Gupta

Robert A. Hardesty

Cherrie A. Heinrich

Ginard I. Henry

Michael E. Hill

Sharon L. Kalina

Esther Y. Kim

Hahns Y. Kim

Ravi V. Kiran

Darren Leong

Mark C. Martin

Duncan A. G. Miles

Daniel C. Mills II

Anil P. Punjabi

Andrea O. Ray

Charlotte S. Resch

Frank R. Rogers

Gordon H. Sasaki

Catherine A. Walsh

Stephen S. West

A. Andrew Wongworawat

### Adjunct faculty

Allen Gabriel

James O. Greek III

G. Patrick Maxwell

Brinda Thimmappa



## Preventive Medicine

The Department of Preventive Medicine is involved in preventive medicine clinical care, education, and research for the School of Medicine. The department provides a comprehensive, four-year preventive medicine curriculum to all medical students. Graduate medical education training is available in a general preventive medicine residency, an occupational medicine residency, an addiction medicine fellowship, and a combined family and preventive medicine residency. The department works with and supports the School of Public Health, as well as various other Loma Linda programs in health promotion and epidemiology research projects—the most prominent of which is the Adventist Health Study. Preventive medicine faculty direct clinical services at the Center for Health Promotion, the Occupational Medicine Center, the Social Action Community (SAC) Health System clinics, and five separate Inland Empire university health services. A diverse faculty focus primary activities through the School of Medicine, the School of Public Health, the Jerry L. Pettis Memorial Veterans Medical Center, the San Bernardino County and Riverside County health departments, and various other regional and community entities.

### Interim chair

Roger D. Woodruff

### Primary faculty

Cono Badalamenti

Michael A. Caruso

Bonnie I. Chi-Lum

Amarilda A. Christensen

Ralph Clark

T. Allan Darnell

Marc J. Debay

Hans A. Diehl

Ngozi Margarete Ezinwa

Linda H. Ferry

Dominique M. Fradin-Read

Gary E. Fraser

Eric K. Frykman

Andrew H. Guo

George E. Guthrie

Kenneth W. Hart

Ronald P. Hattis

Ionela O. Hubard

Haitham Juma

Cameron D. Kaiser

Pejman Katiraei

Datis Kharrazian

Paul Kim

Jason L. Lohr

Ariane Marie-Mitchell

Rikki Martinez

Joel R. Mundall

Claire Nelson

Eric Ngo

Michael J. Orlich

Alma M. Palisoc

Warren R. Peters

Douglas Plata

Ernest J. Prochazka

Carolina Abrew Quimbaya

Amy Reese

Joon W. Rhee

Douglas C. Richards

Paula D. Scariati

Akbar Sharip

Wilfred W. Shiu

Katherine E. Sljuka

Karen Studer

Glen A. Thomazin

Aung Thu

Juna Tsao

Aristo Vojdani

Sylvie Wellhausen

Loretta Wilber

Dave A. Williams

April Wilson

### Secondary and adjunct faculty

Mihran H. Ask

Marcus Braman

Wayne S. Dysinger

Emeritus

Herbert Giebel

Richard H. Hart

Mohamed H. Ismail

Jayakaran S. Job

John H. Kelly, Jr.

Wonha Kim

Synnove M. F. Knutsen

Jason Lohr

Susan B. Montgomery

Tricia Y. Penniecook

Bernyce Peplowski

Manjit Randhawa

Brenda Rea

Kevin Shannon

Robin Smith

Serena Tonstad

Stacey Wiles

Wesley S. Youngberg

## Psychiatry

The Department of Psychiatry provides educational programs that include clinical training and research for medical students, psychiatry residents, and psychiatry fellows.

During the first and second years, the Department of Psychiatry directs the teaching of the behavioral sciences courses. In these interdisciplinary courses, lectures and demonstrations cover a broad range of human behavioral determinants—including the biology, psychology, sociology, and psychopathology of behavior. A holistic concept of behavior, including its spiritual components, is taught.

The third-year, six-week psychiatry clerkship includes: five weeks divided between two psychiatry treatment sites; and one week at an addiction treatment site. These clerkship experiences offer broad and varied training in the treatment of psychiatric problems of adults and children. Students also participate in an interactive, case-based seminar series.

Fourth-year medical students have the opportunity to take electives with psychiatry faculty in child and adult settings, as well as an intensive reading/discussion course in religion and psychiatry.

### Chair

William G. Murdoch, Jr.

### Primary faculty

Kristen K. Abrams

Julie C. Albert

Louis R. Alvarez

Donald L. Anderson

Ara M. Anspikian

James Barclay

Nenita N. Belen

Christopher Berger

Basil G. Bernstein

Venkatesh G. Bhat

Daniel L. Binus

Andrew C. Blaine

Stephanie L. Bolton

Claudia Carmona

Peggy Chatham

George Christison

Jamie Chu

Hanumantharao Dameria

Jesse DeVera

Khairallah Fayazi

Calvin Flowers

Nerissa Galang-Feather

Steven Galarza

Vamsi Garlapati

Kevin Guber

Jim Hwang

William G. Britt III

Chadwick J. Burgdorff

Kristina Jahng

Clarence Carnahan, Jr.

Anca Chiritescu

Antonia Ciovica

Irene Ciovica

Richard T. Cranston

Lorie T. DeCarvalho

Ramila D. Duwal

Kari M. Enge

Carlos R. Fayard

Mendel J. Feldsher

Ron S. Foo

Teresa Frausto  
 Ihor A. Galarnyk  
 Monika S. Gierz  
 Leia D. Gill  
 Raafat W. Girgis  
 Mark G. Haviland  
 William A. Hayton  
 Douglas B. Holl  
 Joshua L. Horsley  
 Jerry D. Hoyle  
 Cameron J. Johnson  
 Kevin M. Kinback  
 Winifred L. Klop  
 Ritesh Kool  
 George Koplioff  
 Maher S. Kozman  
 Serafin Lalas  
 Henry L. Lamberton  
 Timothy T. Lee  
 Valerie S. L. Leong  
 Jonson J. Lin  
 Jeffrey N. Mar  
 William H. McGhee  
 Athanasios A. Mihas  
 Magdi S. Mikhael  
 Jeffrey Moffat  
 Laurie Moore  
 Wadsworth H. Murad  
 William G. Murdoch, Jr.  
 Jared Nelson  
 Thuy Huynh T. Nguyen  
 Giao Nguyen  
 Carolina Osorio  
 Melissa J. Pereau  
 Erik Peterson  
 Lisa Phillips

George J. Proctor  
 Peter R. Przekop  
 David Puder  
 Cesar-Michael Rafano  
 Frank Randall  
 John P. Riesenman  
 Jorge Rodriguez-Sanchez  
 Patricia J. D. Roth  
 William G. Roth  
 Neeta C. Saheba  
 Christopher Schreur  
 Marion Sherman  
 John C. Stockdale  
 John D. F. Tarr  
 Jason S. Thomas  
 Darcy Trenkle  
 Khushro B. Unwalla  
 E. Ray Verde  
 Roger S. Wenger  
 Dawn M. White  
 Ricardo J. Whyte  
 Bryan M. Wick

### **Secondary faculty**

Mark A. Welch

### **Emeritus faculty**

George T. Harding IV

## **Radiation Medicine**

The fundamental goal of the Department of Radiation Medicine is to provide optimal care to patients by means of ionizing radiation, much of it using proton therapy, the hospital-based application of which was pioneered by the department. This care rests on the foundation of basic, translational, and clinical research—which, combined with patient education, is always pursued to ensure that patients and their families receive state-of-the-art treatment planning and delivery, follow-up and posttreatment care, and support.

### **Chair**

Jerry D. Slater

### **Vice chair, Clinical Affairs**

David A. Bush

### **Primary faculty**

David A. Bush

Dongrak Choi

Sharon Y. Do

Abiel Ghebemedhin

B. Rodney Jabola

Joseph I. Kang

Lilia N. Loredo

Grant McAuley

Daniel W. Miller

Ivan C. Namihas, Jr.

Prashanth K. Nookala

Baldev R. Patyal

William Preston

James M. Slater

Jerry D. Slater

Marcelo E. Vazquez

Ning Wang

Andrew J. Wroe

Gary Y. Yang

Inhwan Yeo

### **Secondary and adjunct faculty**

Eleanor A. Blakely

Daila S. Gridley

Xiao W. Mao

Gregory A. Nelson

Michael J. Pecaut

Richard S. W. Sun

Roman Vlkolinsky

Nathan R. Wall

## **Radiology**

The purpose of the Department of Radiology is to provide:

1. Excellent patient services through imaging studies, special diagnostic procedures, and interventional procedures.
2. Educational programs that include research and clinical training for technologists, physicists, medical students, postdoctoral fellows, radiology residents and fellows.
3. Research support through laboratory and clinical facilities.

4. Support the local, national, and international interests and programs of Loma Linda University.

### **Chair**

David B. Hinshaw, Jr.

### **Vice chair, Clinical Services**

Hans P. Saaty

### **Division of Abdominal Imaging**

Thomas Kelly

Co-Head

Gregory E. Watkins

Co-Head

### **Division of Chest Imaging**

Kendra L. Fisher

Co-Head

Shannon R. Kirk

Co-Head

### **Division of Diagnostic Ultrasound Imaging**

Glenn Rouse

Head

### **Division of Interventional Neuroradiology**

J. Paul Jacobson

Head

### **Division of Interventional Radiology**

Jason Smith

Head

### **Division of ENT Imaging**

N. Dan Wycliffe

Head

### **Division of General Diagnostic Radiology**

Kendra L. Fisher

Head

### **Division of Magnetic Resonance Imaging**

David B. Hinshaw

Head

### **Division of Musculoskeletal Imaging**

Allie K. Blackburn

Co-Head

Alexander Chien

Co-Head

### **Division of Nuclear Medicine**

Gerald A. Krik

Head

### **Division of Neuroradiology**

J. Paul Jacobson

Head

### **Division of Outpatient FMO General Diagnostic Imaging**

Won-Chul Bae

Head

**Division of Pediatric Radiology**

Lionel Young  
Head

**Primary faculty**

Adina Achiriloaie

Won-Chul Bae

Somnath Basu

Allie K. Blackburn

Jerome Burstein

Alexander J. Chien

Erica Chu

Cherie A. Cora

Sonia G. Dhaliwal

Kendra L. Fisher

Scott Fujimoto

David W. Gentry

Mark S. Girguis

Sheri L. Harder

David B. Hinshaw, Jr.

J. Paul Jacobson

Thomas J. Kelly

Daniel K. Kido

Paggie Kim

Gerald A. Kirk

Shannon R. Kirk

Jason Lee

Milon J. H. Miller

Jon Miller

Peter H. Pham

Matthew Pond

Samuel M. Randolph

Glenn A. Rouse

Hans P. Saaty

Victor W. Shi

Jason C. Smith

Scott Somers

Thu T. Tang

Roger Tomihama

Karen A. Tong

Smyrna Tuburan

Richard J. Tully

Beverly Wood

Yen-Ying Wu

N. Dan Wycliffe

Lionel W. Young

**Surgery**

The following goals of the Department of Surgery are in harmony with the stated purposes and philosophy of Loma Linda University School of Medicine:

1. Provide the highest standard of surgical patient care.
2. Maintain educational programs in the surgical disciplines for medical students, residents, and fellows.
3. Provide facilities for laboratory and clinical research in the areas of surgical interest.

**Chair**

Carlos A. Garberoglio

**Division of Colorectal**

Vacant

**Division of General Surgery**

Marcos Michelotti

Head

**Division of Pediatric Surgery**

Donald C. Moores

Head

**Division of Surgical Oncology**

Maheswari Senthil

Head

**Division of Transplant Surgery**

Michael E. de Vera

Head

**Division of Acute Care Surgery**

David Turay

Head

**Primary faculty**

John Agapian

Yousef G Amaar

Joanne E. Baerg

Carlos Balarezo

Pedro W. Baron

Bradley Basinger

Brian E. Bates	Lawrence E. Heiskell
Jack L. Bennett	Farabi M. Hussain
James A. Brown	Janet K. Ihde
Jacqueline J. Carter	Victor C. Joe
Richard D. Catalano	Samir D. Johna
Andrew Chew	Kevork K. Kazanjian
Lori J. H. Chow	Stephen M. Kelley
Michael E. Chupp	Simon M. Keushkerian
Alexandros Coutsoumpos	Faisal A. Khan
John T. Culhane	Daniel D. Klaristenfeld
Jacques Ebhele	Arputharaj H. Kore
Deborah Eisenhut	Fariborz Lalezarzadeh
Michael Ganey	Uriel R. Limjoco
Scott Gardner	H. Daniel Ludi
Joseph V. Davis III	Sharon S. J. Lum
Richard E. Davis	Xian Luo-Own
Aron J. Depew	Ata Mazaheri
Arega Leta	Marcos J. Michelotti
Kaushik Mukherjee	Lester L. Mohr
Jukes Namm	Donald C. Moores
Henry Nguyen	Andre C. Nguyen
Zachary O'Connor	Karen R. O'Bosky
Elizabeth Raskin	Thomas A. O'Callaghan
Kamran Samakar	Clifton D. Reeves
Gregory Saunders	Mark E. Reeves
David Srikureja	Jill E. Reiss
Michael E. de Vera	Jorge L. Rivera
Clifford C. Eke	Antonio E. Robles
Arvand Elihu	Gisella L. Sandy
Carlos A. Garberoglio	Keith R. Scharf
Scott Gaspard	Maheswari Senthil
Fekede W. Gemechu	Gillian L. Seton
Gerald Gollin	Naveenraj L. Solomon
Nephtali R. Gomez	Bruce C. Steffes
Lawrence A. Harms	Arnold D. Tabuenca
Ryan A. Hayton	Derya U. Tagge

Edward P. Tagge  
 Matthew S. C. Tan  
 Keir J. Thelander  
 David C. Thompson  
 Jason A. Tomlin  
 David Turay  
 David L. Vannix  
 Noel S. Victor  
 Philip Wai  
 Hansen S. Wang  
 On Wang  
 Matthew T. Wilson  
 David T. W. Wong  
 J. Frank Yamanishi  
 Robert M. Yuhan  
 Esther Yung (Wu)  
 Kristine B. Zmaj

### **Secondary and adjunct faculty**

Waldo Concepcion  
 Douglas W. Cook  
 Ihab R. Dorotta  
 Alan S. Herford  
 Charles K. C. Hu  
 Sunggeun Samuel Im  
 Kevork K. Kazanjian  
 Kenneth Lawson  
 Yong-Kwon Lee  
 M. C. Theodore Macknett  
 Aleksandr A. Reznichenko  
 Gisella L. Sandy  
 Nathan R. Wall  
 Jason M. Wallen

### **Emeritus faculty**

Lloyd Dayes  
 Ralph J. Thompson, Jr.  
 Jerrold Longerbeam

Robert Rowe  
 Louis Smith  
 Edwin E. Vyhmeister  
 Ellsworth Wareham

## **Urology**

### **Chair**

Herbert C. Ruckle

### **Primary faculty**

Javier L. Arenas  
 Seetharaman Ashok  
 Dalton D. Baldwin  
 Gary A. Barker  
 David A. Chamberlin  
 Minh-Hang Chau  
 Victor C. Ching  
 Mark T. Dickinson  
 David A. Hadley  
 Dean A. Hadley  
 H. Roger Hadley  
 Brian R. Hu  
 Noel T. C. Hui  
 Edmund Y. Ko  
 Paul D. Lui  
 Joseph L. Raffel  
 Herbert C. Ruckle  
 Michael A. Sanford  
 Andrea Staack  
 Steven C. Stewart  
 Robert R. Torrey, Jr.  
 Christopher K. L. Tsai  
 J. Joshua Yune  
**Pediatric Urology**  
 David A. Chamberlin  
 Minh-Hang Chau  
 Samantha Johnson, MSN, CPNP  
 Manju Kaur, MSN, CPNP

Arianna Montejano, MSN, CPNP

**Adjunct faculty**

Seetharaman Ashok

Victor C. Ching

David A. Hadley

Robert R. Torrey, Jr.

J. David Moorehead

Michael A. Sanford

Steven C. Stewart

Christopher K. L. Tsai



# SCHOOL OF NURSING

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## Dean's welcome



Welcome to the School of Nursing, where you will receive an education that will prepare you for a life of Christian service in the nursing profession. This *Student Handbook* will introduce you to the programs of the school and give you information on progression and services available to help you reach your goal.

For more than 110 years, the school has educated nurses to serve the needs of humanity. We look forward to working with you on your academic journey here at the school.

Our purpose is to provide an environment where you can gain the knowledge and skills to become a caring, competent, professional nurse. The faculty, staff, and administration are committed to ensuring that those who study here will develop to the fullest potential and become nurses capable of fulfilling the University's mission, with God's help, "To make man whole."

Elizabeth Bossert, Ph.D., RN  
Dean, School of Nursing

## School foundations

### History

The School of Nursing, established in 1905, was the first in a group of schools that became Loma Linda University in 1961. In 1907, the first class to graduate included seven students—five women and two men. As the school developed and became a college-based program rather than a hospital diploma program, the baccalaureate degree commenced in 1949. The Master of Science degree was granted in 1957. The Doctor of Philosophy degree was added to the existing programs of the school, with the first class starting in 2002. The Doctor of Nursing Practice degree began in 2010.

### Accreditation

The School of Nursing received accreditation by the National League for Nursing (NLN) (61 Broadway, New York, NY 10006) in 1951. In 2000, initial accreditation from the Commission on Collegiate Nursing Education (CCNE) was received. The baccalaureate degree in nursing, master's degree in nursing, and Doctor of Nursing Practice at Loma Linda University School of Nursing are accredited by the CCNE (One Dupont Circle, NW, Suite 530, Washington, DC 20036, (202/887-6791). The most recent accreditation for the B.S. and M.S. degree curricula by the CCNE was 2009; for the DNP program, 2012. The nurse anesthesia area received initial accreditation from the Council on Accreditation of Nurse Anesthesia Education Programs (COA) in 2014 (222 South Prospect Avenue, Park Ridge, IL 60068-4001). The California Board of Registered Nursing (BRN) (P. O. Box 944210, Sacramento, CA 94244-2100) granted continuing approval in 2011. Consumers are encouraged to contact CCNE, COA, or BRN with comments about the program.

### Agency membership

The School of Nursing holds agency membership and actively participates in the following major professional organizations: American Association of Colleges of Nursing, National League for Nursing, Council on Accreditation of Nurse Anesthesia Education Programs (COA), and Western Institute of Nursing.

### SN Vision:

Transforming lives through nursing education, professional practice, and research.

### SN Mission

The education of nurses dedicated to professional excellence and compassion in clinical practice, education, and research. Loma Linda University-educated nurses will further the healing and teaching ministry of Jesus Christ through commitment to whole person care and Christian values.

### Programs of study

The School of Nursing prepares professional nurses to practice with a Christian perspective.

1. The baccalaureate degree curriculum is designed to prepare competent, beginning-level professional nurses who are committed to excellence in practice.
2. The master's degree in nursing program is designed to prepare nurses for leadership as nurse educators, nurse administrators, or nurse anesthetists.

3. The Doctor of Nursing Practice degree is designed to prepare nurses for leadership as advanced practice registered nurses and other advanced nursing roles in the clinical setting.
4. The Doctor of Philosophy degree program is designed to prepare nurse scholars for leadership in education, administration, and research.

## Philosophy

In harmony with Loma Linda University and the Seventh-day Adventist Church, the School of Nursing believes that the aim of education and health care is the development of wholeness in those served. Individuals, created to reflect the wholeness of God's character, have been impaired by the entrance of sin, disease, and death. God's purpose is the restoration of each person to the original state at Creation. God works through human agencies to facilitate individual wholeness.

Nursing functions to assist individual families and societal groups to attain their highest potential of wholeness. Through a variety of roles, nurses put into practice the knowledge, skills, and attitudes necessary to care for those affected by health problems. The School of Nursing provides an environment in which students and faculty can grow in professional competence and Christian grace.

In support of the philosophy, mission, and values of Loma Linda University and the philosophy, mission, and values of the School of Nursing, the faculty affirms the following beliefs:

- Learning is an interactive process that involves all of the learner's faculties.
- A learning environment nurtures the development of potential, promotes maturation of values, cultivates the ability to think critically and independently, and encourages a spirit of inquiry.
- Clinical experiences are essential to the development of professional and technical nursing competence.
- Students—influenced by the effect of physiological, psychological, sociocultural, developmental, and spiritual variables on their lives—learn in different ways and bring different meanings to the learning experience.
- Students participate in development of the science and practice of nursing.

### Dean

Elizabeth Bossert

### Associate Dean, Academic Affairs and Graduate Nursing

Susan Lloyd

### Associate Dean, Student Affairs and Undergraduate Nursing

Barbara L. Ninan

### Assistant Dean, Finance and Administration

JoAnn Shaul

### Director, Office of Practice and Research

Betty Winslow

Director, Office of Practice and Research

### Director, Office of International Nursing

Patricia S. Jones

### Primary full-time faculty

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Elizabeth A. Bossert  
Brenda Boyle  
Alycia A. Bristol  
Shirley T. Bristol  
Kimberly Buck  
Michelle Buckman  
Kurt D. Cao  
Karen G. Carrigg  
Ellen D'Errico  
Lena Dailey  
Sabine Dunbar  
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Lisa Highton  
Gloria Huerta  
Kathie Ingram  
Elizabeth Johnston-Taylor  
Patricia S. Jones  
Vanessa Jones-Oyefoso  
Nancy Kofoed  
Marian Llaguno  
Susan Lloyd  
Sarah Long  
Iris Mamier  
Kelly McHan  
Lana Sue McLouth  
Keri K. Medina  
Bonnie Meyer  
Enrique (Eric) Molina  
Jan Marie Nick  
Barbara Ninan  
Jacqueline Paik  
Nancie Parmenter  
Judith Peters  
Anne Berit Petersen

Nancy Peterson  
Patricia K. Pothier  
Edelweiss Ramal  
Brandie Richards  
Karen Ripley  
Lisa Roberts  
Nancy Sarpy  
Joanna Shedd  
Shaunna Siler  
Selam Stephanos  
Sylvia Stewart  
Nancy Testerman  
Fayette Nguyen Truax  
Kathi Wild  
Renee Winkfield  
Betty Winslow  
Dolores J. Wright  
Ann Ekroth Yukl  
Zelne Zamora

**Secondary faculty**

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Richard Applegate  
Carl Collier  
Ihab Dorotta  
Mark Haviland  
John Lenart  
Robert Martin  
Judith Stor fjell  
John H. Zhang

**Emeritus faculty**

Margaret Burns  
Vaneta Condon  
Jeanette Earnhardt  
Patricia Foster  
Katty Joy French  
Dynette E. Hart  
Emeritus Associate Dean

Marilyn H. Herrmann  
Emeritus Dean

Helen E. King  
Emeritus Dean

Penny Gustafson Miller

Lois H. Van Cleve

Christine Neish

Ruth S. Weber

Clarice W. Woodward

### **Voluntary faculty**

Elva Abogado

Norie Bencito

Shayne Bigelow-Price

Cora Caballero

Glenda M. Castillo-Yetter

Jane Doetsch

Navid Furutan

Valerie Gumangan

Kim Hillyer

Marie Hodgkins

Kimberly Johns

Susan L. Krider

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Jean L. Newbold

Jennifer Olson

Shelley Park

Denise Petersen

Sofia Puerto

Patricia A. Radovich

Megan Schatzschneider

Jeannine Sharkey

Patricia Sorenson

Helen Staples-Evans

Joe Wilkinson

Gwen Wysocki

Joanna J. Yang

Joanna Yang

Janice R. Zumwalt

### **Adjunct faculty**

Kari Firestone

John Nagelhout

Karen Tetz

## **General regulations**

Students of the University are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. This section gives the general setting for the programs of each school and outlines the subject and unit requirements for admission to individual professional options. It is important to review the requirements of specific options in the context of the general requirements applicable to all programs.

## **Student policies**

School of Nursing students are expected to adhere to the policies of the University and School of Nursing as presented in the Loma Linda *Student Handbook*.

## **Application and admissions**

The programs admissions committees of the University intend that an applicant to any of the schools is qualified for the proposed curriculum and is capable of profiting from the educational experience offered by this University. The admissions committees of the school accomplish this by examining evidence of scholastic competence, moral and ethical standards, and significant qualities of character and personality. Applicants are considered for admission only on the recommendation of the program in which study is desired.

### **Application**

Applications are invited from those interested in attending a Christian school of nursing and whose beliefs are consistent with the mission of Loma Linda University and the School of Nursing. Priority may be given to those coming from within the Seventh-day Adventist Church and educational system.

Admission application information is located at <nursing.llu.edu>.

### **Admission requirements**

Students entering the School of Nursing must complete Loma Linda University background check requirements, as well as health requirements—including immunizations and annual TB clearance. In addition, all School of Nursing students are required to have a valid cardiopulmonary resuscitation (CPR) certificate approved by the American Heart Association in order to take clinical nursing courses. Students are responsible for the annual renewal of their immunizations, TB clearance, and CPR cards. New undergraduate students are required to show evidence of completion of a first aid course.

### **Essential skills**

The practice of professional nursing has minimum entry qualifications. Registered nurses are expected to have certain physical abilities as well as competencies in reasoning and thinking. The skills are considered essential to the practice of nursing and are therefore skills required of all applicants to the School of Nursing. These include the abilities indicated in the following four areas:

**Psychomotor (physical) skills**

- Work with inanimate object—including setting up, operating (controlling), manipulating, and handling.
- Stand, walk, carry, sit, lift up to fifty pounds, push, pull, climb, balance, stoop, crouch, kneel, turn, twist, crawl, and reach—within a clinical setting.
- Assess and intervene in the care of patients, using the physical senses—sight, touch, taste, smell, hearing.

**Cognitive (thinking) skills**

- Work with intangible data, such as numbers, symbols, ideas, and concepts.
- Perform mental cognition tasks, including problem solving, prioritizing, and accurate measuring; follow instructions; and use cognitive skills to synthesize, coordinate, analyze, compile, compute, copy, and compare.
- Communicate with others, using verbal and nonverbal skills. Recall written and verbal instructions, read and comprehend, and write clearly. Negotiate, instruct, explain, persuade, and supervise.

**Affective (human relations) skills**

- Interact positively with individuals and groups of people directly and indirectly.
- Control emotions appropriately and cope with stressful situations.
- Respond appropriately to criticism and take responsibility for personal actions, behaviors, and learning.
- Evaluate issues and make decisions without immediate supervision.

**Task (work function) skills**

- Function independently on work tasks.
- Demonstrate safety awareness.
- Recognize potential hazards.
- Respond appropriately to changes in work conditions.
- Maintain attention and concentration for necessary periods.
- Perform tasks that require set limits.
- Ask questions and request assistance appropriately.
- Perform within a schedule requiring attendance.
- Carry a normal work load.

**Accommodations for disability**

School of Nursing students requesting accommodations for a disability (p. 13), should consult the Office of the Associate Dean who administers the student's program (i.e., undergraduate or graduate).

## Student life

Students should refer to the *Student Handbook* for a more comprehensive discussion of University and school expectations, regulations, and policies. Students need to familiarize themselves with the contents of the *Student Handbook*, which can be found online.

## Student involvement

Students are encouraged to become actively involved in the Associated Students of Nursing. Student representatives are invited to attend the Undergraduate Faculty Council, Master's Faculty Council, Doctor of Nursing Practice Faculty Council, Doctor of Philosophy Faculty Council, Spiritual Life and Wholeness Committee, and Diversity Committee, where they may contribute to the decision-making process.

## Student organizations

The following student organizations enable students to participate in cultural, social, professional, and citizenship aspects of University life.

**Associated Students of Nursing (ASN)**

The ASN is a student organization of the School of Nursing. This association comprises all the students of nursing and is administered by elected students and two faculty sponsors. The objectives of this organization are to serve as a channel for communication between students and faculty, and to facilitate personal and professional growth by meaningful participation in all aspects of student life.

**Loma Linda University Student Association (LLUSA)**

The LLUSA has three purposes: to promote communication among students, to present students' views to the administration, and to assist in the programming of social and religious activities. The LLUSA provides opportunities to develop and refine a wide range of professional leadership and fellowship skills.

**Class organizations**

The members of the junior and senior classes elect officers and promote such projects and activities as constitute their major interests and concerns.

**Honor society: Sigma Theta Tau International**

In 1975, LLUSN became an official chapter Gamma Alpha, of Sigma Theta Tau International, the honor society for nursing. Students may be invited to become members if they meet the established criteria.

## Financial information

The Office of the Dean is the final authority in all financial matters and is charged with the interpretation of all financial policies. Any exceptions to published policy in regard to reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members, program directors, or department chairs in regard to these matters is not binding on the school or the University unless approved by the dean.

Registration is not complete until tuition and fees for the required installment are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic year. There may be adjustments in tuition and fees as economic conditions warrant.

## General financial practices

Before the beginning of each school year, the student is expected to arrange for financial resources to cover all expenses. Previous accounts with other schools or with the University must have been settled.

## Schedule of charges 2016-2017

The charges that follow are subject to change without notice.

**Tuition****Tuition charge--undergraduate nonclinical, special, certificate, and part-time students**

\$630	Credit, per unit
\$315	Audit, per unit
\$315	Clinical course fees per clinical course

**Tuition charge--graduate**

\$780	M.S. per unit credit
\$890	D.N.P./Ph.D. per unit credit

\$355	Clinical course fees per clinical course
\$390	Audit, per unit
\$1,065	CRNA per unit credit
\$410	CRNA clinic course fees per clinical course

**Other academic charges**

(Application nonrefundable)

\$60	Testing fee (undergraduate only)
\$60	Application
\$200	Deposit to hold place in class (undergraduate only)
\$250	Deposit to hold place in class (D.N.P. & Ph.D.)
\$1,000	Deposit to hold place in class (CRNA)

**Credit by Examination (one half cost of tuition by unit)**

\$315	Undergraduate per unit credit (challenge, equivalency)
	Graduate:
\$390	Master's per unit credit
\$535	CRNA per unit credit
\$445	D.N.P./Ph.D. per unit credit
\$50	Early examination
\$50	Application to change concentration or degree program

**Special fees**

\$788	Enrollment fee per quarter
\$630	Per quarter for NRS 497 Advanced Clinical Experience

**Finance**

\$100	Tuition installment
\$100	Late payment
\$25	Returned check

**Registration**

\$200	Late registration fee
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**Miscellaneous expenses**

\$3600	Estimated annual expense for items such as textbooks, first year; supplies, student uniforms, equipment, etc.
\$1200	second year; \$500 third year

**Licensing examinations**

Registration and certification examinations and license fees are set by the state.

**Other charges**

\$200	Laboratory make-up fee
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**On- and off-campus student housing**

Students may go to <llu.edu/central/housing> for housing information and a housing application form.

**Nursing and government loans**

Loans are available both to undergraduate and graduate nursing students who are eligible to participate in government loan programs such as Stafford and Nursing Student Loan Program. Contact Financial Aid for details at 909/558-4509. (See Academic Progression Section.)

**Nurse Faculty Loan Program**

The Nurse Faculty Loan Program (NFLP) offers registered nurses substantial assistance (up to 85 percent) to repay educational loans in exchange for eligibility information for this program and for the list of eligible health-care facilities, check <<http://www.hrsa.gov/loanscholarships/repayment/nursing/>>.

**Awards honoring excellence**

Awards for excellence in nursing, scholastic attainment, and leadership ability are made available to students whose performance and attitudes reflect well the ideals and purposes of the school. Selection of students is based on the recommendation of the faculty to the dean.

**President's Award**

The President's Award is presented annually in recognition of superior scholastic attainment and active participation in the student community, within the framework of Christian commitment. One recipient is selected from each school of the University.

**Dean's Award**

The Dean's Award is presented to an outstanding student in each program on the basis of the student's demonstrated commitment to academic excellence and to the objectives of the school.

**Helen Emori King Professional Leadership Award**

The Helen Emori King Professional Leadership Award is presented to a graduate student who demonstrates outstanding leadership ability in nursing.

**RNBS Award**

The RNBS (Registered Nurse/Bachelor of Science) Award is presented to the senior registered nurse student who has demonstrated exceptional competence in scholarship and in the clinical practice of nursing.

**Agatha Hodgins Award for Nurse Anesthesia**

The Agatha Hodgins Award for Nurse Anesthesia is given in honor of the recognized founder of American Association of Nurse Anesthetists. The Award is given to the graduating nurse anesthesia student with the highest scholastic achievement.

**Scholarships**

The School of Nursing has a variety of scholarships that have been endowed by alumni and friends. Most of the scholarships are awarded on the basis of academic/clinical performance, financial need, and citizenship. The Office of the Dean can provide students with more information, as well as with application forms.

Anabelle Mills Hills Scholarship  
 Angel of Care Scholarship  
 Aurel E. Burdick Scholarship  
 Bartlett (Lillian M.) Scholarship  
 Beaver Medical Clinic Foundation  
 Beverly Henry Leadership Scholarship  
 Catherine Christiansen Scholarship  
 Charlie Jo Morgan Student Scholarship  
 Christiansen Scholarship  
 Class of 1941 Endowed Scholarship  
 Class of 1949 Tutoring  
 Class of 1954 Anniversary Fund  
 Class of 1956B Scholarship  
 Class of 1959B Scholarship  
 Class of 1964 Scholarship

Class of 1966 Mentor Scholarship  
Class of 1969 Scholarship  
Class of 1992 Scholarship  
Clinical Study Abroad Scholarship  
Dean's Nursing Scholarship  
Doctor on Nursing Practitioner Scholarship  
Emori Nursing Scholarship  
Fink (Oreda) Memorial Scholarship  
Gertrude Haussler and Maxine Darling Scholarship  
Graduate Nursing Scholarship  
Halpenny Memorial Scholarship  
Harriett Miller Endowed Scholarship  
Hazelton Sisters Scholarship  
Herving SDA Scholarship  
Hispanic Student Scholarship  
H. W. Miller & S.S. Chow Scholarship  
Isabelle Wilson Rees Scholarship  
James A. and Marge H. Jetton Endowed Student Aid Fund  
JBG Endowment  
JBG Endowment Income  
Joylyn Jennings Young Memorial Endowment  
Karen J. Radke Doctoral Student Fellowship  
King (William and Helen) Endowment  
Lam Family Endowment Fund for Nursing Students  
Lee Pak Kim Scholarship Endowment Fund  
Leslie Y. and Cora M. Low Scholarship  
Linda Culwell Memorial Scholarship  
Lisa Holst Crutsinger Memorial Fund  
Lucile Lewis Scholarship  
Marilyn Christian Smith Gearing Scholarship  
Marion Ingemann Wilson Memorial Scholarship  
Marjorie Low Lui Fund  
Marjorie D. Jesse Scholarship  
Marlene Gaskins Memorial Scholarship  
Mary Adeline Farnsworth Memorial Scholarship  
Maxwell/Martin Scholarship  
Nelson Nursing Scholarship  
Nursing Work Experience Scholarship  
Officer (Ruth) Scholarship  
PhD in Nursing  
PhD Scholarship for International Students  
Rickard Memorial Scholarship  
Rosie Voss Worthy Nursing Scholarship  
School of Nursing Scholarship  
Student Registered Nurse Anesthetists Scholarship  
Swatek Endowed Scholarship  
Undergraduate Scholarship  
Voss Worthy Nursing Student Scholarship  
Webb Scholarship  
Woodall (Harry M.) Scholarship  
Woodruff (George and Ollie) Scholarship

# Undergraduate

## Curricula overview

The following sections describe the undergraduate curricula offered by the School of Nursing and list the courses each student must complete. Students are expected to follow the general policies of the University, the school, and specific policies of their degree curriculum. The school reserves the right to update and modify curricula content to keep current with trends in health care.

### B.S. degree

The purpose of the School of Nursing's baccalaureate degree is to prepare competent clinicians who are committed to excellence in practice and to Christian principles. The faculty believe that baccalaureate education in nursing is the basis for professional practice. The curriculum leading to a Bachelor of Science (B.S.) degree is consistent with the faculty's belief that students should be broadly educated. The focus is on the synthesis of nursing knowledge and skills with those from the humanities and sciences. Preparation for practice includes experiences in primary, secondary, and tertiary health care— with clients from various ages, cultural groups, and socioeconomic strata.

### Undergraduate curriculum sequence

The undergraduate curriculum begins with four quarters of preclinical work—which forms the general education and science base for nursing. These quarters may be completed at any regional accredited college or university. After completion of an additional eight quarters at Loma Linda University, the student is eligible to receive the B.S. degree and is prepared for professional nursing practice at the baccalaureate level. The clinical experience develops the student's technical and theoretical capabilities in a progressive manner and within the context of the nursing process. Most of the baccalaureate nursing major is in the upper division, where clinical experience is gained in a broad variety of settings. Integral components of upper division courses are leadership concepts and skills, research, health promotion, and activities that foster collaboration in planning health care with the family and all members of the health-care team.

### Learning outcomes for baccalaureate nursing

The learning outcomes of the baccalaureate nursing program are designed to prepare competent nursing professionals.

1. Demonstrate integration of concepts from general education into their baccalaureate generalist nursing practice.
2. Apply principles of organizational and systems leadership into quality care and patient/client safety.
3. Use scholarship as a basis for critical thinking and evidence-based practice.
4. Apply information management and patient/client care technology to the practice of nursing.
5. Practice within the purview of health-care policy, finance, and regulatory environments.
6. Employ interprofessional communication and collaboration to improve patient/client health outcomes.
7. Support clinical prevention through population health practices.
8. Demonstrate professionalism and understand the importance of Christ-centered values.
9. Integrated baccalaureate-level nursing skills into their practices.

10. Demonstrate the University philosophy of wholeness in their personal and professional lives.
11. Develop a commitment to life-long learning.
12. Demonstrate effective communication skills in English.
13. Understand the importance of embracing and serving a diverse world.

### Professional registration

Satisfactory completion of the California Board of Registered Nursing required content prepares the student to sit for the NCLEX-RN examination. All states require that a nurse pass the NCLEX-RN examination for licensure to practice. California application forms and fees are submitted to the California Board of Registered Nursing, P.O. Box 944210, Sacramento, CA 94244-2100: Web site: <<http://www.rn.ca.gov/>>.

## Four B.S. degree options

1. Standard (generic) B.S. degree curriculum  
Students must complete all prerequisite courses prior to starting clinical courses.
2. B.S. degree curriculum (for student with bachelor's degree in another area). Applicants for this track must fulfill the same admission requirements (p. 360) and degree requirements as the standard B.S. degree. Students entering with a nonnursing baccalaureate degree may write the NCLEX-RN after completing nursing courses required for licensure. This allows students to write the NCLEX-RN after six quarters and prior to completing the B.S. degree. Students who choose this option and obtain employment as an RN may be eligible to enroll in online courses in the RN to B.S. academic program. Students with an entering G.P.A. of 3.3 or above are eligible to request the accelerated curriculum option that prepares students to write the NCLEX-RN after five quarters rather than six. Applicants to this track should expect to carry intensive academic loads. Students in this track must maintain a 3.0 G.P.A. each quarter. Any student in this track who receives a grade of B- or below will be returned to the regular schedule at the beginning of the next quarter.
3. RN to B.S. curriculum  
The returning RN may complete a baccalaureate degree in four quarters of full-time course work. Part-time schooling is also possible. Courses are designed in the hybrid on-line format. Face-to-face sessions will occur at the beginning and ending of each course. On-line activities will include weekly discussions and assignments designed to focus on the working environment of the RN. The returning RN must have completed all prerequisite courses prior to acceptance into the program and must meet the following noncourse requirements:
  - Current RN license
  - A.S. degree or diploma in nursing
4. B.S. degree for the licensed vocational nurse  
Students must complete all prerequisite courses prior to starting clinical courses.

## Nondegree option

### The 45-unit RN licensure option

A 45-unit option is open to all LVNs who seek only the RN license. Since the LVN choosing this option does not meet the requirements for a degree as outlined by the school, neither a degree nor a certificate will be issued; nor will a graduation exercise be included. In addition, the student will not be eligible to wear the school pin, cap, or other insignia. An RN



license obtained through this option is valid in California and may not be transferable to other states.

### Prerequisite

High school diploma

Current LVN license in California (skills will need to be validated)

Completion of physiology and microbiology with a grade of C or higher G.P.A. of at least 2.0

### Academic plan

#### Required courses

##### Required courses

NRSRG 217	Psychiatric Mental Health Nursing	6
NRSRG 308	Adult Health Nursing I <sup>#</sup>	8
NRSRG 225	LVN Bridge Course <sup>+</sup>	4
NRSRG 317	Adult Health Nursing II	8
NRSRG 420	Professional Preparation	2

##### Optional courses (to complete 45 units)

NRSRG 314	Obstetrical and Neonatal Nursing	6
NRSRG 315	Child Health Nursing	6
NRSRG 316	The Nursing Role in Health Promotion	4
NRSRG 408	Critical Care Nursing	6
NRSRG 409	Home Health Nursing	3

# This course may be challenged.

+ Upon completion of this course, students are credited with NRSRG 214 Fundamentals of Professional Nursing (8 units), NRSRG 216 Basic Nursing Skills and Health Assessment (2 units), and NRSRG 309 Gerontological Nursing (2 units).

NOTE: The student in this 45-unit RN option must maintain a G.P.A. of at least 2.0 and earn a grade of at least a C in each course throughout enrollment at Loma Linda University. A grade below a C will cause the student to be dropped from the LLU School of Nursing.

## Academic policies and practices

### Academic residence

To qualify for an undergraduate degree from Loma Linda University, the student must take a minimum of 45 units at Loma Linda University; 32 of the units must be at the senior level. At minimum, three clinical nursing courses are required as part of these units.

### Nursing courses

#### Nursing course grades

Most nursing courses in the undergraduate curriculum are divided into approximately equal components of theory and clinical laboratory practice. A grade for a nursing course represents a combination of the theory and the clinical laboratory grades. In order to pass a nursing course, a student must receive a grade equivalent to a C or above in both the theory and clinical laboratory sections of the course. To receive a passing grade in theory, the student must obtain a cumulative score of at least 76 percent on examinations within that course. A grade of C- or below places the student on provisional status and requires that the student repeat the course. Enrollment in the School of Nursing will be terminated if a student receives two grades of C- or below in nursing or required cognates.

### Percentage breakdown for grading

The undergraduate division of the School of Nursing uses the following percentages for computing grades:

95-100%	A
92-94%	A-
88-91%	B+
85-87%	B
82-84%	B-
79-81%	C+
76-78%	C
71-75%	C-
68-70%	D+
63-67%	D
Below 62%	F

### Clinical experiences

Clinical experiences are under the direction of the course coordinator.

The student has supervised experience under a clinical instructor in the care of patients. Tardiness or unexcused absences from class or clinical laboratory is cause for failure. Three times of being tardy to class and/or laboratory is equal to one absence. Absence in excess of 10 percent of course appointments (class, seminar and/or clinical) may be cause for failure. Students must make up for absences from clinical due to extenuating circumstances (e.g., personal illness or death in the family). A fee of \$200 will be charged for make-up of clinical laboratory during nonclinical time.

Nursing students are required to practice in client care settings under the supervision of a registered nurse during assigned clinical laboratory time. Each student will be expected to be able to apply basic theoretical concepts to clinical practice by assessing, planning, and implementing nursing procedures; and evaluating the care of individuals, families, and communities. In the performance of routine nursing care, all students will function within the policies of the clinical agency and demonstrate the professional behavior outlined in the University catalog and the University *Student Handbook*.

Students are expected to be knowledgeable about clients and their problems and about the plans for care prior to actually giving care. They must come prepared for the clinical experience and must adequately assess a client. Students are expected to perform skills safely. Students whose performance is deemed unsafe may fail the course or be dropped from the program.

Students are responsible for their individual transportation to off-campus clinical sites. Individual transportation does not mean arrangements to car-pool with someone. Off-campus clinical assignments cannot be promised on the basis of the student's transportation convenience.

### Licensure

To be eligible to write the NCLEX-RN examination, the student must have completed all required nursing course work listed in this CATALOG.

Further, the student needs to be aware that, under the laws of California, a candidate for the examination is required to report all misdemeanors, driving citations, and felony convictions. If a candidate has a criminal history, the California Board of Registered Nursing will determine the eligibility of that individual to write the licensing examination.

## Credit by examination

### Challenge/equivalency examination

An undergraduate student may meet academic requirements by passing an examination at least equal in scope and difficulty to examinations in the course. Undergraduate students with prior education in nursing or in another health-care profession are eligible to challenge nursing courses required for California state licensure. The applicant's background in health-care theory and clinical experience must be commensurate with the theory and skills required for the course.

Challenge examinations in nursing courses include both a written examination covering theory and an examination of clinical competence. A fee is charged for a challenge examination. See the "Schedule of Charges" in this section for fees.

Progression to the next level in the program is permissible only after successful completion of the challenge examination. A grade of S is recorded for challenge credit earned by examination only after the student has successfully completed a minimum of 12 units of credit at this University with a G.P.A. of 2.0 or above.

### Advanced placement program

Credit toward graduation may be accepted by the school for an entering student who has passed one or more Advanced Placement (AP) examinations with a score of 3, 4, or 5. Records for AP courses must be sent directly from the College Board to University Records.

For specific policy and time limits regarding CLEP examinations, see "Academic Policies" in the Section II of the CATALOG.

## Academic Support

In order to promote academic success in the nursing program, if a student earns a grade of "C" or "C+" in NRS 214 Fundamentals of Professional Nursing and/or NRS 216 Basic Nursing Skills and Health Assessment, the student will be required to:

- Register for NRS 244 Strategies for Academic Success (1 unit) during the second quarter and through the third quarter.
- Follow an individualized plan for continued involvement with the Learning Assistance Program (LAP) in subsequent quarters. The individualized plan will be developed based on individual needs as determined by the Strategies for Academic Success faculty mentor, course instructor(s), advisor, and student.
- Student will be recommended to limit second quarter registration to 15 units or less, including Strategies for Academic Success. Total length of program may then equal nine (9) units.

## Repeating a course

A grade of C (2.0) is the minimum passing grade for nursing and required cognate courses. Required cognates include: ethics, nutrition, statistics, and writing. Any nursing or named cognate course taken while a student at Loma Linda University School of Nursing in which the earned grade is C- or lower must be repeated before the student can progress to another course. A nursing course or required cognate may be repeated only once. When a student repeats a course, both the original and repeat grades are entered into the student's permanent record; but only the repeat grade and credit are computed in the grade point average and included in the total units earned.

## Probation status

Students whose cumulative G.P.A. at the end of any quarter is less than 2.0, or who have received a C- or below in a nursing course or

named cognate, or who have withdrawn (W) due to failing are placed on academic probation. Students on probation status will be required to take NRS 244 Skills for Academic Success and to communicate regularly with the academic advisor. Students on probation status may take only one clinical nursing course at a time and no more than 12 units. When the course work has been repeated successfully, the student is returned to regular status. Enrollment in the School of Nursing will be terminated if a student receives two grades of C- or below in nursing or required cognates. See *Student Handbook* for grievance procedure.

## Graduation requirements

A candidate must complete the undergraduate Intent to Graduate form two quarters prior to completion of degree.

A degree will be granted when the student has met the following requirements:

1. Completed all requirements for admission to the respective curriculum.
2. Completed all requirements of the curriculum, including specified attendance, level of scholarship, and length of academic residence.
3. Completed a minimum of 193.0 quarter units for the baccalaureate degree, with a minimum overall G.P.A. of 2.0.
4. Given evidence of moral character, of due regard for Christian citizenship, and of consistent responsiveness to the established aims of the University and of the respective discipline.
5. Discharged financial obligations to the University.

It is the responsibility of the student to see that all requirements have been met.

A student who completes the requirements for a degree at the end of the Spring or Summer Quarter is expected to be present at the University's ceremony for conferring of degrees and presentation of diplomas. Permission for the conferral of a degree in absentia is granted by the University upon recommendation of the dean of the school.

A student who completes the requirements for a degree at the end of Autumn or Winter quarter is invited, but not required, to participate in the subsequent conferring of degrees. Degrees are conferred at graduations only.

The University reserves the right to prohibit participation in commencement exercises by a candidate who has not satisfactorily complied with all requirements.

## Additional requirements/Policies

For additional policies governing Loma Linda University students, see Section II of this CATALOG, as well as the University *Student Handbook*. Students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation.

# Nursing – BS (generic)

## Admissions

The Admissions Committee is looking for individuals who reflect a high degree of personal integrity, dependability, self-discipline, intellectual vigor, and a caring and thoughtful manner.

## Application deadlines

Applicants seeking undergraduate admission must have the application process completed by the dates indicated in the following.

- Autumn Quarter—March 31
- Winter Quarter—August 15
- Spring Quarter—November 1

In addition to Loma Linda University (p. 24) admission requirements, the applicant must:

1. Have completed a high school diploma or its equivalent from an accredited secondary school.
2. Have a current first aid certificate.
3. Have a current cardiopulmonary resuscitation (CPR) certificate approved by the American Heart Association.
4. Demonstrate basic computer literacy.
5. Have earned a cumulative G.P.A. of 3.0 on all college course work. Grades below a "C" are nontransferable.
6. For students considering transfer of nursing course work, provide course descriptions or outlines for clinical nursing courses in order for the school to determine the amount of transfer credit to be granted.
7. Have completed science courses within the past five years or have them validated at Loma Linda University.
8. Complete entrance tests required of all incoming students who are not registered nurses.
9. Complete an interview arranged by the director of admissions, as well as an onsite essay.
10. Complete prerequisite courses listed below:

### Domain 1: Religion and humanities 28

#### Religion:\*

Prorated, based on units taken at a Seventh-day Adventist college or university. (See University Division of General Studies for religion and humanities specifics.)

#### Humanities:

Minimum of 12 units that must include a modern language (required; Spanish preferred) and at least two of the following areas: civilization/history, fine arts, literature, philosophy, or performing/visual arts (not to exceed 4 quarter units)

### Domain 2: Scientific inquiry and analysis (43 quarter units)

Natural Sciences (31 units minimum):

Intermediate algebra (or high school algebra II—not counted toward domain total) R

Introduction to physics (or high school physics—not counted toward domain total) R

Human anatomy and physiology with laboratory, complete sequence 8

Introduction to organic chemistry and biochemistry, with laboratory 8

Basic medical microbiology with laboratory 5

Social Sciences (12 units minimum):

Sociology or Anthropology 4

General psychology 4

Developmental psychology (life span development) 4

### Domain 3: Communication (13 quarter units)

English composition, complete sequence 9

Speech 4

### Domain 4: Health and wellness (2-6 quarter units)

Physical education (two separate physical activity courses) R

Nutrition (must include a clinical nutrition course)\* 4

### Domain 5: Electives

To meet total GE requirements of 72 quarter units and total degree requirements of 193 quarter units.

\* Some of these may be completed while a student at LLU

R Required

## Pre-entrance requirements (p. 25):

1. A completed background check.
2. Health clearance, including immunizations as outlined in the "Admissions Policies and Information."

## Program requirements

### Major

NRSG 214	Fundamentals of Professional Nursing	8
NRSG 216	Basic Nursing Skills and Health Assessment	4
NRSG 217	Psychiatric Mental Health Nursing <sup>1</sup>	6
NRSG 224	Nursing Pathophysiology	4
NRSG 305	Nursing Pharmacology	3
NRSG 308	Adult Health Nursing I	8
NRSG 309	Gerontological Nursing	4
NRSG 314	Obstetrical and Neonatal Nursing	6
NRSG 315	Child Health Nursing	6
NRSG 316	The Nursing Role in Health Promotion	4
NRSG 317	Adult Health Nursing II	8
NRSG 324	Nursing Informatics and Evidence-Based Practice	3
NRSG 404	Introduction to Epidemiology for Nursing	3
NRSG 408	Critical Care Nursing	6
NRSG 409	Home Health Nursing	3
NRSG 415	Community Mental Health Nursing	4
NRSG 416	Public Health Nursing	4
NRSG 416L	Public Health Nursing Clinical Laboratory	4
NRSG 418	Capstone Nursing Practicum	8
NRSG 419	Capstone: Management and Leadership in Nursing	5
NRSG 420	Professional Preparation	2
NRSG 429	Nursing Research	3

### Cognates

DTCS 311	Human and Clinical Nutrition for Nursing <sup>2</sup>	4
ENGL 300	Writing Seminar for Health-Care Professionals <sup>3</sup>	2
REL _4_	Upper-division Religion <sup>4</sup>	10
Select one course from the following:		2

REL 406 Adventist Beliefs and Life

REL 423 Loma Linda Perspectives

REL 436 Adventist Heritage and Health

REL 437 Current Issues in Adventism

STAT 414 Introduction to Biostatistics I 3

STAT 415 Computer Applications in Biostatistics 1

Total Units 128

<sup>1</sup> May be taken concurrently while at junior-level status

- <sup>2</sup> DTCS 312 Clinical Nutrition for Nursing may be taken in place of DTCS 311 Human and Clinical Nutrition for Nursing if transfer credit includes articulated course in human nutrition
- <sup>3</sup> Course may be waived based on selected admission criteria
- <sup>4</sup> Students are required to take at least one course from the content areas of RELE, RELR, and one of the required RELT courses listed above. Total units required are based on the percentage of course work from an SDA college/university. The maximum requirement is 16 units including transfer credit.

Total unit requirement for graduation is 193 quarter units (transfer units plus above listed courses).

## Normal time to complete the program

2.66 years (8 academic quarters) at LLU – based on full-time enrollment; part time permitted

# Nursing – RN to B.S.

## Admissions

The Admissions Committee is looking for individuals who reflect a high degree of personal integrity, dependability, self-discipline, intellectual vigor, and a caring and thoughtful manner.

### Application deadlines

Applicants seeking undergraduate admission must have the application process completed by the dates indicated in the following.

- Autumn Quarter—March 31
- Winter Quarter—August 15
- Spring Quarter—November 1

In addition to Loma Linda University (p. 24) admission requirements, the applicant must also meet the following requirements:

1. Registered nurse in active practice
2. No grades below a C submitted for transfer.
3. Complete an interview with the RN-B.S. degree recruiter.
4. Completed an Associate in Science degree or diploma from an accredited school of nursing.
5. Have a license to practice nursing in California as a registered nurse.
6. Completed all nonnursing requirements or their equivalents on the lower division level. The applicant must have a minimum of 87 quarter (61 semester) units to be eligible for upper division status.
7. Completed the following course prerequisites:

### Domain 1: Religion and humanities (28 quarter units) 28\*

#### Religion:

Prorated, based on units taken at a Seventh-day Adventist college or university. (See University Division of General Studies for religion and humanities specifics.)

#### Humanities:

Minimum of 12 units that must include a modern language (required; Spanish preferred) and at least two of the following areas: civilization/history, fine arts, literature, philosophy, or performing/visual arts (not to exceed 4 quarter units)

### Domain 2: Scientific inquiry and analysis (43 quarter units)

Natural Sciences (31 units minimum):

Human anatomy and physiology with laboratory, complete sequence 8

Introduction to chemistry with laboratory, one quarter/semester	4
Basic medical microbiology with laboratory	5
Natural science electives	4
Social Sciences (12 units minimum):	
Sociology or Anthropology	4
General psychology	4
Developmental psychology (life span development)	4
<b>Domain 3: Communication (13 quarter units)</b>	
English composition, complete sequence	9
Speech	4
<b>Domain 4: Health and wellness (2-6 quarter units)</b>	
Physical education (two separate physical activity courses)	R
Nutrition (may be embedded in nursing content courses)	I
<b>Domain 5: Electives</b>	
To meet total GE requirements of 68 quarter units and total degree requirements of 193 quarter units.	

\* Some of these may be completed while a student at LLU.

R Required

I Integrated in previous nursing course

If the registered nurse (RN) is a graduate of an accredited nursing program, the nursing credits will be accepted as equivalent to the School of Nursing lower division courses. For unaccredited schools, or for additional information regarding transfer credit, see section on "Transfer Credit" under Admission Policies. Credit for 300-level nursing courses will be granted upon satisfactory completion of NRSG 337 Strategies for Professional Transition and NRSG 407 Complex Nursing Concepts of Health and Disease.

## Program requirements

### Major

NRSG 324	Nursing Informatics and Evidence-Based Practice	3
NRSG 337	Strategies for Professional Transition	4
NRSG 375	Introduction to Applied Biostatistics for Nurses	3
NRSG 375L	Computer Applications in Biostatistics	1
NRSG 404	Introduction to Epidemiology for Nursing	3
NRSG 407	Complex Nursing Concepts of Health and Disease	6
NRSG 414	Management and Leadership for the Working Nurse <sup>1</sup>	5
or NRSG 419	Capstone: Management and Leadership in Nursing	
NRSG 415	Community Mental Health Nursing	4
NRSG 424	Professional Practice for the Working RN <sup>1</sup>	7
or NRSG 418	Capstone Nursing Practicum	
NRSG 426	Public Health Nursing for Working RNs	4
NRSG 426L	Public Health Nursing Clinical Laboratory for the Working RN	4
NRSG 429	Nursing Research	3

### Cognates

ENGL 300	Writing Seminar for Health-Care Professionals <sup>2</sup>	2
REL_4__	Upper-division Religion <sup>3</sup>	4
Select one course from the following:		2
REL 406	Adventist Beliefs and Life	
REL 423	Loma Linda Perspectives	

RELT 436	Adventist Heritage and Health
RELT 437	Current Issues in Adventism
<hr/>	
Total Units	55

- <sup>1</sup> NRS 418 Capstone Nursing Practicum and NRS 419 Capstone: Management and Leadership in Nursing required if not currently employed as an RN
- <sup>2</sup> Course may be waived based on selected admission criteria
- <sup>3</sup> Students are required to take at least one course from the content areas of RELE, RELR, and one of the required RELT courses listed above. If students need a total of 6 required religion units, a 2 unit course will be taken from each of the content areas. Total units required are based on the percentage of course work from an SDA college/university. The maximum requirement is 16 units including transfer credit.

Total unit requirement for graduation is 193 quarter units (transfer units plus above listed courses).

### Normal time to complete the program

1.33 years (four academic quarters) at LLU – based on full-time enrollment; part time permitted

## Nursing – LVN to B.S.

### Admissions

The Admissions Committee is looking for individuals who reflect a high degree of personal integrity, dependability, self-discipline, intellectual vigor, and a caring and thoughtful manner.

#### Application deadlines

Applicants seeking undergraduate admission must have the application process completed by the dates indicated in the following:

- Autumn Quarter—March 31
- Winter Quarter—August 15
- Spring Quarter—November 1

In addition to Loma Linda University (p. 24) admission requirements, the applicant must:

1. Have completed a high school diploma or its equivalent from an accredited secondary school.
2. Be a licensed vocational nurse in the state of California.
3. Have a current first aid certificate.
4. Have a current cardiopulmonary resuscitation (CPR) certificate approved by the American Heart Association.
5. Demonstrate basic computer literacy.
6. Have earned a cumulative G.P.A. of 3.0 on all college course work. Grades below a "C" are nontransferable.
7. For students considering transfer of nursing course work, provide course descriptions or outlines for clinical nursing courses in order for the school to determine the amount of transfer credit to be granted.
8. Have completed science courses within the past five years or have them validated at Loma Linda University.
9. For an incoming student who is not a registered nurse, complete entrance tests.

10. Complete an interview and an onsite essay arranged by the director of admissions.

11. Complete prerequisite courses listed below:

Course work will be evaluated to determine transfer status in clinical nursing classes.

The licensed vocational nurse may choose to complete a bachelor's degree or the 45 quarter units of nursing, as prescribed by the California State Board of Registered Nursing, and be eligible to sit for the NCLEX-RN.

#### Domain 1: Religion and humanities 28

Religion:<sup>\*</sup>  
Prorated, based on units taken at a Seventh-day Adventist college or university. (See University Division of General Studies for religion and humanities specifics.)

Humanities:  
Minimum of 12 units that must include a modern language (required; Spanish preferred) and at least two of the following areas: civilization/history, fine arts, literature, philosophy, or performing/visual arts (not to exceed 4 quarter units)

#### Domain 2: Scientific inquiry and analysis (43 quarter units)

Natural Sciences (31 units minimum):	
Intermediate algebra (or high school algebra II—not counted toward domain total)	R
Introduction to physics (or high school physics—not counted toward domain total)	R
Human anatomy and physiology with laboratory, complete sequence	8
Introduction to organic chemistry and biochemistry, with laboratory	8
Basic medical microbiology with laboratory	5
Social Sciences (12 units minimum):	
Sociology or Anthropology	4
General psychology	4
Developmental psychology (life span development)	4

#### Domain 3: Communication (13 quarter units)

English composition, complete sequence	9
Speech	4

#### Domain 4: Health and wellness (2-6 quarter units)

Physical education (two separate physical activity courses)	R
Nutrition (may have been integrated into LVN content)	4

#### Domain 5: Electives

To meet total GE requirements of 68 quarter units and total degree requirements of 193 quarter units.

- <sup>\*</sup> Some of these may be completed while a student at LLU
- R Required

Religion is required for all students.

## Program requirements

Major		
NRS 217	Psychiatric Mental Health Nursing <sup>1</sup>	6
NRS 224	Nursing Pathophysiology	4
NRS 225	LVN Bridge Course <sup>2</sup>	4
NRS 305	Nursing Pharmacology	3
NRS 308	Adult Health Nursing I	8

NRSG 314	Obstetrical and Neonatal Nursing	6
NRSG 315	Child Health Nursing	6
NRSG 316	The Nursing Role in Health Promotion	4
NRSG 317	Adult Health Nursing II	8
NRSG 324	Nursing Informatics and Evidence-Based Practice	3
NRSG 404	Introduction to Epidemiology for Nursing	3
NRSG 408	Critical Care Nursing	6
NRSG 409	Home Health Nursing	3
NRSG 415	Community Mental Health Nursing	4
NRSG 416	Public Health Nursing	4
NRSG 416L	Public Health Nursing Clinical Laboratory	4
NRSG 418	Capstone Nursing Practicum	8
NRSG 419	Capstone: Management and Leadership in Nursing	5
NRSG 420	Professional Preparation	2
NRSG 429	Nursing Research	3
<b>Cognates</b>		
DTCS 311	Human and Clinical Nutrition for Nursing <sup>3</sup>	4
ENGL 300	Writing Seminar for Health-Care Professionals <sup>4</sup>	2
REL_4__	Upper-division Religion <sup>5</sup>	10
Select one course from the following:		2
REL 406	Adventist Beliefs and Life	
REL 423	Loma Linda Perspectives	
REL 436	Adventist Heritage and Health	
REL 437	Current Issues in Adventism	
STAT 414	Introduction to Biostatistics I	3
STAT 415	Computer Applications in Biostatistics	1
Total Units		116

<sup>1</sup> May be taken concurrently while at junior-level status

<sup>2</sup> Upon successful completion, students are credited with NRSG 214 Fundamentals of Professional Nursing (8 units), NRSG 216 Basic Nursing Skills and Health Assessment (2 units), and NRSG 309 Gerontological Nursing (2 units)

<sup>3</sup> DTCS 312 Clinical Nutrition for Nursing may be taken in place of DTCS 311 Human and Clinical Nutrition for Nursing if transfer credit includes articulated course in human nutrition

<sup>4</sup> Course may be waived based on selected admission criteria

<sup>5</sup> Students are required to take at least one course from the content areas of RELE, RELR, and one of the required RELT courses listed above. Total units required are based on the percentage of course work from an SDA college/university. The maximum requirement is 16 units including transfer credit.

Total unit requirement for graduation is 193 quarter units (transfer units plus above listed courses).

### Normal time to complete the program

2.33 years (7 academic quarters) at LLU – based on full-time enrollment; part time permitted

## Graduate

The sections that follow describe the Master of Science (M.S.), Doctor of Nursing Practice (D.N.P.), and Doctor of Philosophy (Ph.D.) degrees offered by the School of Nursing; and list the courses for each. School of Nursing students are expected to operate under the general policies of the University and the school, as well as the specific policies of the degree in which they are enrolled. In graduate education, the student has opportunities to develop advanced knowledge, skills, and attitudes relevant to a specific area of interest in nursing. Programs of study prepare the nurse for practice, leadership, and research as appropriate to the professional role.

## Academic policies

### Academic residence

To qualify for a degree from the graduate department in nursing at Loma Linda University, the student must take a minimum of 80 percent of the academic curriculum while in residence at the University, i.e., 42-68 units for the master's degree, depending on the selected concentration area; 50 units for Doctor of Nursing Practice; and 72 units for the Doctor of Philosophy degree.

### Transfer credits

1. A transfer student may transfer credits up to 20 percent of the units required by the chosen program to be applied to the degree requirements at Loma Linda University. This transfer is limited to credits for which a grade of B (3.0) or better has been recorded and the course work was done at an accredited institution and meets the requirements of a course for the degree at LLU.
2. A maximum of 9 quarter units that have been previously applied to another degree may be accepted as advanced standing upon petition.
3. The maximum number of transfer credit towards a master's or doctoral degree may not exceed 20 percent of the minimum credits required for the degree.
4. Following acceptance into a graduate program, all required courses must be taken at Loma Linda University.
5. Credits taken through NEXus for graduate courses are not considered transfer credits.
6. Transfer credits will not be used to offset course work at this University with less than a B grade.

### Academic standing

1. Course grades
  - a. The expected earned grade level for graduate studies is a cumulative grade point average of 3.0 (B average) or higher.
  - b. Students must earn a grade of B (85 percent) or higher in all courses. If the earned grade is less than a B, the course must be repeated, except as noted in 3 A and 4 A below.
  - c. For all CNS and NP *clinical courses*, an earned grade of less than B (3.0) may not be repeated.
  - d. For *all courses required nurse anesthesia*, an earned grade of less than B (3.0) may not be repeated.
2. Withdrawal and repeating course
  - a. A student may withdraw only once from any core, concentration, or clinical course. (See 4B and 5B below for exception for Nurse Anesthesia students).
  - b. A student may repeat no more than one course in the program.

- c. Students requesting to repeat a clinical course due to a withdrawal are placed on a waiting list, according to the timing of the request.
- d. Nurse anesthesia students who withdraw from a course may not continue in the program.
- e. Nurse anesthesia students may not repeat a course.

### 3. Academic probation

At the end of each quarter, student G.P.A.s will be reviewed. Students will be placed on probationary status if:

- a. the earned G.P.A. is less than 3.0 cumulatively
  - b. If the earned G.P.A. is less than 3.0 in the nursing major
  - c. If a course must be repeated due to a grade lower than an earned B in the CNS (core and concentration courses), Nursing Administration, Nursing Education concentration areas or in the DNP or PhD programs, the courses must be retaken and a grade of B or higher earned before proceeding in the clinical sequence if the low grade occurred in a clinical area that allows a course to be repeated (Nursing Administration, Nursing Education and DNP). To repeat the course, it will be necessary to wait until the course is offered again and has space.
    - i. While on probation, a student:
      1. May not take the clinical focus courses, unless this is the course that must be repeated
      2. May not submit the comprehensive project
4. Academic probation may be removed when the student:
    - a. Retakes the course and earns a grade of B or higher.
    - b. Raises the G.P.A. to 3.0 or higher the next quarter.
    - c. Academic termination.
  5. Academic enrollment will be terminated if:
    - a. The cumulative G.P.A. has not been raised to 3.0 or above while on academic probation.
    - b. Any grade lower than B has not been raised when the course is retaken.
    - c. A CNS or NP student earns a grade of B- (2.7) or lower in a *clinical course*.
    - d. A nurse anesthesia student earns a grade of B- (2.7) or lower in *any course*.

### Clinical probation

Clinical work must be evaluated as satisfactory. Faculty may recommend that the student be placed on clinical probation. While on probation, the student must demonstrate satisfactory clinical work as stipulated by the faculty; or the student will be dismissed from the school.

### Clinical termination

A student may be dismissed from the program if there is evidence of:

1. Unsafe clinical behavior in any of the areas of knowledge, skill, and attitudes
2. Unethical clinical behavior, such as, but not limited to, falsification of records and/or reporting, photographing and /or recording in the clinical site, and posting patient information or photos on social media sites.

## Application for candidacy

A student in the master's degree program will apply for candidacy on Form A after completing at least 25 units of required graduate course work. A PhD degree student will be advanced to candidacy after successful defense of the dissertation proposal. A DNP degree student will be advanced to candidacy after successful defense of the project proposal.

## Time limits

The time lapse from first enrollment in a graduate curriculum to the conferring of the master's degree may not exceed five years. For the doctoral degrees, seven years are allowed after the date of admission. A student desiring reinstatement must reapply. This procedure implies a re-evaluation of the student's total academic plan.

Any credit transferred to the school or taken in residence and submitted toward a graduate degree is nullified seven years from the date when the course was completed. Refer to university policy on satisfactory academic progress.

## Scholastic standing

### Grade scale

The graduate department in nursing uses the following percentages for determining grades:

95-100%	A
92-94%	A-
88-91%	B+
85-87%	B
82-84%	B-
79-81%	C+
76-78%	C
71-75%	C-
68-70%	D+
63-67%	D
Below 62%	F

## Practicum experiences

Practicum experiences shall be individually structured to meet students' needs and program requirements. Practicum experiences are arranged by practicum faculty after consultation with advisors and appropriate agency personnel. Off-campus placement is formalized through written contract or letter of agreement. This process may take as long as six months. Students requesting practicum experiences at sites that will require additional costs—such as faculty travel, phone calls, or legal advice—are responsible for this expense.

*For advanced practice CNS or NP tracks, due to the intensive nature of the clinical courses, we strongly recommend that the student keeps their workload to less than 20 hours per week. Employment for CRNA students is strongly discouraged. Students are not permitted to work within 10 hours of the start of a clinical shift. Employment by title or function prior to graduation is forbidden.*

## Comprehensive project

A written, comprehensive project is required of all M.S. degree students.

The student is expected to integrate, evaluate, synthesize and apply theories and research studied in the graduate program. The project must be written after a substantial portion of the clinical work is completed, and is submitted before registering for the final two quarters of the

program requirements. Each clinical track will guide development of the project.

## Thesis and dissertation

Thesis is optional for the M.S. degree. The student's research, thesis, project or dissertation preparation are under the direction of his/her guidance committee. The student is urged to secure the committee's approval of the topic and research design as early as is feasible. Such approval must be secured before petition is made for advancement to candidacy.

## Dissertation format

Consultation with the Faculty of Graduate Studies office is encouraged to help the student avoid formatting errors in the dissertation process that would require him/her to edit large sections of manuscript.

## Portfolio

A portfolio, developed during the program of study is required of all students

## Graduation requirements

A candidate for a degree shall have:

1. Completed all requirements for admission to the respective curriculum.
2. Completed all requirements of the curriculum, including required course work, specified attendance, level of scholarship, and length of residence.
3. Given evidence of moral character, of due regard for Christian citizenship, and of consistent responsiveness to the established aims of the University and of the respective discipline.
4. Discharged financial obligations to the University.

It is the responsibility of the student to see that all requirements have been met.

A student who completes the requirements for a degree at the end of the spring or Summer Quarter is expected to be present at the university's ceremony for conferring of degrees and awarding of diplomas. Permission for the conferral of a degree in absentia is granted by the University upon recommendation of the dean of the school.

A student who completes the requirements for a degree at the end of the Autumn, or Winter Quarter is invited, but not required, to participate in the subsequent conferring of degrees. Degrees are conferred at graduations only. See Section II of the Academic Policies.

The University reserves the right to prohibit participation in commencement exercises by a candidate who has not satisfactorily complied with all requirements.

## Additional requirements/Policies

For additional policies governing Loma Linda University students, see the academic policies and information (p. 35) section under the heading, *About this University*, in this CATALOG, as well as the *University Student Handbook* which can be accessed at [www.llu.edu/student-handbook/](http://www.llu.edu/student-handbook/). Students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation.



## Nursing – M.S.

### Learning outcomes for Master of Science

The learning outcomes of the master's degree program are designed to prepare nurse leaders with a Christian perspective to enable them to contribute to professional nursing through clinical practice, teaching, and administration. Upon completion of the Master of Science degree, the graduate will demonstrate or be able to cope with challenges related to the following:

1. *Wholeness*: Engage in the lifelong, harmonious development of physical, intellectual, emotional, relational, cultural, and spiritual qualities that are unified through a loving relationship with God.
2. *Values*: Promote ethical and compassionate Christian service, respecting the diverse experiences of others.
3. *Critical Thinking*: Synthesize and apply research findings as a foundation for evidence-based practice.
4. *Lifelong Learning*: Engage in inquiry, discovery, and lifelong learning through continued scholarly endeavors.
5. *Communication*: Demonstrate effective communication skills in English.
6. *Technology*: Apply informatics and health-care technologies to support data management and improve patient care.
7. *Diverse World*: Embrace and serve individuals, populations, and systems in a diverse world through advanced expertise in a selected nursing role.
8. *Collaboration*: Collaborate interprofessionally to improve patient and population health outcomes.
9. *Concept Integration*: Utilize baccalaureate-level humanities, nursing, and science competencies as a basis for advanced nursing practice.
10. *Leadership*: Use organizational and systems leadership, management, and teaching skills to promote high-quality and safe patient care.
11. *Health Policy*: Contribute to health policy and advocacy by working with clients, health professionals, and organizations to improve access, quality, and delivery of health care.
12. *Quality Improvement*: Apply quality improvement and safety methods, tools, performance measures, and standards within professional settings.
13. *Prevention*: Engage in clinical prevention and health promotion to maintain and improve population health.
14. *Advanced Practice*: Utilize advanced knowledge acquired from nursing and cognate sciences as a basis for advanced nursing practice.

## Admissions

In addition to Loma Linda University (p. 24) admission requirements, the applicant to the Master of Science degree program in nursing must have the following requirements:

1. A baccalaureate degree in nursing or its equivalent from an accredited program. (CCNE or ACEN)
2. A 3.00 or higher undergraduate G.P.A. (on a 4.00 scale), cumulative and in the nursing major
3. An interview with graduate nursing faculty members.
4. Students must have a current California registered nurse license prior to enrollment.
5. Nursing experience for graduate study;

- a. minimum of one year full-time experience as RN before beginning clinical courses; experience related to desired area of study preferable
  - b. minimum of one year full-time, current critical care experience for nurse anesthesia, excluding orientation
  - c. minimum of two years of current experience in a Level III NICU for neonatal nurse practitioner applicants
6. Prerequisites: undergraduate statistics and research with satisfactory grades.
  7. The Health Science Reasoning Test (HSRT), a test of critical thinking skills, must be taken within the past year.
  8. An onsite essay required as part of the admissions process. If the outcome is less than satisfactory, a graduate-level writing course will be required.
  9. For nurse anesthesia concentration area addition admissions criteria area:
    - a. a 3.00 in sciences for nurse anesthesia.
    - b. current certification in BLS, ACLS, and PALS is required before clinical courses; CCRN preferred
    - c. 8 hours of clinical observation with a CRNA highly recommended before admission interview
    - d. Minimum 1 year, full-time critical care RN experience (in the U.S.) at time of matriculation (excluding orientation). Adult critical care experience preferred. ER will be considered. Experience is evaluated on an individual basis.
    - e. Completion of an online questionnaire following submission of application. This questionnaire must be completed by the applicant before the admission deadline.
    - f. Three recommendations: one from each of the following: Spiritual advisor or pastor; Immediate Supervisor in the critical care area in which the applicant is currently working; Critical care/ICU co-worker
    - g. Interview granted by Admissions Committee

### Application deadlines

Applicants seeking graduate admission must have the application process completed by the dates indicated in the following.

- CRNA
  - Autumn Quarter Priority–November 1
  - Autumn Quarter Standard–December 15
- Nurse Educator, Nursing Administration
  - Autumn Quarter–April 1
  - Winter Quarter–August 1
  - Spring Quarter–November 1

Pre-entrance requirements (p. 25):

1. Health clearance, including immunizations
2. Background check
3. Students must have a current California registered nurse license prior to enrollment.

## Regulations

### Nondegree course status

Up to 12 units of required core course work may be taken as a nondegree student, with the consent of the instructor, while the application submission and review are in progress. If grades of B or higher are earned, the course work may be applied toward the graduate degree upon acceptance into the program.

### Course scheduling

Core nursing courses are scheduled to accommodate the typical working nurse.

### Curriculum change

The school reserves the right to update and modify the curriculum without prior notice to maintain currency with standards in health care.

Students in continuous attendance will meet graduation requirements of the CATALOG under which they enter the School of Nursing unless change is necessary to comply with new professional standards.

### General requirements

For information about requirements and practices to which all graduate students are subject, the student should consult the Catalog of Loma Linda University, Section II *About the University* and in Section III, *About the Schools, School of Nursing*.

### Prerequisite courses for MS and DNP

Introduction to statistics (descriptive and basic inferential)

Introduction to research methods

## M.S. concentrations

Demonstration of comprehensive learning is required, either through a project or requirements embedded in courses required for the Master of Science degree, depending on the selected area of concentration

- Nurse Educator: Adult-Gerontology (p. 368)
- Nurse Educator: Obstetrics and Pediatrics (p. 369)
- Nursing Administration (p. 371)
- Nurse Anesthesia (p. 370)

## Nurse Educator: Adult–Gerontology Concentration

The nurse educator adult-gerontology concentration prepares nurses for an educator role in either the academic or clinical setting, with a focus on the care of the individual from early adulthood through geriatrics.

<b>Core</b>		
NGRD 651	Theoretical Foundations for Evidence-Based Practice	4
NGRD 653	Health Systems Policy Development and Advocacy	4
NGRD 657	Intermediate Statistics for Translational Nursing Research	4
NGRD 658	Translational Research for Advanced Practice	4
RELE 524	Bioethics and Society <sup>1</sup>	3
<b>Concentration</b>		
AHCJ 506 or NGRD 602	Educational Evaluation and Clinical Assessment <sup>2</sup> Assessment of Learning Outcomes	3
NGRD 551	Adult - Gerontology: CNS I	4
NGRD 552	Adult - Gerontology: CNS II	4
NGRD 600	Teaching and Learning Theory	3
NGRD 601	Curriculum Development in Higher Education	3
NGRD 603	Educational Leadership	2
NGRD 621	Pharmacology in Advanced Practice I	2
NGRD 622	Pharmacology in Advanced Practice II	3
NGRD 624	Advanced Health Assessment	4
NGRD 625	Advanced Clinical Pathophysiology	4
<b>Clinical</b>		
NGRD 604	Teaching Practicum	3
NGRD 605	Clinical Practicum: Nurse Educator	3
<b>Project</b>		
NGRD 610	Master's Comprehensive Project	2
<b>Thesis (optional)</b>		
NGRD 696	Master's Thesis (1-5 units) <sup>3</sup>	
Total Units		59

<sup>1</sup> Acceptable alternate religion courses: RELE 534 Ethical Issues in Public Health, RELE 548 Christian Social Ethics, RELE 568 Bioethics and the Law

<sup>2</sup> Substituted with NGRD 602 Assessment of Learning Outcomes in off-campus programs

<sup>3</sup> Units are in addition to minimum required for the degree

## Normal time to complete the program

3 years (11 academic quarters) based on less than full-time enrollment

# Nurse Educator: Obstetrics–Pediatrics Concentration

The nurse educator obstetrics-pediatrics concentration prepares nurses for an educator role in either the academic or clinical setting, with a focus on the care of the child from birth through adolescence.

<b>Core</b>		
NGRD 651	Theoretical Foundations for Evidence-Based Practice	4
NGRD 653	Health Systems Policy Development and Advocacy	4
NGRD 657	Intermediate Statistics for Translational Nursing Research	4
NGRD 658	Translational Research for Advanced Practice	4
RELE 524	Bioethics and Society <sup>1</sup>	3
<b>Concentration</b>		
AHCJ 506 or NGRD 602	Educational Evaluation and Clinical Assessment <sup>2</sup> Assessment of Learning Outcomes	3
NGRD 561	Pediatrics: CNS I	4
NGRD 562	Pediatrics: CNS II	4
NGRD 600	Teaching and Learning Theory	3
NGRD 601	Curriculum Development in Higher Education	3
NGRD 603	Educational Leadership	2
NGRD 621	Pharmacology in Advanced Practice I	2
NGRD 622	Pharmacology in Advanced Practice II	3
NGRD 624	Advanced Health Assessment	4
NGRD 625	Advanced Clinical Pathophysiology	4
<b>Clinical</b>		
NGRD 604	Teaching Practicum	3
NGRD 605	Clinical Practicum: Nurse Educator	3
<b>Project</b>		
NGRD 610	Master's Comprehensive Project	2
<b>Thesis (optional)</b>		
NGRD 696	Master's Thesis (1-5 units) <sup>3</sup>	
Total Units		59

<sup>1</sup> Acceptable alternate religion courses: RELE 534 Ethical Issues in Public Health, RELE 548 Christian Social Ethics, RELE 568 Bioethics and the Law

<sup>2</sup> Substituted with NGRD 602 Assessment of Learning Outcomes for off-campus programs

<sup>3</sup> Units are in addition to minimum required for the degree.

## Normal time to complete the program

3 years (11 academic quarters) based on less than full-time enrollment

## Nurse Anesthesia

The nurse anesthesia concentration is designed to prepare the nurse with a master's degree in a clinical area of nursing to become certified by the Board of Registered Nursing as a nurse anesthetist in the state of California, and by the National Board on Certification and Recertification of Nurse Anesthetists (NBCRNA).

Core		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 657	Intermediate Statistics for Translational Nursing Research	4.0	40	—	—	4.0
NGRD 658	Translational Research for Advanced Practice	4.0	40	—	—	4.0
RELE 524	Bioethics and Society	3.0	30	—	—	3.0
Totals		11.0	110	—	—	11.0
<b>Concentration</b>						
ANAT 527	Advanced Clinical Anatomy for Nurse Anesthetists	3.0	30	2.0	60	5.0
NGRD 580	Advanced Health Assessment for Nurse Anesthetists	3.0	30	1.0	30	4.0
NRSG 514	Advanced Physiology and Pathophysiology for the Nurse Anesthetist II	4.0	40	—	—	4.0
NRSG 519	Advanced Role Development for the Nurse Anesthetist	4.0	40	—	—	4.0
NRSG 520	Principles of Nurse Anesthesia Practice I	3.0	30	1.0	30	4.0
NRSG 521	Principles of Nurse Anesthesia Practice II	3.0	30	1.0	30	4.0
NRSG 522	Principles of Nurse Anesthesia Practice III	4.0	40	1.0	30	5.0
NRSG 523	Principles of Nurse Anesthesia Practice IV	3.0	30	1.0	30	4.0
NRSG 567	Scientific Foundations of Nurse Anesthesia Practice	2.0	20	—	—	2.0
NRSG 571	Advanced Pharmacology for Nurse Anesthesia I	6.0	60	—	—	6.0
NRSG 572	Advanced Pharmacology for Nurse Anesthesia II	3.0	30	—	—	3.0
NRSG 573	Advanced Pharmacology for Nurse Anesthesia III	2.0	20	—	—	2.0
PHSL 506	Advanced Physiology and Pathophysiology for Nurse Anesthetist I	5.0	50	—	—	5.0
Totals		45.0	450	7.0	210	52.0
<b>Clinical</b>						
NRSG 518	Orientation to Clinical Practice	—	—	1.0	30	1.0
NRSG 524	Clinical Practicum and Correlation Conference I	1.0	10	2.0	60	3.0
NRSG 525	Clinical Practicum and Correlation Conference II	1.0	10	3.0	90	4.0
NRSG 526	Clinical Practicum and Correlation Conference III	1.0	10	3.0	90	4.0
NRSG 527	Clinical Practicum and Correlation Conference IV	1.0	10	3.0	90	4.0
NRSG 528	Clinical Practicum and Correlation Conference V	1.0	10	3.0	90	4.0
NRSG 529	Clinical Practicum and Correlation Conference VI	1.0	10	3.0	90	4.0
Totals		6.0	60	18.0	540	24.0
Overall Totals		62.0	620	25.0	750	87.0

### Normal time to complete the program

3 years (10 academic quarters) based on less than full-time enrollment

## Nursing Administration Concentration

The nursing administration option prepares nurses for leadership in a variety of organizational settings. The M.S. degree curriculum draws from the practice of nursing, management, and related fields; and includes administration, research, and clinical components.

<b>Core</b>		
NGRD 650	Advanced Role Development and Collaboration	4
NGRD 651	Theoretical Foundations for Evidence-Based Practice	4
NGRD 652	Health-Care Systems Leadership	4
NGRD 653	Health Systems Policy Development and Advocacy	4
NGRD 655	Health Systems Finance	4
NGRD 657	Intermediate Statistics for Translational Nursing Research	4
NGRD 658	Translational Research for Advanced Practice	4
RELE 524	Bioethics and Society <sup>1</sup>	3
<b>Concentration</b>		
HADM 528	Organizational Behavior in Health Care	3
HADM 534	Health-Care Law	3
HADM 605	Health-Care Quality Management	3
Select three courses from the following:		9
HADM 514	Health-Care Economics	
HADM 529	Health-Care Negotiations and Conflict Resolution	
HADM 542	Managerial Accounting for Health-Care Organizations	
HADM 574	Managing Human Resources in Health-Care Organizations	
HADM 575	Management Information Systems in Health Care	
HADM 604	Health Systems Strategic Planning	
<b>Clinical</b>		
NGRD 606	Nursing Administration Practicum	10
<b>Project</b>		
NGRD 610	Master's Comprehensive Project	2
<b>Thesis (optional)</b>		
NGRD 696	Master's Thesis (1-5 units) <sup>2</sup>	
Total Units		61

<sup>1</sup> Acceptable alternate religion courses: RELE 534 Ethical Issues in Public Health, RELE 548 Christian Social Ethics, RELE 568 Bioethics and the Law

<sup>2</sup> Units are in addition to minimum required for the degree.

### Normal time to complete the program

3 years (11 academic quarters) based on less than full-time enrollment

## Doctor of Nursing Practice

The Doctor of Nursing Practice (D.N.P.) degree is a three-year, 65-unit, post-master's degree curriculum that began Summer Quarter 2010. This curriculum allows master's degree-level registered nurses to earn doctorates, which will prepare them for assuming advanced practice (patient care) and leadership (health-care systems) roles. It has also addressed and met outcome expectations as articulated by the American Association of Colleges of Nursing in accordance with their recommendation that by 2015, advanced practice specialty areas be staffed by nurses with doctoral degrees.

### Learning outcomes for Doctor of Nursing Practice

The learning outcomes for the D.N.P. degree program are designed to prepare nurse leaders with a Christian perspective to enable them to contribute to professional nursing through clinical practice, teaching, and administration. Upon completion of the D.N.P. degree, the graduate will demonstrate the following learning outcomes:

1. *Wholeness*: Engage in the lifelong, harmonious development of physical, intellectual, emotional, relational, cultural, and spiritual qualities that are unified through a loving relationship with God.
2. *Values*: Promote ethical and compassionate Christian service, respecting the diverse experiences of others.
3. *Critical Thinking*: Promote the use of practice scholarship and analytical methods for evidence-based practice.

4. *Lifelong Learning*: Utilize current scientific underpinnings for practice and as a basis for discovery and lifelong learning.
  5. *Communication*: Demonstrate effective communication skills in English.
  6. *Technology*: Provide leadership in the use of information systems/technology and patient care technology for the improvement and transformation of health care.
  7. *Diverse World*: Embrace and serve individuals, populations, and systems in a diverse world through advanced practice.
  8. *Collaboration*: Participate in interdisciplinary collaboration for improving patient and population health outcomes.
  9. *Leadership*: Provide organizational and systems leadership to promote evidence-based practice.
  10. *Health Policy*: Advocate for health care through policy analysis and development.
  11. *Quality Improvement*: Plan and implement quality improvement programs for the advancement of patient and client care in specific health-care delivery systems.
  12. *Prevention*: Incorporate into his/her practice the principles of practice prevention and population health for improving the nation's health.
  13. *Advanced Practice*: Demonstrate leadership in the promotion of advanced nursing practice and the nursing profession.
4. Three electronic recommendations from recent professors or current work supervisor.
  5. Interview by faculty members in the School of Nursing
  6. Health Science Reasoning Test

#### Post-Masters to Doctor of Nursing Practice program admissions criteria

1. Completion of a master's degree in nursing with a clinical major from a program or completion of a Bachelor's degree in nursing and a Masters in a closely related field. the nursing degrees must be accredited by Commission on Collegiate Nursing Education (CCNE), national League of Nursing Accrediting Commission (NLNAC) or the Accreditation Commission for Education in Nursing (ACEN)
2. Undergraduate and Graduate GPA of 3.0, both cumulative and in nursing courses
3. Three electronic recommendations from recent professors or current work supervisors
4. Interview by faculty members in the School of Nursing
5. Health Science Reasoning Test
6. Essay to assess writing skills
7. Current U.S. RN license.

## Program requirements

### Bachelor of Science to Doctor of Nursing Practice:

Clinical Nurse Specialist concentration areas:

- Clinical Nurse Specialist: Adult-Gerontology (p. 372)
- Clinical Nurse Specialist: Pediatrics (p. 373)

Nurse Practitioner concentration areas:

- Primary Care Adult-Gerontology Nurse Practitioner (p. 377)
- Family Nurse Practitioner (p. 375)
- Neonatal Nurse Practitioner (p. 376)
- Primary Care Pediatric Nurse Practitioner (p. 379)
- Psychiatric Nurse Practitioner (p. 380)

### Post-Masters to Doctor of Nursing Practice

Students with a Master's degree in nursing or a closely related field may apply.

## Master's degree option

A Master of Science degree option is available for students experiencing life events resulting in unlikely completion of the D.N.P. degree. This degree option is not available at admission. The M.S. degree will provide a basic advanced practice preparation, but will not include the leadership or scholarship emphasis of the D.N.P. degree. The M.S. degree option is subject to application and approval by the joint D.N.P. and M.S. Academic Review Committee. Completion of the D.N.P. degree does not include conferral of the M.S. degree.

## Admissions

In addition to Loma Linda University (p. 24) admission requirements, the applicant to the Doctor of Nursing Practice program must also complete the following requirements:

### Bachelors to Doctor of Nursing Practice program admissions criteria

1. Baccalaureate degree in nursing from an accredited program
2. GPA of 3.0, both cumulative and in nursing courses
3. Current United States RN license before application

## Clinical Nurse Specialist: Adult-Gerontology Concentration

The Clinical Nurse Specialist: Adult-Gerontology Concentration prepares the student for leadership role as a clinical nurse specialist within the health-care system. Clinical and theoretical content focuses on systems thinking, evidence-based practice, and translational research as related to adult and geriatric clients and families. The curriculum offers opportunity to choose an emphasis in a selected vulnerable population experiencing health-care needs. The curriculum includes 540 hours of clinical practicum in the advanced practice role and 510 practicum hours for the D.N.P. role. The graduate is prepared for certification by the American Nurses Certification Corporation as a clinical nurse specialist in adult-gerontology nursing.

Core		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 650	Advanced Role Development and Collaboration <sup>1</sup>	4.0	40	—	—	4.0
NGRD 651	Theoretical Foundations for Evidence-Based Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 652	Health-Care Systems Leadership <sup>1</sup>	4.0	40	—	—	4.0
NGRD 653	Health Systems Policy Development and Advocacy <sup>1</sup>	4.0	40	—	—	4.0
NGRD 654	Social Determinants of Health	4.0	40	—	—	4.0

NGRD 655	Health Systems Finance	4.0	40	—	—	4.0
NGRD 656	Outcomes Assessment for Strategic Planning	4.0	40	—	—	4.0
NGRD 657	Intermediate Statistics for Translational Nursing Research <sup>1</sup>	4.0	40	—	—	4.0
NGRD 658	Translational Research for Advanced Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 659A	Writing for Publication I	1.0	10	—	—	1.0
NGRD 659B	Writing for Publication II	1.0	10	—	—	1.0
NGRD 659C	Writing for Publication III	2.0	20	—	—	2.0
RELE 564	Ethics and Health Disparities <sup>1</sup>	3.0	30	—	—	3.0
RELR 525	Health Care and the Dynamics of Christian Leadership	3.0	30	—	—	3.0
RELT 557	Theology of Human Suffering	3.0	30	—	—	3.0
Totals		49.0	490	—	—	49.0
<b>Concentration</b>						
NGRD 621	Pharmacology in Advanced Practice I <sup>1</sup>	2.0	20	—	—	2.0
NGRD 622	Pharmacology in Advanced Practice II <sup>1</sup>	3.0	30	—	—	3.0
NGRD 624	Advanced Health Assessment <sup>1</sup>	3.0	30	1.0	30	4.0
NGRD 625	Advanced Clinical Pathophysiology <sup>1</sup>	4.0	40	—	—	4.0
Totals		12.0	120	1.0	30	13.0
<b>Clinical</b>						
NGRD 551	Adult - Gerontology: CNS I <sup>1</sup>	4.0	40	—	—	4.0
NGRD 552	Adult - Gerontology: CNS II <sup>1</sup>	4.0	40	—	—	4.0
NGRD 553	Adult - Gerontology: CNS III <sup>1</sup>	2.0	20	2.0	60	4.0
NGRD 554	Adult - Gerontology: CNS Clinical Practicum <sup>1,2</sup>	—	—	16.0	480	16.0
Totals		10.0	100	18.0	540	28.0
<b>D.N.P. Project</b>						
NGRD 667	DNP Proposal Development	2.0	20	1.0	30	3.0
NGRD 669A	DNP Practice Inquiry Project I	—	—	4.0	120	4.0
NGRD 669B	DNP Practice Inquiry Project II	—	—	4.0	120	4.0
NGRD 669C	DNP Practice Inquiry Project III	—	—	2.0	60	2.0
NGRD 669D	DNP Practice Inquiry Project IV	—	—	2.0	60	2.0
NGRD 669E	DNP Practice Inquiry Project V	—	—	2.0	60	2.0
NGRD 669F	DNP Practice Inquiry Project VI	—	—	2.0	60	2.0
Totals		2.0	20	17.0	510	19.0
Overall Totals		73.0	730	36.0	1080	109.0

Required for M.S. degree only		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 610	Master's Comprehensive Project <sup>1</sup>	—	—	2.0	80	2.0
Totals		—	—	2.0	80	2.0

<sup>1</sup> Required for M.S. degree (p. 371)

<sup>2</sup> Multiple registrations required to fulfill total unit requirement

## Normal time to complete the program

3 years (11 academic quarters) based on less than full-time enrollment

## Clinical Nurse Specialist: Pediatrics Concentration

The clinical nurse specialist: pediatric concentration prepares students for leadership roles as clinical nurse specialists within the health-care system. Clinical and theoretical content focuses on systems thinking, evidence-based practice, and translational research as related to nursing care of children and families. The curriculum offers opportunity to choose an emphasis in a selected vulnerable population experiencing health-care needs. The curriculum includes 540 hours of clinical practice in the advanced practice role and 510 practicum hours for the DNP role. The graduate is prepared for certification by the American Nurses Certification Corporation (ANCC) as a clinical nurse specialist in acute care pediatrics.

Core		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 650	Advanced Role Development and Collaboration <sup>1</sup>	4.0	40	—	—	4.0
NGRD 651	Theoretical Foundations for Evidence-Based Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 652	Health-Care Systems Leadership <sup>1</sup>	4.0	40	—	—	4.0
NGRD 653	Health Systems Policy Development and Advocacy <sup>1</sup>	4.0	40	—	—	4.0
NGRD 654	Social Determinants of Health	4.0	40	—	—	4.0
NGRD 655	Health Systems Finance	4.0	40	—	—	4.0
NGRD 656	Outcomes Assessment for Strategic Planning	4.0	40	—	—	4.0
NGRD 657	Intermediate Statistics for Translational Nursing Research <sup>1</sup>	4.0	40	—	—	4.0
NGRD 658	Translational Research for Advanced Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 659A	Writing for Publication I	1.0	10	—	—	1.0
NGRD 659B	Writing for Publication II	1.0	10	—	—	1.0
NGRD 659C	Writing for Publication III	2.0	20	—	—	2.0
RELE 564	Ethics and Health Disparities <sup>1</sup>	3.0	30	—	—	3.0
RELR 525	Health Care and the Dynamics of Christian Leadership	3.0	30	—	—	3.0
RELT 557	Theology of Human Suffering	3.0	30	—	—	3.0
Totals		49.0	490	—	—	49.0
<b>Concentration</b>						
NGRD 621	Pharmacology in Advanced Practice I <sup>1</sup>	2.0	20	—	—	2.0
NGRD 622	Pharmacology in Advanced Practice II <sup>1</sup>	3.0	30	—	—	3.0
NGRD 624	Advanced Health Assessment <sup>1</sup>	3.0	30	1.0	30	4.0
NGRD 625	Advanced Clinical Pathophysiology <sup>1</sup>	4.0	40	—	—	4.0
Totals		12.0	120	1.0	30	13.0
<b>Clinical</b>						
NGRD 561	Pediatrics: CNS I <sup>1</sup>	4.0	40	—	—	4.0
NGRD 562	Pediatrics: CNS II <sup>1</sup>	4.0	40	—	—	4.0
NGRD 563	Pediatrics: CNS III <sup>1</sup>	2.0	20	2.0	60	4.0
NGRD 564	Pediatrics:CNS Clinical Practicum <sup>1,2</sup>	—	—	16.0	480	16.0
Totals		10.0	100	18.0	540	28.0
<b>D.N.P. Project</b>						
NGRD 667	DNP Proposal Development	2.0	20	1.0	30	3.0
NGRD 669A	DNP Practice Inquiry Project I	—	—	4.0	120	4.0
NGRD 669B	DNP Practice Inquiry Project II	—	—	4.0	120	4.0
NGRD 669C	DNP Practice Inquiry Project III	—	—	2.0	60	2.0
NGRD 669D	DNP Practice Inquiry Project IV	—	—	2.0	60	2.0
NGRD 669E	DNP Practice Inquiry Project V	—	—	2.0	60	2.0
NGRD 669F	DNP Practice Inquiry Project VI	—	—	2.0	60	2.0
Totals		2.0	20	17.0	510	19.0
Overall Totals		73.0	730	36.0	1080	109.0
<b>Required for M.S. degree only</b>						
		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 610	Master's Comprehensive Project <sup>1</sup>	—	—	2.0	80	2.0
Totals		—	—	2.0	80	2.0

<sup>1</sup> Required for M.S. degree (p. 371)**Normal time to complete the program**

Three (3) years (11 academic quarters) based on less than full-time enrollment



## Family Nurse Practitioner Concentration

The family nurse practitioner clinical option prepares the nurse for a leadership role in the health-care system. Clinical and theoretical content focuses on systems thinking, evidence-based practice and translational research as related to the primary health-care needs of family members from newborn through elders in consultation and collaboration with family practice physicians and other health-care providers. The curriculum includes 660 hours of clinical practice in the advanced practice role and 510 practicum hours for the D.N.P. role. The curriculum prepares the graduate to be certified as a family nurse practitioner by the state of California and the American Nurses Certification Corporation.

Core		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 650	Advanced Role Development and Collaboration <sup>1</sup>	4.0	40	—	—	4.0
NGRD 651	Theoretical Foundations for Evidence-Based Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 652	Health-Care Systems Leadership <sup>1</sup>	4.0	40	—	—	4.0
NGRD 653	Health Systems Policy Development and Advocacy <sup>1</sup>	4.0	40	—	—	4.0
NGRD 654	Social Determinants of Health	4.0	40	—	—	4.0
NGRD 655	Health Systems Finance	4.0	40	—	—	4.0
NGRD 656	Outcomes Assessment for Strategic Planning	4.0	40	—	—	4.0
NGRD 657	Intermediate Statistics for Translational Nursing Research <sup>1</sup>	4.0	40	—	—	4.0
NGRD 658	Translational Research for Advanced Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 659A	Writing for Publication I	1.0	10	—	—	1.0
NGRD 659B	Writing for Publication II	1.0	10	—	—	1.0
NGRD 659C	Writing for Publication III	2.0	20	—	—	2.0
RELE 564	Ethics and Health Disparities <sup>1</sup>	3.0	30	—	—	3.0
RELR 525	Health Care and the Dynamics of Christian Leadership	3.0	30	—	—	3.0
RELT 557	Theology of Human Suffering	3.0	30	—	—	3.0
Totals		49.0	490	—	—	49.0
<b>Concentration</b>						
NGRD 621	Pharmacology in Advanced Practice I <sup>1</sup>	2.0	20	—	—	2.0
NGRD 622	Pharmacology in Advanced Practice II <sup>1</sup>	3.0	30	—	—	3.0
NGRD 624	Advanced Health Assessment <sup>1</sup>	3.0	30	1.0	30	4.0
NGRD 625	Advanced Clinical Pathophysiology <sup>1</sup>	4.0	40	—	—	4.0
Totals		12.0	120	1.0	30	13.0
<b>Clinical</b>						
NGRD 510	Family Nurse Practitioner: Pediatrics and Adolescent	3.0	30	2.0	60	5.0
NGRD 511	Family Nurse Practitioner I <sup>1</sup>	3.0	30	2.0	60	5.0
NGRD 512	Family Nurse Practitioner II <sup>1</sup>	3.0	30	3.0	90	6.0
NGRD 513	Family Nurse Practitioner III <sup>1</sup>	4.0	40	4.0	120	8.0
NGRD 514	Family Nurse Practitioner IV <sup>1</sup>	4.0	40	4.0	120	8.0
NGRD 515	Family Nurse Practitioner V: Practicum <sup>1</sup>	1.0	10	7.0	210	8.0
NGRD 519	Family Nurse Practitioner: Skills Lab <sup>1</sup>	—	—	1.0	30	1.0
Totals		18.0	180	23.0	690	41.0
<b>D.N.P. Project</b>						
NGRD 667	DNP Proposal Development	2.0	20	1.0	30	3.0
NGRD 669A	DNP Practice Inquiry Project I	—	—	4.0	120	4.0
NGRD 669B	DNP Practice Inquiry Project II	—	—	4.0	120	4.0
NGRD 669C	DNP Practice Inquiry Project III	—	—	2.0	60	2.0
NGRD 669D	DNP Practice Inquiry Project IV	—	—	2.0	60	2.0
NGRD 669E	DNP Practice Inquiry Project V	—	—	2.0	60	2.0
NGRD 669F	DNP Practice Inquiry Project VI	—	—	2.0	60	2.0
Totals		2.0	20	17.0	510	19.0
Overall Totals		81.0	810	41.0	1230	122.0

Required for M.S. degree only		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 610	Master's Comprehensive Project <sup>1</sup>	—	—	2.0	80	2.0
Totals		—	—	2.0	80	2.0

<sup>1</sup> Required for M.S. degree (p. 371)

### Normal time to complete the program

3 years (11 academic quarters) based on less than full-time enrollment

## Neonatal Nurse Practitioner Concentration

The neonatal nurse practitioner clinical option prepares the nurse for a leadership role in the health-care system. Clinical and theoretical content focuses systems thinking, evidence-based practice and translational research as related to the practice of neonatal intensive care patient management in consultation and collaboration with neonatologists and other health-care providers. The curriculum includes 630 hours of clinical practice in the advanced practice role, and 510 practicum hours for the DNP role. The graduate is prepared to be certified as a nurse practitioner by the State of California and as a neonatal nurse practitioner by the National Certification Corporation.

Core		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 650	Advanced Role Development and Collaboration <sup>1</sup>	4.0	40	—	—	4.0
NGRD 651	Theoretical Foundations for Evidence-Based Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 652	Health-Care Systems Leadership <sup>1</sup>	4.0	40	—	—	4.0
NGRD 653	Health Systems Policy Development and Advocacy <sup>1</sup>	4.0	40	—	—	4.0
NGRD 654	Social Determinants of Health	4.0	40	—	—	4.0
NGRD 655	Health Systems Finance	4.0	40	—	—	4.0
NGRD 656	Outcomes Assessment for Strategic Planning	4.0	40	—	—	4.0
NGRD 657	Intermediate Statistics for Translational Nursing Research <sup>1</sup>	4.0	40	—	—	4.0
NGRD 658	Translational Research for Advanced Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 659A	Writing for Publication I	1.0	10	—	—	1.0
NGRD 659B	Writing for Publication II	1.0	10	—	—	1.0
NGRD 659C	Writing for Publication III	2.0	20	—	—	2.0
RELE 564	Ethics and Health Disparities <sup>1</sup>	3.0	30	—	—	3.0
RELR 525	Health Care and the Dynamics of Christian Leadership	3.0	30	—	—	3.0
RELT 557	Theology of Human Suffering	3.0	30	—	—	3.0
Totals		49.0	490	—	—	49.0
<b>Concentration</b>						
NGRD 621	Pharmacology in Advanced Practice I <sup>1</sup>	2.0	20	—	—	2.0
NGRD 623	Neonatal Pharmacology	3.0	30	—	—	3.0
NGRD 625	Advanced Clinical Pathophysiology <sup>1</sup>	4.0	40	—	—	4.0
Totals		9.0	90	—	—	9.0
<b>Clinical</b>						
NGRD 520	Neonatal Advanced Health Assessment <sup>1</sup>	3.0	30	1.0	30	4.0
NGRD 521	Neonatal Nurse Practitioner I <sup>1</sup>	2.0	20	2.0	60	4.0
NGRD 522	Neonatal Nurse Practitioner II <sup>1</sup>	3.0	30	1.0	30	4.0
NGRD 523	Neonatal Nurse Practitioner III <sup>1</sup>	3.0	30	2.0	60	5.0
NGRD 524	Neonatal Nurse Practitioner IV <sup>1</sup>	4.0	40	4.0	120	8.0
NGRD 525	Neonatal Nurse Practitioner V <sup>1</sup>	4.0	40	4.0	120	8.0
NGRD 526	Neonatal Nurse Practitioner VI: Practicum <sup>1</sup>	1.0	10	8.0	240	9.0
Totals		20.0	200	22.0	660	42.0
<b>D.N.P. Project</b>						
NGRD 667	DNP Proposal Development	2.0	20	1.0	30	3.0
NGRD 669A	DNP Practice Inquiry Project I	—	—	4.0	120	4.0

NGRD 669B	DNP Practice Inquiry Project II	—	—	4.0	120	4.0
NGRD 669C	DNP Practice Inquiry Project III	—	—	2.0	60	2.0
NGRD 669D	DNP Practice Inquiry Project IV	—	—	2.0	60	2.0
NGRD 669E	DNP Practice Inquiry Project V	—	—	2.0	60	2.0
NGRD 669F	DNP Practice Inquiry Project VI	—	—	2.0	60	2.0
Totals		2.0	20	17.0	510	19.0
Overall Totals		80.0	800	39.0	1170	119.0

Required for M.S. degree only		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 610	Master's Comprehensive Project <sup>1</sup>	—	—	2.0	80	2.0
Totals		—	—	2.0	80	2.0

<sup>1</sup> Required for M.S. degree (p. 371)

### Normal time to complete the program

3 years (11 academic quarters) based on less than full-time enrollment

## Primary Care Adult-Gerontology Nurse Practitioner Concentration

The primary care adult-gerontology nurse practitioner concentration prepares the nurse for a leadership role in the health-care system. Clinical and theoretical content focuses systems thinking, evidence-based practice and translational research as related to the primary health-care needs of adults across the age spectrum in consultation and collaboration with primary care physicians and other health-care providers. The curriculum includes 540 hours of clinical practice in the advanced practice role and 510 practicum hours for the DNP role. The curriculum prepares the student to be certified as an adult-gerontology nurse practitioner by the State of California and the American Nurses Certification Corporation and the American Association of Nurse Practitioners.

Core		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 650	Advanced Role Development and Collaboration <sup>1</sup>	4.0	40	—	—	4.0
NGRD 651	Theoretical Foundations for Evidence-Based Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 652	Health-Care Systems Leadership <sup>1</sup>	4.0	40	—	—	4.0
NGRD 653	Health Systems Policy Development and Advocacy <sup>1</sup>	4.0	40	—	—	4.0
NGRD 654	Social Determinants of Health	4.0	40	—	—	4.0
NGRD 655	Health Systems Finance	4.0	40	—	—	4.0
NGRD 656	Outcomes Assessment for Strategic Planning	4.0	40	—	—	4.0
NGRD 657	Intermediate Statistics for Translational Nursing Research <sup>1</sup>	4.0	40	—	—	4.0
NGRD 658	Translational Research for Advanced Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 659A	Writing for Publication I	1.0	10	—	—	1.0
NGRD 659B	Writing for Publication II	1.0	10	—	—	1.0
NGRD 659C	Writing for Publication III	2.0	20	—	—	2.0
RELE 564	Ethics and Health Disparities <sup>1</sup>	3.0	30	—	—	3.0
RELR 525	Health Care and the Dynamics of Christian Leadership	3.0	30	—	—	3.0
RELT 557	Theology of Human Suffering	3.0	30	—	—	3.0
Totals		49.0	490	—	—	49.0
<b>Concentration</b>						
NGRD 621	Pharmacology in Advanced Practice I <sup>1</sup>	2.0	20	—	—	2.0
NGRD 622	Pharmacology in Advanced Practice II <sup>1</sup>	3.0	30	—	—	3.0
NGRD 624	Advanced Health Assessment <sup>1</sup>	3.0	30	1.0	30	4.0
NGRD 625	Advanced Clinical Pathophysiology <sup>1</sup>	4.0	40	—	—	4.0
Totals		12.0	120	1.0	30	13.0
<b>Clinical</b>						
NGRD 500	Gerontological Health and Wellness <sup>1</sup>	2.0	20	—	—	2.0

NGRD 501	Primary Care Adult-Gerontology Nurse Practitioner I <sup>1</sup>	3.0	30	2.0	60	5.0
NGRD 502	Primary Care Adult-Gerontology Nurse Practitioner II <sup>1</sup>	3.0	30	3.0	90	6.0
NGRD 503	Primary Care Adult-Gerontology Nurse Practitioner III <sup>1</sup>	4.0	40	4.0	120	8.0
NGRD 504	Primary Care Adult-Gerontology Nurse Practitioner IV <sup>1</sup>	4.0	40	4.0	120	8.0
NGRD 505	Primary Care Adult-Gerontology Nurse Practitioner V: Practicum <sup>1</sup>	1.0	10	7.0	210	8.0
NGRD 509	Primary Care Adult-Gerontology Nurse Practitioner: Skills Lab <sup>1</sup>	—	—	1.0	30	1.0
Totals		17.0	170	21.0	630	38.0
<b>D.N.P. Project</b>						
NGRD 667	DNP Proposal Development	2.0	20	1.0	30	3.0
NGRD 669A	DNP Practice Inquiry Project I	—	—	4.0	120	4.0
NGRD 669B	DNP Practice Inquiry Project II	—	—	4.0	120	4.0
NGRD 669C	DNP Practice Inquiry Project III	—	—	2.0	60	2.0
NGRD 669D	DNP Practice Inquiry Project IV	—	—	2.0	60	2.0
NGRD 669E	DNP Practice Inquiry Project V	—	—	2.0	60	2.0
NGRD 669F	DNP Practice Inquiry Project VI	—	—	2.0	60	2.0
Totals		2.0	20	17.0	510	19.0
Overall Totals		80.0	800	39.0	1170	119.0

Required for M.S. degree only		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 610	Master's Comprehensive Project <sup>1</sup>	—	—	2.0	80	2.0
Totals		—	—	2.0	80	2.0

<sup>1</sup> Required for M.S. degree (p. 371)

### Normal time to complete the program

Three (3) years (11 academic quarters) based on less than full-time enrollment

## Primary-Care Pediatric Nurse Practitioner Concentration

The primary care pediatric nurse practitioner clinical option prepares the nurse for a leadership role in the health-care system. Clinical and theoretical content focuses systems thinking, evidence-based practice, and translational research as related to the primary health-care needs of children from birth through adolescence in consultation and collaboration with primary care physicians and other health-care providers. The curriculum includes 600 hours of clinical practice in the advanced practice role and 510 practicum hours for the D.N.P. role. The curriculum prepares the student to be certified as a pediatric nurse practitioner by the State of California and by the Pediatric Nursing Certification Board.

Core		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 650	Advanced Role Development and Collaboration <sup>1</sup>	4.0	40	—	—	4.0
NGRD 651	Theoretical Foundations for Evidence-Based Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 652	Health-Care Systems Leadership <sup>1</sup>	4.0	40	—	—	4.0
NGRD 653	Health Systems Policy Development and Advocacy <sup>1</sup>	4.0	40	—	—	4.0
NGRD 654	Social Determinants of Health	4.0	40	—	—	4.0
NGRD 655	Health Systems Finance	4.0	40	—	—	4.0
NGRD 656	Outcomes Assessment for Strategic Planning	4.0	40	—	—	4.0
NGRD 657	Intermediate Statistics for Translational Nursing Research <sup>1</sup>	4.0	40	—	—	4.0
NGRD 658	Translational Research for Advanced Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 659A	Writing for Publication I	1.0	10	—	—	1.0
NGRD 659B	Writing for Publication II	1.0	10	—	—	1.0
NGRD 659C	Writing for Publication III	2.0	20	—	—	2.0
RELE 564	Ethics and Health Disparities <sup>1</sup>	3.0	30	—	—	3.0
RELR 525	Health Care and the Dynamics of Christian Leadership	3.0	30	—	—	3.0
RELT 557	Theology of Human Suffering	3.0	30	—	—	3.0
Totals		49.0	490	—	—	49.0
<b>Concentration</b>						
NGRD 621	Pharmacology in Advanced Practice I <sup>1</sup>	2.0	20	—	—	2.0
NGRD 622	Pharmacology in Advanced Practice II <sup>1</sup>	3.0	30	—	—	3.0
NGRD 624	Advanced Health Assessment <sup>1</sup>	3.0	30	1.0	30	4.0
NGRD 625	Advanced Clinical Pathophysiology <sup>1</sup>	4.0	40	—	—	4.0
Totals		12.0	120	1.0	30	13.0
<b>Clinical</b>						
NGRD 531	Primary Care Pediatric Nurse Practitioner I <sup>1</sup>	3.0	30	1.0	30	4.0
NGRD 532	Primary Care Pediatric Nurse Practitioner II <sup>1</sup>	3.0	30	3.0	90	6.0
NGRD 533	Primary Care Pediatric Nurse Practitioner III <sup>1</sup>	3.0	30	3.0	90	6.0
NGRD 534	Primary Care Pediatric Nurse Practitioner IV <sup>1</sup>	3.0	30	3.0	90	6.0
NGRD 535	Primary Care Pediatric Nurse Practitioner V <sup>1</sup>	3.0	30	3.0	90	6.0
NGRD 536	Primary Care Pediatric Nurse Practitioner VI: Practicum <sup>1</sup>	1.0	10	6.0	180	7.0
NGRD 539	Primary Care Pediatric Nurse Practitioner: Skills Lab <sup>1</sup>	—	—	1.0	30	1.0
Totals		16.0	160	20.0	600	36.0
<b>D.N.P. Project</b>						
NGRD 667	DNP Proposal Development	2.0	20	1.0	30	3.0
NGRD 669A	DNP Practice Inquiry Project I	—	—	4.0	120	4.0
NGRD 669B	DNP Practice Inquiry Project II	—	—	4.0	120	4.0
NGRD 669C	DNP Practice Inquiry Project III	—	—	2.0	60	2.0
NGRD 669D	DNP Practice Inquiry Project IV	—	—	2.0	60	2.0
NGRD 669E	DNP Practice Inquiry Project V	—	—	2.0	60	2.0
NGRD 669F	DNP Practice Inquiry Project VI	—	—	2.0	60	2.0
Totals		2.0	20	17.0	510	19.0
Overall Totals		79.0	790	38.0	1140	117.0

Required for M.S. degree only		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 610	Master's Comprehensive Project <sup>1</sup>	—	—	2.0	80	2.0
Totals		—	—	2.0	80	2.0

<sup>1</sup> Required for M.S. degree (p. 371)

### Normal time to complete the program

3 years (11 academic quarters) based on less than full-time enrollment

## Psychiatric Nurse Practitioner Concentration

The psychiatric nurse practitioner (Psych NP) clinical option prepares the nurse for a leadership role in the health-care system. Clinical and theoretical content focuses systems thinking, evidence-based practice, and translational research as related to the promotion of mental health, prevention, and treatment of psychiatric disorders in consultation and collaboration with psychiatrists and other mental health-care providers. The curriculum includes 600 hours of clinical practice in the advanced practice role and 510 practicum hours for the D.N.P. role. Translational research is emphasized. The curriculum prepares the student to be certified as a psychiatric nurse practitioner by the State of California and the American Nurses Certification Corporation.

Core		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 650	Advanced Role Development and Collaboration <sup>1</sup>	4.0	40	—	—	4.0
NGRD 651	Theoretical Foundations for Evidence-Based Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 652	Health-Care Systems Leadership <sup>1</sup>	4.0	40	—	—	4.0
NGRD 653	Health Systems Policy Development and Advocacy <sup>1</sup>	4.0	40	—	—	4.0
NGRD 654	Social Determinants of Health	4.0	40	—	—	4.0
NGRD 655	Health Systems Finance	4.0	40	—	—	4.0
NGRD 656	Outcomes Assessment for Strategic Planning	4.0	40	—	—	4.0
NGRD 657	Intermediate Statistics for Translational Nursing Research <sup>1</sup>	4.0	40	—	—	4.0
NGRD 658	Translational Research for Advanced Practice <sup>1</sup>	4.0	40	—	—	4.0
NGRD 659A	Writing for Publication I	1.0	10	—	—	1.0
NGRD 659B	Writing for Publication II	1.0	10	—	—	1.0
NGRD 659C	Writing for Publication III	2.0	20	—	—	2.0
RELE 564	Ethics and Health Disparities <sup>1</sup>	3.0	30	—	—	3.0
RELR 525	Health Care and the Dynamics of Christian Leadership	3.0	30	—	—	3.0
RELT 557	Theology of Human Suffering	3.0	30	—	—	3.0
Totals		49.0	490	—	—	49.0
<b>Concentration</b>						
NGRD 621	Pharmacology in Advanced Practice I <sup>1</sup>	2.0	20	—	—	2.0
NGRD 622	Pharmacology in Advanced Practice II <sup>1</sup>	3.0	30	—	—	3.0
NGRD 624	Advanced Health Assessment <sup>1</sup>	3.0	30	1.0	30	4.0
NGRD 625	Advanced Clinical Pathophysiology <sup>1</sup>	4.0	40	—	—	4.0
Totals		12.0	120	1.0	30	13.0
<b>Clinical</b>						
NGRD 541	Psychiatric Nurse Practitioner I <sup>1</sup>	3.0	30	1.0	30	4.0
NGRD 542	Psychiatric Nurse Practitioner II <sup>1</sup>	3.0	30	3.0	90	6.0
NGRD 543	Psychiatric Nurse Practitioner III <sup>1</sup>	3.0	30	3.0	90	6.0
NGRD 544	Psychiatric Nurse Practitioner IV <sup>1</sup>	3.0	30	3.0	90	6.0
NGRD 545	Psychiatric Nurse Practitioner V <sup>1</sup>	3.0	30	3.0	90	6.0
NGRD 546	Psychiatric Nurse Practitioner VI: Practicum <sup>1</sup>	1.0	10	6.0	180	7.0
NGRD 549	Psychiatric Nurse Practitioner VII: Skills Laboratory	—	—	1.0	30	1.0
Totals		16.0	160	20.0	600	36.0
<b>D.N.P. Project</b>						

NGRD 667	DNP Proposal Development	2.0	20	1.0	30	3.0
NGRD 669A	DNP Practice Inquiry Project I	—	—	4.0	120	4.0
NGRD 669B	DNP Practice Inquiry Project II	—	—	4.0	120	4.0
NGRD 669C	DNP Practice Inquiry Project III	—	—	2.0	60	2.0
NGRD 669D	DNP Practice Inquiry Project IV	—	—	2.0	60	2.0
NGRD 669E	DNP Practice Inquiry Project V	—	—	2.0	60	2.0
NGRD 669F	DNP Practice Inquiry Project VI	—	—	2.0	60	2.0
Totals		2.0	20	17.0	510	19.0
Overall Totals		79.0	790	38.0	1140	117.0

Required for M.S. degree only		Theory		Clinical		Total Units
		Units	Hours	Units	Hours	
NGRD 610	Master's Comprehensive Project <sup>1</sup>	—	—	2.0	80	2.0
Totals		—	—	2.0	80	2.0

<sup>1</sup> Required for M.S. degree (p. 371)

## Normal time to complete the program

3 years (11 academic quarters) based on less than full-time enrollment

## M.S. to D.N.P.

The Master of Science degree to Doctor of Nursing Practice degree option prepares the advanced practice registered nurse, the nursing administrator, or the nurse educator for a leadership role in the health-care system. Theoretical content focuses on the development of leadership knowledge, skills, and attitudes. Systems thinking, evidence-based practice, and translational research are emphasized.

Advanced standing may be given for courses usually required for a master's degree in advanced practice, administration, or education. Please see program requirements for more details. A minimum of 33 percent of the required units (courses generally unique to the D.N.P. degree competencies) must be taken at Loma Linda University. All students are required to complete the D.N.P. degree project.

## Program requirements

### Core

NGRD 650	Advanced Role Development and Collaboration <sup>1</sup>	4
NGRD 651	Theoretical Foundations for Evidence-Based Practice <sup>1</sup>	4
NGRD 652	Health-Care Systems Leadership <sup>1</sup>	4
NGRD 653	Health Systems Policy Development and Advocacy <sup>1</sup>	4
NGRD 654	Social Determinants of Health	4
NGRD 655	Health Systems Finance	4
NGRD 656	Outcomes Assessment for Strategic Planning	4
NGRD 657	Intermediate Statistics for Translational Nursing Research <sup>1</sup>	4
NGRD 658	Translational Research for Advanced Practice <sup>1</sup>	4
NGRD 659A	Writing for Publication I	1
NGRD 659B	Writing for Publication II	1
NGRD 659C	Writing for Publication III	2

RELE 564	Ethics and Health Disparities <sup>2</sup>	3
RELR 525	Health Care and the Dynamics of Christian Leadership	3
RELT 557	Theology of Human Suffering	3
<b>D.N.P. Project</b>		
NGRD 667	DNP Proposal Development	3
NGRD 669A	DNP Practice Inquiry Project I	4
NGRD 669B	DNP Practice Inquiry Project II	4
NGRD 669C	DNP Practice Inquiry Project III	2
NGRD 669D	DNP Practice Inquiry Project IV	2
NGRD 669E	DNP Practice Inquiry Project V	2
NGRD 669F	DNP Practice Inquiry Project VI	2
Total Units		68

<sup>1</sup> Advanced standing may be given for content covered in a prior M.S. degree. Prior learning is evaluated and an individualized program of study is developed based on this evaluation and length of time since these courses were taken. Prior course work that partially meets the course outcomes will be augmented by registering for 1 to 5 units of NGRD 660 Integrative Leadership Case Study.

<sup>2</sup> Advanced standing will be given if this specific course was taken as part of the M.S. degree program.

## Normal time to complete the program

3 years (11 academic quarters) based on less than full-time enrollment

## Nursing – Ph.D.

The aim of the Doctor of Philosophy (Ph.D.) degree program in nursing is to prepare nurse scholars for leadership in education, health-care administration, and research. The nurse-scientist who completes this program should be committed to the generation of knowledge critical to development of nursing science and practice. Graduates join other nursing leaders in furthering the development of nursing science and improving health-care delivery throughout the world.

### Learning outcomes for Doctor of Philosophy

The learning outcomes of the Ph.D. degree program are designed to prepare nurse scientists and scholars with a Christian perspective for leadership in education, health-care administration, and research within a global community. Upon completion of the Ph.D. degree, the nurse will:

1. Embrace a wholistic perspective on life and demonstrate this by integrating the bio-psycho-social-spiritual dimensions in teaching, scholarship, and service.
2. Extend Christ-centered values to nursing scholarship and education.
3. Serve as a nurse scholar through the generation and dissemination of knowledge relevant to nursing science, health policy, and the nursing profession.
4. Explain complex phenomena clearly in a spoken and written English to both professional and lay audiences.
5. Demonstrate advanced competency and leadership in the use of technology for the purpose of generating new knowledge in nursing.
6. Engage in collaborative discourse, scholarship, and leadership contributing to health care and society.

## The curriculum

The Ph.D. degree is offered as a summers-intensive program on campus at Loma Linda University, with selected online or traditional courses during the academic year. Completion of dissertation will follow. This schedule is designed to accommodate the needs of adult learners who are either full-time students or part-time students with ongoing commitment to professional work during the academic year. The core courses of the program are taught during four summer intensive sessions. Concentration and elective courses may be taken at Loma Linda University or through the \*Nexus partnership; or a limited number of approved units may be transferred from another university.

The doctoral degree program is designed to provide an in-depth understanding of knowledge development within the discipline of nursing through philosophical, theoretical, and scientific methods of inquiry.

The credit requirement is 90 quarter units beyond the Master of Science degree. The core courses of the program emphasize these three areas.

In addition to the core courses, each student is encouraged to select an individually focused area of concentration that will support his/her chosen area of expertise in nursing and that will focus his or her area of advanced inquiry. The area of concentration may fit established research programs of the School of Nursing faculty and may also take advantage of graduate courses throughout the University. LLU Scholars Seminar is required during the academic year while away from the Loma Linda University campus. The seminar focus is to integrate concentration and elective courses in the foundation for a dissertation at the University and to maintain momentum during the program. The program may be completed in four-to-seven years.

- \* NEXus is a partnership among select Western Institute of Nursing institutions to facilitate enrollment in doctoral courses not available on the student's home campus. Through NEXus, the institutions have identified courses that are available at a distance and open for enrollments from partner institutions.

## Progression criteria

The following sequential elements are required for progression in the doctoral program:

1. Area of concentration developed and approval of student's proposed academic plan by the end of the first year of full-time study.
2. Oral qualifying examination after completion of all required course work.
3. Successful defense of research proposal.
4. Advancement to candidacy.
5. Successful defense of dissertation.

Refer to guidelines from the Faculty of Graduate Studies for dissertation format requirements.

Normal time to complete the program—5.5 years based on less than full-time enrollment.

## Admissions

Student admissions for the Ph.D. program is on hold until January 2017 for the autumn 2017 class.

In addition to Loma Linda University (p. 24) admission requirements, the applicant to the Doctor of Philosophy degree program in nursing must have the following requirements:

1. Preference given to applicants with master's degree in nursing.
2. Masters level nursing theory course and intermediate statistics course.
3. Grade point average minimum of 3.5 on a 4.0 scale or equivalent at the master's degree level.
4. Interview with Ph.D. degree faculty.
5. Evidence of scholarly work.

Applicants seeking graduate admission please refer to the [nursing.llu.edu](http://nursing.llu.edu) website for more information.

## Program requirements

### Core

NGRD 680	Strategies for Theory Development in Nursing	4
NGRD 681	Philosophical Foundations of Nursing Science	4

### Concentration/electives

NGRD 686	Applied Psychometrics for Health Care	4
Electives – focus courses foundational to dissertation		12
General electives		4

### Cognates

NGRD 687	LLU Scholars Seminar <sup>2</sup>	4
NGRD 688	Nursing Science Seminar <sup>2</sup>	3
RELE 5__	Graduate-level Ethics	3
RELR 5__	Graduate-level Relational	3
RELT 5__	Graduate-level Theological	3

### Research and statistics



NGRD 682	Methods of Disciplined Inquiry	2
NGRD 683	Mentored Research	2
NGRD 684	Advanced Quantitative Research Methods	4
NGRD 685	Advanced Qualitative Research Methods	4
NGRD 697	Dissertation Research <sup>2</sup>	20
STAT 531	Parametric and Nonparametric Bivariate Statistics	4
STAT 532	Applied Bivariate Statistical Analysis	4
STAT 533	Applied Multivariable Statistical Analysis	4
NGRD 699	Guided Study <sup>1</sup>	1-6
Total Units		89-94

<sup>1</sup> or another analytic topic relevant to dissertation data analysis

<sup>2</sup> Multiple registrations required to fulfill total unit requirement.

### Normal time to complete the program

5.5 years based on less than full-time enrollment

# SCHOOL OF PHARMACY

## Dean's welcome



The School of Pharmacy is delighted that you are interested in our programs. The role of a pharmacist has expanded in recent years and requires knowledge in biomedical sciences, pharmaceutical sciences, social and administrative science; as well as the pharmacy practice areas of therapeutics, drug information, pharmaceutical care, and experiential education. This catalog will introduce you to the courses and give you information on progression and services available to help you reach your goals.

Our goal is to provide an environment where you can gain the knowledge and skills to become a caring, competent and skillful pharmacist. The faculty, staff, and administration are committed to ensuring that all students develop the knowledge and skills needed for the profession and a commitment of lifelong service to others. While a student at Loma Linda University School of Pharmacy, you will have opportunities to participate in outreach and service programs to underserved populations.

The University motto, "To make man whole," combined with the mission to continue the teaching and healing ministry of Jesus Christ is the foundation on which all programs at Loma Linda University are built. It is our desire to prepare all graduates to fulfill this mission. Welcome to the School that will help you grow spiritually, mentally, physically, and socially for a life of service to those in need.

Marilyn M. Herrmann, Ph.D.

Interim Dean, School of Pharmacy

## School foundations

### History

In 1994, a school of pharmacy was proposed to the Loma Linda University Board of Trustees; and in 1995, the board voted to continue to approve in principle the establishment of a school of pharmacy.

The new School of Pharmacy pioneering class of 2006 began on September 19, 2002. In July 2007, the Accreditation Council for Pharmacy Education granted full accreditation status to the School of Pharmacy. In October 2012, the School of Pharmacy moved into Shryock Hall, a historical building in the core of the LLU campus. The administrative team, Department of Pharmacy Practice, and Department of Experiential and Continuing Education now call Shryock Hall home. The Chan Shun Pavilion houses the Department of Pharmaceutical and Administrative Sciences and three research laboratories.

## Mission, goals, and values

### Our mission

Additive to the mission of Loma Linda University to continue the teaching and healing ministry of Jesus Christ, the School of Pharmacy is committed to:

- Educating competent, caring pharmacists who will serve as integral members of the health-care team;
- Expanding, through research, the development of therapeutic regimens that will advance the knowledge and technology available for the treatment of disease; and
- Providing high-quality pharmaceutical care to all those within the global sphere of influence of Loma Linda University.

The School of Pharmacy educates pharmacists of the highest ethical and professional standards to deliver competent and compassionate pharmaceutical care. A diverse and dynamic educational environment produces students who are practitioners, health professionals, and providers of humanitarian service to a global community. Graduates will be dedicated to lifelong learning; developing new knowledge; advancing standards of practice; and integrating physical, mental, social, and spiritual dimensions of health.

### Our goals

The goals of Loma Linda University School of Pharmacy are to:

- Provide pharmaceutical care in a global community.
- Expand and disseminate pharmaceutical knowledge through research and scholarly activities.
- Promote integrity and high ethical standards in conjunction with empathic attitudes that contribute to the well-being of patients and society.
- Engender and nurture the desire to serve humankind.
- Create an educational environment supportive of diverse populations and learning styles.
- Demonstrate pharmacy leadership within the University and the region.
- Encourage cultivation of self-education habits that foster lifelong learning.
- Instill positive personal health lifestyles that promote wholeness, wellness, and spiritual values.

- Incorporate educational techniques and technologies that best serve student learning.
- Promote responsible management of health-care resources and the environment.

## Our values

The School of Pharmacy's academic and cocurricular activities focus on the following seven values:

- Compassion—the sympathetic willingness to be engaged with the needs and sufferings of others. Among the most memorable depictions of compassion in Scripture is the story of the Good Samaritan, which Loma Linda University has taken as a central symbol of its work.
- Excellence—the commitment to exceed minimum standards and expectations.
- Humility—the willingness to serve others in a sacrificial manner, and the self-respect that renounces haughtiness or arrogance.
- Integrity—the quality of living a unified life in which one's convictions are well-considered and match his/her actions. Integrity encompasses honesty, authenticity, and trustworthiness.
- Purity/Self-Control—the commitment to be morally upright and moderate in all things, with complete control over one's emotions, desires, and actions.
- Freedom—the competency and privilege to make informed and accountable choices and to respect the freedom of others. God has called us not to slavery but to freedom.
- Justice—the commitment to equality and to treat others fairly, renouncing all forms of discrimination. The God of the Bible is One who calls people continually to justice. According to the prophets, religious faith could be genuine only when it led the believers to "seek justice, rescue the oppressed, defend the orphans, [and] plead for the widow."

### Interim Dean

Marilyn M. Herrmann

### Primary faculty

Kathleen Besinque

Kristopher Boyle

Thomas R. Bushell

Michael S. Campbell

David Chai

Nancy Y. Chang

Rebecca J. Cheung

Nam Cho

Michael P. Coronado

Danielle L. Davis

Willie L. Davis

Kofi Donkor

Paul Gavaza

Larisa Gunther

Norman M. Hamada

Christopher L. Hauschild

Alireza Hayatshahi

Elvin A. Hernandez

Lisa T. Hong

Daniel S. Kardasinski

Nancy E. Kawahara

Christine Kim

Justin M. Kinney

Kathryn T. Knecht

Jessa M. Koch

Huy X. Le

Richard Maskiewicz

Victoria Maskiewicz

Wayne R. Matthews

Kyle L. Miller

Rashid Mosavin

Kayvan Moussavi

Lee H. Nguyen

Teddy D. Nguyen

Paul M. Norris

Kristine A. Parbuoni

James Pinder

Jody M. Santos

Julie H. Selim

Wei-Xing Shi

Caroline M. Small

Michelle M. Spencer-Safier

Javad Tafreshi

Robert Tan

Robert W. Teel

Huyentran N. Tran

Desiree R. Wallace

Jill F. Weissman

David Weldon

Linda M. Williams

Joycelyn M. Yamzon

Farnoosh Zough

### **Secondary and adjunct faculty**

Samuel Achilefu

Ingrid K. Blomquist

Eileen J. Brantley

Jun R. Chiong

Richard T. Cranston

Khashayar Dashtipour

John R. Faltys

Steven C. Forland

W. William Hughes III

Busuyi S. Olotu

Christopher C. Perry

Erin E. Stephens

Richard S. Sun

Stanley C. Weisser

Sean Wilson

## **General regulations**

Students of the University are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. Section III provides the general setting for the programs of each school and outlines the subject and unit requirements for admission to individual professional programs. It is important to review specific program requirements in the context of the general requirements applicable to all programs.

### **Transfer credit units**

The School of Pharmacy does not accept students with advanced status in the Pharmacy Program.

### **Computer competency**

Students must have computer proficiency prior to enrollment, which includes use of an e-mail system (including attaching a document); familiarity with a learning management system (i.e. Canvas or Blackboard); basic knowledge of word processing program(s), presentation program(s), and spreadsheet program(s). Students must also be capable of searching the Internet and navigating their computer.

## **Technical standards for admission, promotion, and graduation**

### **Introduction**

Pharmacy education requires that the accumulation of scientific knowledge be accompanied by the simultaneous acquisition of skills and professional attitudes and behavior. Pharmacy school faculty have a responsibility to society to matriculate and graduate the best possible

pharmacists. Thus, admission to the School of Pharmacy is offered only to those who present the highest qualifications for the study and practice of pharmacy. Technical standards presented in this document are requirements for admission to, promotion within, and graduation from the Loma Linda University School of Pharmacy.

It is the policy of Loma Linda University School of Pharmacy that no person shall be denied admission, promotion, or graduation on the basis of any disability, provided that the individual demonstrates ability to meet the minimum technical standards set forth herein. Standards are developed as criteria to achieve the Doctor of Pharmacy degree in preparation for licensure as a practicing pharmacist and for postgraduate professional training and education in any of the varied fields of pharmacy. Further, the safety of the patient must be guarded as the final and ultimate consideration. Therefore, it is not only reasonable, but also essential, for competent patient care to require minimum technical standards for the education of pharmacists.

Graduates of schools of pharmacy must have the knowledge and skills to function in a broad variety of clinical, administrative, and leadership situations and to render a wide spectrum of pharmaceutical care. Loma Linda University School of Pharmacy acknowledges Section 504 of the 1973 Vocational Rehabilitation Act and PL 11-336, the Americans with Disabilities Act (ADA) 1993, but ascertains that certain minimum technical standards must be present in the prospective candidates. The Accreditation Council for Pharmacy Education requires that the curriculum provide a general professional education, enabling each student to eventually practice as a pharmacist generalist. This requires the development of broad knowledge, skills, behaviors, ongoing self-directed learning, and the eventual ability to deliver competent pharmaceutical care within a reasonable time frame and within the context of the legal and ethical framework of the profession.

### **Technical standards**

Technical standards specify those attributes the faculty consider necessary for initiating, continuing, or completing a high-quality pharmacy education program, thus enabling each graduate to enter practice, residency, or fellowship training. Faculty have responsibility to monitor the maintenance of these standards. Students must be able to perform independently all of the described functions. A candidate for the Doctor of Pharmacy degree must have aptitude, abilities, and skills in the following areas: observation, communication, motor coordination and function; intellectual-conceptual, integrative, and quantitative abilities; behavioral and social attributes; and ethical values.

The School of Pharmacy will consider for admission any applicant who demonstrates the ability to perform or to learn to perform the skills listed in this document. Applicants are not required to disclose the nature of their disability(ies) to the Admissions Committee. However, any applicant with questions about these technical standards is strongly encouraged to discuss his/her specific issue(s) with the associate dean for student affairs and admissions prior to the interview process. If appropriate, and upon the request of the applicant, reasonable accommodations will be provided. This commitment also holds for current students whose health or abilities change while enrolled in the program.

The School of Pharmacy recognizes that certain student disabilities can be accommodated without compromising the standards required by the college and the integrity of the curriculum. Technological compensation can be made for some handicaps in these areas, but a candidate should be able to perform in a reasonably independent manner. The school is committed to the development of innovative and creative ways of opening the curriculum to competitive and qualified disabled candidates

while protecting the care of patients. The use of a trained intermediary means that a candidate's judgment must be mediated by someone else's power of selection and observation. Therefore, third parties cannot be used to assist students in accomplishing curricular requirements in the skill areas specified above.

### **Observation**

Students must be able to observe demonstrations and conduct exercises in a variety of areas related to contemporary pharmacy practice, including but not limited to monitoring of drug response and preparation of specialty dosage forms and experiments in the basic sciences. A student must be able to observe a patient accurately at a distance and close at hand, noting nonverbal as well as verbal signals. The student must be able to observe and interpret presented information. Specific observation requirements include, but are not limited to the following abilities: visualizing and discriminating findings on monitoring tests; reading written and illustrated material; observing demonstrations in the classroom or laboratory, including projected images; observing and differentiating changes in body movement; observing anatomic structures; discriminating numbers and patterns associated with diagnostic and monitoring instruments and tests; observing a patient's environment; and competently using instruments for monitoring drug response.

### **Communication**

A student should be able to speak, hear, and listen to patients in order to elicit information; describe changes in mood, activity, and posture; and perceive verbal as well as nonverbal communications. Students must be able to relate effectively and sensitively with patients and their caregivers/partners, and convey a sense of compassion and empathy. Students must be able to communicate effectively and sensitively with patients, colleagues, and other personnel in the School of Pharmacy. Communication includes speech, reading, writing, hearing, and computer literacy. Students must be able to communicate quickly, effectively, and efficiently in oral and written English with all members of the health-care team. Specific requirements include but are not limited to the following abilities: communicating rapidly and clearly with members of the health-care team individually and collectively; eliciting a thorough medication and medical history; and communicating complex findings in appropriate terms that are understood by patients and their caregivers, partners, and various members of the health-care team (fellow students, pharmacists, faculty and staff members, physicians, nurses, aides, therapists, social workers, and others). Students must be able to prepare and communicate concise but complete summaries of individual activities, decisions, and complex, prolonged encounters with patients. Students must be able to complete forms or appropriately document activities according to directions in a thorough and timely fashion.

### **Motor coordination and function**

Students should have sufficient motor function and skills necessary to perform basic tasks in the practice of pharmacy and to elicit information from patients by various screening maneuvers. Students should be able to execute motor movements reasonably required to participate in the general care and emergency treatment of patients. They must be able to respond promptly to emergencies within the practice setting and must not hinder the ability of their co-workers to provide prompt care. Examples of such emergency treatment reasonably required of pharmacists include arriving quickly when called, administering cardiopulmonary resuscitation, applying pressure to stop bleeding, participating in the initiation of appropriate procedures, rapidly and accurately preparing appropriate emergency medication, and preparing sterile intravenous medications. Such actions require coordination of both gross and fine muscular movements, equilibrium, and functional

use of the senses of touch and vision. Students must have sufficient sensory and motor function to monitor drug responses and to prepare and or dispense pharmaceuticals. A candidate should be able to perform basic laboratory tests (e.g., blood glucose and lipid levels); administer immunizations (intramuscular and subcutaneous); compound sterile and nonsterile dosage forms; use current technology for drug information evaluation; read EKGs, drug blood levels, and other laboratory results. It is also necessary for the student to be able to access drug and disease information sources (both paper and electronic) within a reasonable time frame and record data correctly so that it is clearly understood by other health professionals.

### **Intellectual--conceptual, integrative, and quantitative abilities**

A student should possess sufficient intellectual, conceptual, integrative, and quantitative abilities to complete a rigorous and intense didactic and experiential curriculum. These abilities include measurement, calculation, rational reasoning, problem analysis and solving, decision-making, judgment, numerical recognition, information integration, and solution synthesis. In addition, the candidate should be able to comprehend three-dimensional relationships and to understand the spatial relations of structures. Especially important is the appropriate and rapid calculation of dosages for a variety of patient-specific conditions, such as renal or hepatic failure, obesity, cardiac or respiratory arrest, etc. Additionally, calculations involving appropriate dilution or reconstitution of drug products, electrolytes, etc., must be made accurately and quickly. Problem solving and critical skills demanded of all pharmacists require all of the above-mentioned intellectual abilities and must be performed quickly, especially in emergency situations. The ability to incorporate new information from peers or teachers and to locate and evaluate new information from the literature to be used appropriately in formulating assessments and pharmaceutical care plans is essential, as is good judgment in patient assessment and therapeutic planning for disease management. Students must be able to identify and acknowledge the limits of their knowledge to others when appropriate and be able to recognize when the limits of their knowledge indicate that further study or investigation is essential before participating in decision making. A student must be fully alert and attentive at all times in clinical settings.

### **Behavioral and social attributes**

Empathy, integrity, honesty, concern for others, kindness, patience, good interpersonal skills, interest, and motivation are all personal qualities that are required. Students must possess the emotional and mental health required for full use of their intellectual abilities, the exercise of good judgment, the prompt completion of all responsibilities attendant to the screening and care of patients, and the development of mature, sensitive, and effective relationships with patients of differing cultures and backgrounds. Students must also be able to develop mature, sensitive, and effective relationships with patients and their caregivers and partners--providing comfort and reassurance when appropriate. Students must possess adequate endurance to be able to tolerate physically, intellectually, and emotionally taxing workloads; and to function effectively under stress or with distractions. At times, this requires the ability to be aware of and appropriately react to one's own immediate emotional responses and environment. For example, students must maintain a professional demeanor and organization in the face of long hours and personal fatigue, dissatisfied patients, and tired colleagues.

Students must develop the skills necessary to instruct and supervise technical personnel assisting with the delivery of pharmaceutical services. Students are expected to accept appropriate suggestions and criticism and, if necessary, respond quickly, appropriately, and cooperatively by modification of behavior. Empathy, patience, integrity,

concern for others, interpersonal skills, interest, and motivation are all personal qualities that should be assessed during the admission and education processes.

### Ethical values

A student must demonstrate the highest level of professional demeanor and behavior; and must perform in an ethical manner in all dealings with peers, faculty, staff, and patients. Students must also be able to develop professional relationships with patients and their caregivers and partners while protecting patient confidentiality. Students must also meet the expected ethical standards set forth by the pharmacy profession. Good moral character, decent values, and principled judgment are paramount attributes for being a professional. In order to participate in key components of the curriculum, a student must be able to obtain and maintain a valid intern pharmacist license from the California State Board of Pharmacy and pass requisite criminal background checks and random illegal drug screens required by the Board of Pharmacy or affiliated clinical institutions of Loma Linda University.

### Applicable technical standards requirements

1. The candidate/student observes demonstrations and participates in experiments in the basic pharmaceutical sciences.
2. The candidate/student analyzes, synthesizes, extrapolates, solves problems, and reaches therapeutic judgments and monitoring parameters.
3. The candidate/student sufficiently uses the senses of vision and hearing and the somatic sensation necessary to perform a physical assessment. (For example, the candidate/student performs palpation, auscultation, and percussion.)
4. The candidate/student relates to patients of all cultures and backgrounds and establishes sensitive, professional relationships with them.
5. The candidate/student communicates therapeutic options and decisions to the patient and to colleagues with accuracy, clarity, and efficiency.
6. The candidate/student learns and performs routine laboratory tests and screening procedures.
7. The candidate/student performs with precise, quick, and appropriate actions in emergency situations.
8. The candidate/student displays good judgment in the assessment and treatment of patients.
9. The candidate/student possesses the perseverance, diligence, and consistency to complete the pharmacy school curriculum and to enter the practice of pharmacy.
10. The candidate/student accepts criticism and responds with the appropriate modification of behavior.

### In summary

Candidates for the Doctor of Pharmacy degree must have somatic sensation and functional use of the senses of vision and hearing. Candidates must have sufficient use of senses (touch, pain, temperature, position, pressure, movement, and vibratory) and motor function to permit them to carry out the activities described above. Students must be able to consistently, quickly, and accurately integrate all information received by whatever sense(s) employed; and they must have the intellectual ability to learn, integrate, analyze, and synthesize data. Finally, students must have good moral character, decent values, and principled judgment; and they are expected to meet the ethical standards set forth by the pharmacy profession.

Any faculty or administrative team member may question any enrolled student's or admission candidate's ability to meet any technical standard. A request for such an investigation of a specific individual must be made in writing to the associate dean for student affairs and admissions, detailing the reasons why such an evaluation is deemed necessary. The dean will be notified if such a request is granted.

## Student life

The information on student life contained in this CATALOG is brief. The University *Student Handbook* more comprehensively addresses University and school expectations, regulations, and policies; and is available to each registered student. Students need to familiarize themselves with the contents of the *Student Handbook*. Additional information regarding policies specific to a particular school or program within the University is available from the respective school.

The School of Pharmacy prepares the school-specific *Policy and Procedure Manual*, which is provided to all pharmacy students. Regulations, policies, procedures, and other program requirements are contained in this manual.

## Health check requirements

All new students are required to have the immunizations listed below completed before their first registration. Students will not be allowed to register without a valid and completed immunization record. It is strongly recommended that all required immunizations and physical examinations be obtained by the student before arrival on campus. All of these immunizations, except the third hepatitis B, can be completed in one month. Many county health departments offer these immunizations at a reduced cost.

### Immunizations

- Measles, mumps, rubella (MMR)—Series of two injections must be current after 1980 or show a positive MMR titer.
- Tdap (tetanus/diphtheria)—Must be current within ten years. (Note: Tetanus-only immunization does not meet the requirement.)
- Hepatitis B—Series of three injections, recombinant form-Engerix-B.
- Tuberculosis skin test (PPD Mantoux)—Must be current within six months. (If student tests positive, a chest X-ray report done within the past year is required.)
- Varicella (chickenpox)—Must show proof of either a series of two injections or a positive Varicella titer.

A completed immunization record form must be submitted to the School of Pharmacy Office of Student Affairs, as well as to the Student Health Services. A valid and completed immunization record is required before the student can register.

### Physical examination

Documentation of a physical examination is required for entrance into the program. For additional information, please contact Student Health Services directly at 909/558-8770.

## Background check

Students are required to pass a background check prior to each Autumn Quarter registration in order to comply with clinical site regulations. Applicants receive detailed information through the applicant portal regarding the process for obtaining the background check.

## Pharmacy intern license

California law requires that all pharmacy students be licensed as interns before participating in any pharmacy practice experience. Consequently, all enrolled students must possess a valid, nonprobationary intern pharmacist license to participate in the experiential components of the Pharm.D. program. Application for this license is part of the orientation program scheduled prior to the start of the PY1 year.

## Professional integrity

Loma Linda University seeks to educate ethical and proficient pharmacists in a Christian paradigm. Fundamental core values of compassion, integrity, freedom, excellence, justice, purity, and humility are expected of each student attending the School of Pharmacy. Integrity is important in upholding the standards of professional and personal conduct and is consistent with the oath that is taken upon graduation. It includes being accountable for one's own conduct, as well as assuming responsibility for the professional behavior of one's colleagues within the profession. Professionalism involves treating others with courtesy and respect. It is expected that all School of Pharmacy students will exhibit conduct that shows respect to others at all times.

## Code of conduct

In harmony with the goals of Loma Linda University, students are expected to demonstrate a pattern of personal discipline with lifestyle expectations that are consistent with those of the Seventh-day Adventist Church. Joining the Loma Linda University family is an honor and requires each individual to uphold the policies, regulations, and guidelines established for all members of the University team. The following are expected of each member of the Loma Linda University family:

- To respect oneself.
- To respect the dignity, feelings, worth, and values of others.
- To respect the rights and property of others and to discourage vandalism and theft.
- To prohibit discrimination while striving to learn from differences in people, ideas, and opinions.
- To practice personal, professional, and academic integrity; and to discourage all forms of dishonesty, plagiarism, deceit, and disloyalty to the code of conduct.
- To foster a personal, professional work ethic within the Loma Linda University family.
- To foster an open, fair, and caring environment.
- To be fully responsible for upholding the Loma Linda University code.

Specific policies are outlined in greater detail in the University *Student Handbook*.

## CPR and first aid certification

All students must be currently certified in cardiopulmonary resuscitation (CPR) and first aid during their enrollment in the School of Pharmacy.

## Student organizations

### Professional development

Participation in the professional development sequence each academic quarter is part of the curriculum for the School of Pharmacy. The purpose of professional development is to encourage student participation that develops leadership skills in student organizations, the School of Pharmacy, and University activities.

## Professional organizations

Involvement in professional organizations is an integral part of the educational and professional experience within the School of Pharmacy.

School of Pharmacy-recognized student professional societies include:

- American Pharmacists Association (APhA-ASP)
- California Pharmacists Association (CPhA)
- California Society of Health Systems Pharmacists (CSHP)
- National Community Pharmacist's Association (NCPA)
- American Society of Health System Pharmacists (ASHP)
- Academy of Managed Care Pharmacy (AMCP)
- Christian Pharmacist Fellowship International (CPFI)
- Student National Pharmaceutical Association (SNPhA)

## Organization membership by invitation

The School of Pharmacy endorses three organizations in which student membership is by invitation only. Membership in these organizations is seen as prestigious and indicative of superior academic achievement and leadership.

- California Pharmacy Student Leadership (CAPSLEAD)
- Rho Chi Pharmaceutical Honor Society (RX)
- Phi Lambda Sigma National Pharmacy Leadership Society (PLS)

## Class leadership

Each class elects leaders to serve as student representatives to administration and to guide the class in addressing student-related issues. The Office of Student Affairs works closely with class leaders—assisting with class issues, helping plan events, and facilitating a strong communication link to and from students. Each class also elects a full-time faculty member to serve as class advisor. The advisor's function is to serve as mentor, keep abreast of class issues, and maintain an open communication link with the associate dean for student affairs and admissions.

## Academic policies and procedures

### Curriculum outcome objectives

On August 21, 2014, the faculty approved and adopted the following outcomes, which are based on CAPE 2013 educational outcomes.

#### Domain 1—Foundational Knowledge

**Subdomain 1.1. Learner (Learner)**—Develop, integrate, and apply knowledge from the foundational sciences (i.e., pharmaceutical, social/behavioral/administrative, and clinical sciences) to evaluate the scientific literature, explain drug action, solve therapeutic problems, and advance population health and patient-centered care.

#### Learning objectives

1.1.1—Develop and demonstrate depth and breadth of knowledge in pharmaceutical, social/behavioral/administrative, and clinical sciences.

1.1.2—Articulate how knowledge in foundational sciences is integral to: 1) clinical reasoning, 2) evaluation of future advances in pharmacotherapy, 3) supporting health and wellness initiatives, and 4) delivery of contemporary pharmacy services.

1.1.3—Integrate knowledge from foundational sciences to explain how specific drugs or drug classes work, and evaluate their potential value in individuals and populations.

1.1.4—Apply knowledge in foundational sciences to solve therapeutic problems and advance patient-centered care.

1.1.5—Analyze scientific literature related to drugs and disease to enhance clinical decision making.

1.1.6—Identify and analyze emerging theories, information, and technologies that may impact patient-centered and population-based care.

## **Domain 2—Essentials for Practice and Care**

**Subdomain 2.1. Patient-centered care (Caregiver)**—Provide patient-centered care as the medication expert (collect and interpret evidence; prioritize; formulate assessments and recommendations; implement, monitor and adjust plans; and document activities).

### **Learning objectives**

2.1.1—Collect subjective and objective evidence related to patient, medications, allergies/adverse reactions, and disease by performing patient assessment (including physical assessment) from chart/electronic health records, pharmacist records, and patient/family interviews.

2.1.2—Interpret evidence and patient data.

2.1.3—Prioritize patient needs.

2.1.4—Formulate evidence-based care plans, assessments, and recommendations.

2.1.5—Implement patient-care plans.

2.1.6—Monitor the patient and adjust care plan as needed.

2.1.7—Document patient care-related activities.

**Subdomain 2.2. Medication use systems management (Manager)**—Manage patient health-care needs using human, financial, technological, and physical resources to optimize the safety and efficacy of medication-use systems.

### **Learning objectives**

2.2.1—Compare and contrast the components of typical medication-use systems in different pharmacy practice settings.

2.2.2—Describe the role of the pharmacist in impacting the safety and efficacy of each component of a typical medication-use system (i.e., procurement, storage, prescribing, transcription, dispensing, administration, monitoring, documentation, and outcomes).

2.2.3—Utilize technology to optimize the medication-use system.

2.2.4—Identify and utilize human, financial, and physical resources to optimize the medication-use system.

2.2.5—Manage health-care needs of patients during transitions of care.

2.2.6—Apply standards, guidelines, best practices, and established processes related to safe and effective medication use.

2.2.7—Utilize continuous quality improvement techniques in the medication-use process.

**Subdomain 2.3. Health and wellness (Promoter)**—Design prevention, intervention, and educational strategies for individuals and communities to manage chronic disease and improve health and wellness.

### **Learning objectives**

2.3.1—Describe the use of risk assessment, risk reduction, screening, education, and immunizations to provide systematic preventive care.

2.3.2—Provide prevention, intervention, and educational strategies for individuals and communities to improve health and wellness.

2.3.3—Participate with interprofessional health-care team members in the management of, and health promotion for, all patients.

2.3.4—Evaluate personal, social, behavioral, economic, and environmental conditions to improve health and wellness.

**Subdomain 2.4. Population-based care (Provider)**—Describe how population-based care influences patient-centered care and influences the development of practice guidelines and evidence-based best practices.

### **Learning objectives**

2.4.1—Assess the health-care status and needs of a targeted patient population.

2.4.2—Develop and provide an evidence-based approach that considers items—including cost, care, access, satisfaction needs, and cultural appropriateness of a targeted patient population.

2.4.3—Participate in population health management by evaluating, recommending, and/or adjusting interventions to maximize health.

## **Domain 3—Approach to Practice and Care**

**Subdomain 3.1. Problem solving (Problem Solver)**—Identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution.

### **Learning objectives**

3.1.1—Identify and define the primary problem.

3.1.2—Define goals and alternative goals.

3.1.3—Explore multiple solutions by organizing, prioritizing, and defending each possible solution.

3.1.4—Anticipate positive and negative outcomes by reviewing assumptions, inconsistencies, and unintended consequences.

3.1.5—Implement the most viable solution, including monitoring parameters, to measure intended and unintended consequences.

3.1.6—Reflect on the solution implemented and its effects to improve future performance.

**Subdomain 3.2. Educator (Educator)**—Educate all audiences by determining the most effective and enduring ways to impart information and assess understanding.

### **Learning objectives**



3.2.1—Conduct a learning needs assessment of constituents who would benefit from pharmacist-delivered education (e.g., patients/caregivers, technicians and interns, pharmacy students, fellow pharmacists, other health-care providers, legislators).

3.2.2—Select the most effective techniques/strategies to achieve learning objectives.

3.2.3—Demonstrate the ability to coordinate educational efforts with other health-care providers, when appropriate, to ensure a consistent, comprehensive, and team-based encounter.

3.2.4—Ensure that instructional content contains the most current information relevant for the intended audience.

3.2.5—Adapt instruction and delivery to the intended audience.

3.2.6 - Assess audience comprehension.

**Subdomain 3.3. Patient advocacy (Advocate)**—Assure that patients' best interests are represented.

#### Learning objectives

3.3.1—Incorporate elements of Loma Linda University's wholeness philosophy to empower patients to take responsibility for, and control of, their health.

3.3.2—Assist patients in navigating the complex health-care system.

3.3.3—Ensure patients obtain the resources and care required in an efficient and cost-effective manner (e.g., triage to social and/or other health-care services).

**Subdomain 3.4. Interprofessional collaboration (Collaborator)**—Actively participate and engage as a health-care team member by demonstrating mutual respect, understanding, and values to meet patient-care needs.

#### Learning objectives

3.4.1—Establish a climate of shared values and mutual respect necessary to meet patient-care needs.

3.4.2—Define clear roles and responsibilities for team members to optimize outcomes for specific patient-care encounters.

3.4.3—Communicate in a manner that values team-based decision making and shows respect for contributions from other areas of expertise.

3.4.4—Foster accountability and leverage expertise to form a highly functioning team (one that includes the patient, family, and community) and promote shared patient-centered problem solving.

**Subdomain 3.5. Cultural sensitivity (Includer)**—Recognize social determinants of health to diminish disparities and inequities in access to quality care.

#### Learning objectives

3.5.1—Recognize the collective identity and norms of different cultures without overgeneralizing (i.e., recognize and avoid biases and stereotyping).

3.5.2—Demonstrate an attitude that is respectful of different cultures.

3.5.3—Assess a patient's health literacy and modify communication strategies to meet the patient's needs.

3.5.4—Safely and appropriately incorporate patients' cultural beliefs and practices into health and wellness care plans.

**Subdomain 3.6. Communication (Communicator)**—Effectively communicate verbally and nonverbally when interacting with an individual, group, or organization.

#### Learning objectives

3.6.1—Interview patients using an organized structure, specific questioning techniques, and medical terminology adapted for the audience.

3.6.2—Actively listen and ask appropriate open- and closed-ended questions to gather information.

3.6.3—Use available technology and other media to assist with communication as appropriate.

3.6.4—Use effective interpersonal skills to establish rapport and build trusting relationships.

3.6.5—Communicate responsibly with assertiveness, persuasiveness, confidence, and clarity.

3.6.6—Demonstrate empathy when interacting with others.

3.6.7—Deliver and obtain feedback to assess learning and promote goal setting and goal attainment.

3.6.8—Develop professional documents pertinent to organizational needs.

3.6.9—Document patient-care activities clearly, concisely, and accurately using appropriate medical terminology.

#### Academic integrity policy

Academic dishonesty is an act of deliberate deceit in the fulfillment of a student's obligations to the academic community. It includes, but is not limited to, the failure to observe rules of fairness in taking examinations or writing papers, plagiarism, fabrication and cheating.

1. Plagiarism is the act of presenting the work of another as if it were one's own. It includes quoting, paraphrasing, summarizing or utilizing material from the Internet or from books, articles in periodicals, magazines, or newspapers without appropriate citation. In addition, any unacknowledged use of another's ideas constitutes plagiarism, including the use of papers written by other students, interviews, radio or TV broadcasts, or any published or unpublished materials (e.g., letters, pamphlets, leaflets, notes, or documents).
2. Fabrication is the act of contriving or making up material, data, or other information (e.g., research data, patient test results) and submitting such as fact.
3. Cheating is the act of deceiving, which includes such acts as looking at another's examination during the examination, possessing (on your person or within reach) unauthorized aids (e.g., notes, electronic equipment), or any other act deemed contrary to the rules of fairness—including violation of specific rules designated by the instructor of the course.
4. Facilitation of academic dishonesty is the act of attempting to help someone engage in plagiarism, fabrication, cheating, or any other type of academic dishonesty.

#### 5. School of Pharmacy procedures

- a. If any faculty member, employee, or student of the school has reason to believe that academic dishonesty or unethical conduct may have occurred, he/she shall report the incident in writing to the course coordinator and the Office of Academic Affairs in a timely manner. Failure to report breaches of integrity is considered a failure of academic and/or professional responsibility—and thus, may be subject to disciplinary action by the School or University.
- b. When allegations of misconduct are made, the Office of Academic Affairs is responsible to ensure that an inquiry is made. This central reporting system allows patterns of behavior to be considered in determining the appropriate course of action. A discussion with the accused student will take place before formal action is taken. The student will have the opportunity to submit a written response.
- c. The Office of Academic Affairs will inform the student in writing if formal disciplinary action is taken.
- d. Disciplinary measures include but are not limited to warning, probation, censure, leave of absence, suspension, or expulsion.

#### HIPAA violations

It is illegal for anyone to access any medical record that they have not been given specific permission to access, including their own profile. HIPAA (protected health information) violations are reported directly to the dean. The dean will meet with the student to review the compliance report. The dean may seek counsel on appropriate disciplinary action from academic, institutional, and/or other agency personnel. The dean will determine the appropriate disciplinary action and communicate the actions(s) taken to the student and corporate compliance officer. In all cases, the action of the dean is final. The student may only follow through with a University-level procedural appeal as related to the procedures contained in this section (i.e., HIPAA violations).

#### Interprofessional education

The School of Pharmacy provides interprofessional education (IPE) experiences for pharmacy students to develop their professional communication skills and to use their knowledge and experience to provide a team based approach and patient centered care.

It is required for all pharmacy students to participate in scheduled IPE-related courses and events throughout their didactic education and clinical training.

#### Student progression/remediation

1. All students are required to maintain a minimum G.P.A. of 2.75 in all required courses (elective courses not included) at the conclusion of each academic year (PY1 – PY3) to be eligible to proceed with the following year of matriculation.
2. Any student who fails to achieve a minimum cumulative G.P.A. of 2.75 in all required courses at the conclusion of the academic year (PY1-PY3) will be dismissed from the Pharm.D. program.
3. A minimum grade of C- is required to pass all pharmacy courses and electives. Any student who fails a required course within an academic term will be given an opportunity to remediate the class by taking a comprehensive examination that will be offered during the first three days of the week following final examinations. The time and date of the examination is scheduled by the Office of Academic Affairs.
  - a. The Office of Academic Affairs will administer this examination to students who have received a grade below a C- in that class.

- b. Preparation for the comprehensive examination is the student's responsibility. Faculty will not be required to "re-lecture" or "re-teach" subject matter to students who are preparing for the examination.
- c. The student must achieve a score of 80% or higher on the comprehensive examination in order to continue full enrollment in the Pharm.D. program. If the student achieves this score, he/she will receive a grade of C- for the course. A score of less than 80% on this comprehensive examination will require the student to repeat the course the following academic year when it is offered.
- d. If the student is a PY1, he/she will be placed on a leave-of-absence for the remainder of the school year. Upon the start of the new academic year, a PY1 student will have the options of PY2 and PY3 students, as outlined in 'e' below; or remain on a leave-of-absence until returning to re-take the failed course work.
- e. While waiting to retake the failed course work, the student may choose to enroll in elective courses for which he or she is qualified (requires permission from the course coordinator). The student may also retake courses that have already been passed, in an attempt to earn a higher grade. The student is permitted to participate in campus activities and student organizations (no leadership roles or competitions) and to maintain his/her intern license.
- f. Alternatively, the student may go on academic leave of absence for two quarters and surrender his/her intern license.
- g. Upon return, the student must repeat the course(s) failed initially. Returning students are able to take elective courses for which they are qualified, at their own discretion. They may also re-take courses they have already passed, in an attempt to earn a better grade. Repeated courses are posted as actual grade earned (per LLU policy); however both grades remain on the transcript. Only the latter grade is used for G.P.A. calculations.
- h. Failing more than nine (9) units of required course work, whether accumulated in a single academic quarter or throughout the entire academic program, will result in dismissal from the program. A student will have a maximum of six academic years to complete the Doctor of Pharmacy degree, beginning with the initial date of matriculation.
- i. Withdrawing from individual required courses (as a full-time student) is not permitted and will result in an automatic withdrawal from all enrolled courses for that quarter. Withdrawing from an entire block of courses requires administrative approval and requires the student to return and re-take the entire block the next academic year.
  1. Withdrawing from elective courses incurs no penalty as it pertains to the progression policy.

#### Progression/remediation policy for PY4

1. All APPE courses must be passed with a grade of 'S' (satisfactory). Any student who receives a 'U' (unsatisfactory) will have to repeat the APPE course.
2. Any student who fails one (1) APPE course during the PY4 year will be allowed to participate in the commencement ceremonies only if he or she does not have more than nine (9) units of failed or withdrawn (see section "e") required courses since the start of the program. However, the student's degree will not be awarded until he or she successfully passes the previously failed rotation when it is offered the following academic year.

- Students failing two APPE rotations will be dismissed from the program because they will have failed more than nine (9) units of required courses.

## Grading

The following grades and grade points are used in the School of Pharmacy. All courses taught are approved for letter grades only. The exceptions are Professional Development, Independent Study, IPPE and APPE, which will be graded on a "satisfactory/unsatisfactory" basis. For the definition of satisfactory/unsatisfactory, consult the respective course syllabus.

Letter grades are determined based on performance in gaining a certain percentage of total points possible in each class. The grade distribution below shows the percentage range and the letter grade associated with each range. A passing grade of C- or above is required in all courses. At least 70% of the total points must be achieved to pass each course.

The grade distribution is as follows:

A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C*	70-72
D**	60-69
F**	< 60
S	0.0
U**	0.0
*	Marginal Performance
**	Unsatisfactory Performance

Based on the grading policy above, a course is passed with a grade of C- or above unless both conditions listed below are met in the order listed.

- The final percentage point of performance is below 70%.
- The final percentage point is below 1.75 standard deviations of the class percentage point mean.

## Incomplete notation

The notation "I" (incomplete) in a course is given only for circumstances beyond a student's control. It will not be granted as a remedy for course overload, failure on a final examination, absence from a final examination for reasons other than an emergency situation, or a low grade to be raised with extra work.

To receive an incomplete, the student is responsible for initiating a request to receive a grade of "I" by completing a "petition to receive incomplete grade" on-line form ([myllu llu.edu](http://myllu llu.edu)), stating the reason for the request. If this request is approved, the instructor reports an "I" as well as the grade the student would have received if the deficiency is not removed within the time limit.

An "I" notation must be changed to an earned letter grade before the end of the following term (excluding the summer sessions). Failure to complete course requirements will cause the incomplete work to be counted as a zero and factored in with the existing grade to calculate the final grade for the course.

## Final course grade appeal and grade change policy

Every student has a right to receive a grade assigned upon a fair and unprejudiced evaluation based on a method that is neither arbitrary nor capricious. Furthermore, instructors have the right to assign a grade based on any method that is professionally acceptable, submitted to all students in the course syllabus, and applied equally.

Instructors have the responsibility to provide careful evaluation and timely assignment of appropriate grades. Course and project grading methods are explained to students at the beginning of the term. Academic integrity assumes that the judgment of the instructor of record is authoritative, and the final grades assigned are correct.

A grade appeal is confined to charges of unfair action toward an individual student and may not involve a challenge of an instructor's grading standard. A student has a right to expect thoughtful and clearly defined approaches to grading, but it must be recognized that varied standards and individual approaches to grading are valid. The grade appeal considers whether a grade was determined in a fair and appropriate manner; it does not attempt to grade or re-grade individual assignments or projects. It is incumbent on the student to substantiate the claim that his or her final grade represents unfair treatment. Only the final grade in a course may be appealed. In the absence of compelling reasons, such as clerical error, prejudice, or arbitrariness, the grade assigned by the instructor of record is to be considered final.

In a grade appeal, only *arbitrariness*, *prejudice*, and/or *error* will be considered as legitimate grounds for an appeal.

- Arbitrariness:** The grade awarded represents such a substantial departure from accepted academic norms as to demonstrate that the instructor did not actually exercise professional judgment.
- Prejudice:** The grade awarded was motivated by ill will, and is not indicative of the student's academic performance.
- Error:** The instructor made a mistake in fact.

The grade appeal procedure applies only when a student initiates a grade appeal and not when the instructor decides to change a grade due to possible error. This procedure does not cover instances where students have been assigned grades based on academic dishonesty or academic misconduct. Also excluded from this procedure are grade appeals alleging discrimination, harassment, or retaliation in violation of Loma Linda University's Sexual Harassment Policy.

The grade appeal procedure strives to resolve a disagreement between student and instructor concerning the assignment of a grade in a collegial manner. The intent is to provide a mechanism for the informal discussion of differences of opinion, and for the formal adjudication by a grade appeal panel only when necessary. In all instances, students who believe that an appropriate grade has not been assigned must first seek to resolve the matter informally with the instructor of record. If the matter cannot be resolved informally, the student must proceed with a grade appeal in the procedure outlined below. The grade appeal process must be started within three business days after grades are posted by University Records.

## Student grade appeal process

**Step 1.** A student who wishes to challenge a grade must discuss the matter first with the instructor within three business days after grades are posted by University Records. In most cases, the discussion between the student and the instructor should suffice and the matter will not need to be carried further. The student should be aware that the only valid basis

for grade appeal beyond Step 1 is to establish that an instructor assigned a grade that was arbitrary, prejudiced, or in error.

**Step 2.** If the student's concerns remain unresolved after Step 1, he or she may submit a written request to the appropriate department chair within three business days of speaking with the instructor. In situations where the instructor of record is a department chair or associate dean, then the dean will serve as the appropriate department chair in this step. The appropriate department chair will communicate within three business days with the student; and, if the department chair believes that the complaint may have merit, s/he will meet with the instructor. After consultation with the department chair, the instructor may choose to let the grade remain or to change a course grade. The department chair will communicate the result to the student and instructor.

**Step 3.** If the matter remains unresolved after Step 2, the student within three business days may submit to the dean a written request that includes all supporting documents. The dean will appoint a grade appeal panel to review the request. Only appeals directly related to the assignment of a final grade are considered; attendance, illness, personal circumstances, or other reason for appeal not directly related to the assignment of a grade will not be considered. The panel may require any or all individuals associated with the appeal to appear. The panel is charged to determine whether the grade was assigned in a fair and appropriate manner, or whether clear and convincing evidence of unfair treatment—such as arbitrariness, prejudice, and/or error—might justify changing the grade. The panel will make its decision based on a majority vote and is only required to state their decision, not the rationale for their decision. If the panel concludes that the grade was assigned in a fair and appropriate manner, it will report its conclusion in writing to the student, the instructor, and the dean; and the matter will be considered closed. If the panel determines that compelling reasons exist for changing the grade, it will request that the instructor make the change, providing the instructor with a written explanation of its reasons. Should the instructor decline, the instructor must provide a written explanation for refusing to change the grade. If after considering the instructor's explanation the panel concludes that it would be unjust to allow the original grade to stand, the panel will then determine what grade is to be assigned. The new grade may be higher than, the same as, or lower than the original grade. Having made this determination, each panel member will sign the grade change form and transmit it to the Office of University Records.

The instructor, the student, and the Dean will be advised of the new grade. Under no circumstances may persons other than the original faculty member or the panel change a grade. Should the panel conclude that the instructor's written explanation justifies the original grade, the panel will report this in writing to the student, the instructor, and the dean; and the matter will be closed.

## Performance levels

### Good academic standing

To remain in good academic standing, School of Pharmacy students must maintain a minimum cumulative grade point average of 2.75.

### Academic monitoring

Each student's academic status will be reviewed by the Academic Standing Committee at the end of each academic quarter, including each student's cumulative G.P.A. as reported by University Records. A student with a cumulative G.P.A. of less than 3.00 will be monitored by the Academic Standing Committee until the student has achieved two successive quarters with a quarterly G.P.A. above 3.00.

Each student being monitored by the Academic Standing Committee must follow the protocol from the Office of Academic Affairs.

## Academic dismissal

The progression policy addresses most elements of academic dismissal.

The following two paragraphs address additional elements related to academic dismissal.

Since required courses may not be attempted more than twice (i.e., a course may be repeated only once)—including APPEs—grades of D+, D, D-, F, and W are considered to be attempts to complete degree program courses. Failure to complete any course in the program within these limits will result in dismissal from the program.

A dismissed student will receive written notification from the associate dean for academic affairs in person. The notice will include procedures for appeal. Dismissed students are required to turn in any LLU identification badges and will have their electronic and parking privileges revoked. The school will also notify the California Board of Pharmacy for termination of the student's intern pharmacist license.

## Readmission of dismissed students

A dismissed student may appeal his or her dismissal from the program directly with the Office of the Dean within five business days.

## Withdrawal from the program

If, after having been registered, a student finds it necessary to withdraw during the course of a quarter, the associate dean of student affairs and admissions must be notified in writing. Arrangements for formal withdrawal must then be made by electronic submission. An exit interview with a member of the School of Pharmacy administration is required.

## Examination procedures and review

### Examination technology requirements

All incoming students will be required to have their own computer. The majority of testing will be done using computer-based testing programs. Students will need their own computer or iPad that meet or exceed the below requirements for test taking.

### Windows (PC) requirements

- CPU = 2GHz Intel® Core™/Celeron™ or equivalent x86 processor
- RAM = highest recommended for the operating system or 2GB
- Hard drive = highest recommended for the operating system or 1GB of free space
- Operating system = English 32-bit versions of Windows XP, 32-bit and 64-bit versions of Windows Vista, Windows 7, and Windows 8
- Microsoft's Virtual Machine, Parallels, or VMware, VMware Fusion—or any other virtual environments—cannot be used.
- Screen resolution 1024x768 or higher
- Administrator-level account permissions
- Adobe Reader (Version 9 or 11) is required for examinations containing PDF attachments

### Mac requirements

- CPU = Intel processor
- RAM = 2 GB
- Hard drive = 1 GB of free disk space
- Operating system = MAC OS X 10.6 (Snow Leopard), 10.7 (Lion), or 10.8 (Mountain Lion)
- **Server version of Mac OS X is not supported**
- Virtual operating systems are not permitted
- Administrator account

### iPad requirements

- Hardware = iPad 2, 3, 4 and iPad Mini
- Operating system = iOS 6
- iPads must have 50% charge to commence a secure examination
- iPad must not be "jail broken"
- To receive support, you must be able to connect the iPad to a computer with iTunes installed

### Taking of examinations

In order to minimize the potential for breaches of academic integrity, LLUSP faculty have established the following examination day procedures:

1. Students will be allowed to have only those items necessary for completion of the examination at their desk during the examination period. All cell phones and PDAs must be turned off and placed with all other items at the front of the room.
2. Students will be responsible for furnishing their own writing utensils, including No. 2 pencils for Scantron™.
3. Students may be assigned random seating during the examination period. Whenever possible, multiple rooms will be used during examination periods in order to maximize space between students. Whenever possible, a ratio of one proctor per 35 students will also be maintained.
4. Bathroom breaks: consult your course syllabus for policies relating to using the bathroom during examinations and other graded activities.
5. Late arrivals are disruptive. Be on time. At the instructor's discretion, students who arrive late to an examination will be allowed to take the examination only if no student who has completed the examination has left the room. Students who arrive late will not be given additional time and must turn their examination in at the same time the instructor calls time for those students who arrived on time.
6. It is important to write clearly. If the instructor or course coordinator cannot read your answer, it will be counted wrong.

### Examination review

If examinations are not to be returned to the students permanently, examination reviews can take place under the following conditions:

1. Students must leave all personal items at the front of the room or outside the office (i.e., purses, backpacks, cell phones, PDAs, tape recorders, jackets, coats).
2. Students will not be allowed to have writing material or utensils during the review, unless specifically allowed by the instructor.
3. The examination review can occur either at a prescheduled time or may be individually scheduled in the instructor's/coordinator's office, and in all cases will occur under the direct supervision of the instructor or course coordinator.
4. Writing down questions and/or answers from an examination is prohibited and, if attempted, will constitute academic dishonesty with the requisite consequences up to and including dismissal from the program.
5. At the instructor's/coordinator's discretion, examinations and quizzes may be reviewed in class but will be collected immediately thereafter. Failure to return a test will result in a zero grade on it. Faculty will be responsible for ensuring that all tests are returned.

### Requests for examination re-grade

Students will be allowed to review their examinations during instructor office hours, during a review session, or upon return of essay/calculations examinations. All requests for examination re-grades must be submitted in writing within seven days after the date when grades for the examination have been communicated to class students, and must address specific disagreements. The instructor or course coordinator will respond to the request in writing, stating whether or not each particular grade change request has been allowed. Once an examination has been submitted for re-grading, the course coordinator reserves the right to re-grade the entire examination, not just the question(s)/section for which the examination has been submitted for re-grade. This may result in additional point deductions. After the one week review period, requests for re-grade will not be accepted for any reason.

### Missed examination policy

Make-up work for missed examinations will be granted only when proper procedure for being absent has been followed (see Class Absence Policy) and at the discretion of the course coordinator. Such an absence requires timely notification to the course coordinator and proper documentation provided to the Office of Student Affairs. Absences for religious reasons or school-approved activities will be honored. The student must notify the course coordinator in advance of the examination that such a situation exists. Make-up examinations may be different in both content and form from the original (missed) examination.

### Disclaimer

The faculty of the School of Pharmacy reserves the right to revise the curriculum at any time to assure that students acquire the most current and relevant training possible. If curricular changes become necessary, every effort will be made to apprise students of the change and how it impacts their course of study. However, assurance of well-prepared graduates will prevail as the dominant concern.

The School of Pharmacy will graduate only those students it deems ready to accept the moral, ethical, and professional responsibilities of the practice of pharmacy, and consequently reserves the right to withhold the recommendation for graduation of any student who does not conform to these standards.

### Graduation requirements

A candidate for the degree of Doctor of Pharmacy at Loma Linda University shall meet all of the following requirements:

1. Satisfactorily complete all requirements for admission.
2. Satisfactorily complete all requirements of the curriculum, including;
  - a. Specified attendance at Chapel,
  - b. The total number of credit units,
  - c. All specified didactic and experiential course work,
  - d. Passed applicable qualifying and comprehensive assessment examinations.
3. Have a cumulative grade point average of 2.75 or higher for the total degree program requirements.
4. Give evidence of moral character, with due regard for Christian citizenship, and consistent responsiveness to the established aims of the University and of the school.
5. Give evidence of good professional behavior through organizational activities, outreach involvement, and personal conduct.
6. Discharge all financial obligations to the University and the school.

7. Complete an exit interview with the LLU Office of Student Finance, Financial Aid Office, and School of Pharmacy administration.

A student failing to meet any of these requirements may not graduate until such time as all requirements are met.

Students may not participate in commencement exercises until all course work has been satisfactorily completed. Students with a maximum of one APPE to complete after the commencement date will be allowed to participate. Receipt of degree and certification of completion will occur only when all course work is done and degree requirements are met.

### **ACPE complaint policy**

The accreditation standards and guidelines for the professional program in pharmacy leading to the Doctor of Pharmacy degree states in Standard No. 20: Student Complaints Policy—"The college or school must produce and make available to students a complaints policy that includes procedures to be followed in the event of a written complaint related to one of the accreditation standards, students' rights to due process, and appeal mechanisms. Students must receive information on how they can submit a complaint to the ACPE for unresolved issues on a complaint related to the accreditation standards".

The ACPE complaints policy with instructions on how to file a complaint can be found at <http://www.acpe-accredit.org/complaints/default.asp>

### **Technical standards for admission, promotion, and graduation**

Candidates for the Doctor of Pharmacy degree must have somatic sensation and the functional use of the senses of vision and hearing. Candidates must have sufficient use of senses related to touch, pain, temperature, position, pressure, movement, and vibratory and motor function to permit them to carry out the activities described in the foregoing. Students must be able to consistently, quickly, and accurately integrate all information received by whatever sense(s) employed; and they must have the intellectual ability to learn, integrate, analyze, and synthesize data. Finally, students must have good moral character, decent values, and principled judgment; and meet the ethical standards set forth by the pharmacy profession.

Any faculty or administrative team member may question any enrolled student's or admission candidate's ability to meet any technical standard. A request for such an investigation of a specific individual must be made in writing to the associate dean for student affairs and admissions detailing the reasons why such an evaluation is deemed necessary. The dean will be notified if such a request is granted.

### **Experiential education**

The School of Pharmacy participates in the California Board of Pharmacy's approved, supervised experiential program. Successful completion of the School of Pharmacy's didactic and experiential programs, and passing scores on the North American Pharmacist Licensure Examination (NAPLEX) and a law examination or equivalent, are required in order to become a registered pharmacist (RPh) in the state(s) of choice.

The experiential program consists of a variety of introductory and advanced pharmacy practice experiences designed to provide the student with professional experience through the use of a structured and supervised program of study. Students participating in the experiential program will receive a Loma Linda University School of Pharmacy *Experiential Program Manual*. Guidelines and policies are listed in this manual and must be adhered to in order to successfully complete the program.

Didactic education is a systematic approach intended to convey instruction and information (classroom, laboratory, recitation, etc.). Experiential education is related to or derived from providing experiences in real-life professional settings. In pharmacy education, the experiential component is designed to provide in-depth exposure to and active participation in selected pharmacy practice settings. Pharmacy students are exposed to prescription processing, compounding, documenting services, obtaining drug histories, drug therapy monitoring, counseling, evaluating drug usage, drug distribution systems, and other relevant pharmacy practice activities.

Under the philosophy of pharmaceutical care, the School of Pharmacy offers introductory pharmacy practice experiences (IPPE) in the PYs 1-3 to enhance practice skills and prepare students to function as members of a health-care team. The advanced pharmacy practice experiences (APPE) in the PY4 are designed to help students integrate and refine the skills learned in the first three years of pharmacy (didactic and experiential) course work.

The purpose of the experiential education program is to apply didactic knowledge to pharmacy practice. The ultimate goal of the experiential program is to produce well-rounded, competent, caring, and responsible pharmacists who can deliver exemplary pharmaceutical care, as well as communicate effectively with diverse patients and other health-care professionals.

### **Experiential education requirements**

The majority of the student's time during experiential courses is spent on out-of-the-classroom activity under the direct supervision of a School of Pharmacy preceptor. When a student is off campus during an IPPE or APPE rotation, Loma Linda University's code of conduct and the guidelines found in the *School of Pharmacy Student Policies and Procedures Manual* are still in effect throughout the completion of this experience. If experiential site regulations and policies differ from University policies, the site policies supersede. In addition to the above-mentioned guidelines, the following regulations are to be followed by all professional pharmacy students assigned to experiential sites or rotations.

- Attendance is mandatory. Punctuality is expected, and excessive tardiness will not be tolerated.
- Students must maintain their University e-mail account and check the account at least daily to keep apprised of important information or announcements.
- All experiential educational assignments are made through the Department of Experiential and Continuing Education and are the responsibility of the chair of the Department of Experiential and Continuing Education. No student is allowed to change rotation sites.
- Students are not to function as an agent or employee of the site. They must identify themselves as pharmacy students from Loma Linda University School of Pharmacy. While participating in this graded experience, students shall not, under any circumstances, receive financial remuneration from the experiential site. Failure to adhere to this policy will result in suspension and removal from the rotation and receipt of a failing grade in the course.

All financial obligations associated with the student's pharmacy education are the responsibility of the student. It is the student's responsibility to satisfy all site requirements prior to each rotation with the time frame requested. These responsibilities include transportation, food, lodging, and any other incidental costs related to off-site assignments. Concurrent employment during the experiential experience

does not exclude or excuse students from any responsibilities associated with course requirements. The student must possess a valid driver's license and is responsible for transportation to and from sites. IPPE rotations can be up to a 70-mile radius from campus. APPE rotations do not have any mile limitations.

Loma Linda University School of Pharmacy students are required to dress and act professionally at all times. This expectation extends to experiential educational activities where the student is not physically on the campus but receives instruction and guidance through a School of Pharmacy preceptor.

The Department of Experiential and Continuing Education requires all students to adhere to the School of Pharmacy dress code and to wear their Loma Linda University identification card and short white laboratory coat at all times while at the experiential site. The laboratory coat must be white, clean, and freshly pressed/ironed. Students who attend out of dress code will be considered absent by the preceptor and sent home to fulfill dress code requirements *prior to returning* to the practice site.

In addition to the general school requirements, other rules may apply for students who are off site. If the experiential site implements special attire or dress code requirements, the more stringent of the dress code requirements prevails, whether that of Loma Linda University or of the off-site institution.

### Pharmacy practice experience

The chair of the Department of Experiential and Continuing Education coordinates both introductory pharmacy practice experience (IPPE) and advanced pharmacy practice experience (APPE).

#### Introductory pharmacy practice experience (IPPE)

The goals of the introductory pharmacy practice experience are to sharpen students' clinical skills through direct patient-care activities in community, institutional, and ambulatory care settings; to introduce the student to different career opportunities in pharmacy; and to assist them in determining their career choices. Under the tutelage of a School of Pharmacy preceptor, who is also a licensed pharmacist, the student will be provided opportunities to apply didactic knowledge to patient care in community, institutional, and ambulatory care settings early on. These experiences will enhance communication, problem-solving, critical-thinking, and decision-making skills through direct patient-care activities.

#### Advanced pharmacy practice experience (APPE)

Students are required to complete a total of six advanced pharmacy practice experiences in specific clinical areas. Four experiences (each lasting six weeks) will be in required fields of hospital practice, ambulatory care, internal medicine, and clinical community practice. Two experiences will be in elective fields.

#### Prerequisites for advanced pharmacy practice experiences

In order to progress to the advanced pharmacy practice experiences, a student must meet the following requirements:

- *HIPAA certificate*: All students are required to complete HIPAA training and obtain a certificate of completion annually.
- *Bloodborne pathogen training*: All students are required to complete training and obtain a certificate of completion annually.
- *Tuberculosis screening*: Students must be screened and cleared for tuberculosis (complete a one- or two-step PPD test, depending on the practice site requirement) during summer of PY4. A chest X-ray may also be required. Students shall follow specific instructions provided by the Department of Experiential and Continuing Education. A record of tuberculosis screening clearance must be on file in the office of the director of experiential education.
- *Background check*: Facilities require a background check of all personnel, including students who are placed on site for experiential education. Some institutions may require the student to sign a confidentiality agreement or disclosure statement. Background checks are required for entry into the School of Pharmacy. Annual review and update is required during the program.
- *Random drug screening*: Random drug screening may be required for some practice settings. This screening may be above and beyond school-mandated screening.
- *Intern license*: Students must hold a valid California pharmacist intern license throughout the advanced pharmacy practice experiences.
- *CPR/First aid*: Students must hold valid, non probationary CPR and first aid certificate. Effective dates must be current through PY4.
- *Student health card*: Students must carry the Loma Linda University student health insurance card with them at all times.

## Licensing

### Pharmacy intern license

All School of Pharmacy students must have a current California pharmacist intern license. Students begin the application process prior to the start of PY1. During the first-year orientation, applications for this license are completed. The Department of Experiential and Continuing Education submits these applications to the California Board of Pharmacy. All students involved in introductory pharmacy practice experiences (IPPE) and advanced pharmacy practice experiences (APPE) must hold a current, nonprobationary pharmacy intern license. Information about the pharmacy intern license can be found on the Web site <[http://www.pharmacy.ca.gov/forms/intern\\_app\\_pkt.pdf](http://www.pharmacy.ca.gov/forms/intern_app_pkt.pdf)>.

It is the student's responsibility to keep his/her pharmacy intern license current and valid. The Board of Pharmacy must be notified of any address, updated student status, or name change. A photocopy of the student's valid pharmacy intern license must be on file in the school's Department of Experiential and Continuing Education.

### Pharmacy intern hours

In order to be licensed as a pharmacist, the California State Board of Pharmacy requires each applicant to have completed a minimum of 1,500 hours of pharmacy practice experience. As of January 1, 2016, an applicant for the pharmacist examination who has graduated on or after January 1, 2016 from an ACPE-accredited college of pharmacy or school of pharmacy recognized by the board shall be deemed to have satisfied those pharmacy practice experience requirements.

## Financial information

The Office of the Dean is the final authority on all financial matters and is charged with the interpretation of all financial policies. Any exceptions to published policy in regard to reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members,

program directors, or department chairs in regard to these matters is not binding on the school or the University unless approved by the dean.

Registration is not complete until tuition and fees on the required installment are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic year. There may be adjustments in tuition and fees as economic conditions warrant.

### General financial practices

The student is expected to arrange for financial resources to cover all expenses before the beginning of each school year. Previous accounts with other schools or with this University must have been settled.

### Deposits

Upon notification of acceptance, the applicant must deposit \$500 to hold a place in the class. This amount is deducted from the tuition and fees due at registration and is nonrefundable should an applicant decide not to register.

### International student deposit

Students who are not U.S. citizens or permanent residents entering Loma Linda University School of Pharmacy must deposit funds in the amount of the first full year of tuition. This deposit will be applied to the student's account for education costs during his/her last term of enrollment. An international student's deposit will be refunded if a student visa is not obtained.

### Schedule of charges

The charges that follow are subject to change without notice.

#### Tuition

Fee	Description
\$42,000	Annual block tuition
\$14,000	Per quarter

#### Fees

Fee	Description
\$778	Per quarter, University enrollment fee (health-care insurance, Drayson Center membership, student activities, and publications)

#### Miscellaneous

Fee	Description
\$75	Application fee
\$500	Acceptance deposit; nonrefundable, applicable to first quarter's tuition
\$500	Per quarter, estimated books and supplies
\$25	Returned check processing fee
\$100-200	Late fee

#### Other charges

Fee	Description
\$90	California Board of Pharmacy internship license (application, examination, interim practice permit); plus Live Scan fingerprinting fee (cost varies).

### On- and off-campus student housing

Students may go to [llu.edu/central/housing](http://llu.edu/central/housing) for housing information and a housing application form.

## Additional requirements

For additional policies governing Loma Linda University students, see Section II of this CATALOG, as well as the University *Student Handbook*. Students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation.

## Pharmacy – Pharm.D.

The curriculum at Loma Linda University School of Pharmacy is intensive and dynamic. The school reserves the right to change the curriculum after due deliberation of the Curriculum Committee and the Executive Committee. Students will be notified of all changes.

## Admissions

### General entrance information

Applicants to the School of Pharmacy must fulfill the prerequisite course requirements listed below. For a course to fulfill the biology, chemistry, organic chemistry, and physics prerequisites, it must be taken at the level of those required for a science major in the field. Introductory courses are not acceptable. Courses accepted to fulfill the prerequisites for biochemistry, microbiology, and human anatomy may be taken at any level as long as the unit requirements are fulfilled. The minimum cumulative G.P.A. and cumulative mathematics/science G.P.A. considered for acceptance to the School of Pharmacy is 2.75 on a 4.00 scale.

### Required courses (semester/quarter units)

- General biology, with laboratory\* (8/12)
- General chemistry, with laboratory\* (8/12)
- Organic chemistry, with laboratory\* (8/12)
- General physics, with laboratory\* (8/12)
- General biochemistry (3/4)
- General microbiology (3/4)
- Human anatomy\*\* (3/4)
- Calculus – integral and differential (3/4)
- Speech communication (3/4)
- Economics – macro or micro (3/4)
- General psychology (3/4)

Decisions regarding the final determination of acceptable courses as prerequisites reside with the School of Pharmacy Admissions Committee in collaboration with the Office of University Records.

\* A full sequence of course work is required for general biology, general chemistry, organic chemistry, and general physics. The semester and quarter units listed in the table above are a general guideline for the *minimum* number of units that must be completed to fulfill the prerequisite requirements. These minimum units may not be the same in all universities/colleges.

\*\* The requirement for human anatomy can be met with a combined human anatomy and physiology course. Courses that only cover human physiology will not be accepted to fulfill this prerequisite.

In rare circumstances, an applicant who has not completed a bachelor's degree may be considered for admission into the School of Pharmacy. An applicant without a bachelor's degree must complete an additional 6 semester or 9 quarter units of course work in social and behavioral sciences, an additional 12 semester or 18 quarter units of course work in



humanities and fine arts, and an additional 6 semester or 9 quarter units of English composition.

## Recommended courses

Cellular and molecular biology  
Histology  
Immunology  
Physiology

## Recommended experience

It is highly recommended that applicants obtain volunteer or pharmacy work experience.

## Application and acceptance requirements

### Application process

The School of Pharmacy only accepts online applications through the central application service PharmCAS. The link to PharmCAS and other required forms are available online at <[llu.edu/central/apply](http://llu.edu/central/apply)>.

### Procedure

The application procedure is as follows:

- Online submission of Doctor of Pharmacy application through PharmCAS.
- When the PharmCAS application is received, Loma Linda University School of Pharmacy will request completion of an LLU secondary application.
- Three online letters of recommendation from previous instructors, employers (pharmacist employer, if possible), and a spiritual advisor (required).
- Written personal statement (answer all questions in two pages or less).
- Projected College Work form (if applicable).
- Completed Academic Prerequisite Record form (available after the LLU secondary application is submitted).
- Payment of the \$75 application fee by check or credit card, submitted with the online LLU secondary application.
- After the secondary application and letters of reference have been submitted and reviewed, the applicant may be invited for an interview. All application documents are evaluated by the School of Pharmacy Admissions Committee to determine if the applicant is accepted, placed on an alternate list, or denied. All applicants are notified of the final committee decision. Admission into the School of Pharmacy continues until the class is filled.

### Acceptance process

The accepted applicant is sent an e-mail acceptance letter that includes a link to the online confirmation process and deadline. At this link, the accepted applicant can confirm and pay the \$500 class-holding fee electronically. The class-holding fee can also be paid by check for an additional processing fee of \$25. The class-holding fee is applied to the student's financial account at the time of matriculation. Class-holding fees are nonrefundable. A follow-up acceptance letter is also mailed to the applicant's home address.

### International applicants

International applicants must have their transcripts reviewed by one of the following evaluation services prior to applying:

- Educational Credential Evaluators, Inc. (ECE) <<http://www.ece.org/>>
- World Education Services (WES) <<http://www.wes.org/>>

If the applicant's native language is not English, or if most education was completed in a non-English program, a score of at least 79 (Internet based) on the Test of English as a Foreign Language (TOEFL) is required. Some consideration is given to applicants who have earned a college degree in an English-speaking country. Please visit <<http://www.ets.org/toefl>> for more information.

### Rolling admission

The School of Pharmacy has a rolling admission policy in which completed applications are reviewed and students are accepted on a continual basis within the period from November through the end of March.

### Admission deadline

The School of Pharmacy accepts applications through PharmCAS from July through November (dates may vary) for entry in September of the following year.

Transcripts, evaluation of international transcripts (if applicable), and TOEFL scores (if applicable) should be mailed to the following address:

Admissions Processing  
Loma Linda University  
11139 Anderson Street  
Loma Linda, CA 92350

Letters of recommendation are now accepted only through the online application. Instructions for online letters are given once an application has been started. Committee letters are accepted from Seventh-day Adventist colleges/universities only and will fulfill the requirement for recommendation letters.

## Degree requirements

### First Year

Autumn Quarter		Units
RELT 706	Adventist Beliefs and Life	2
RXPC 561	Pharmaceutical Care I	4
RXPC 571	Pharmacist Guided Self-Care I	3
RXPS 511	Pharmaceutics I	2
RXPS 524	Physiology I	4
RXPS 581	Biochemistry I	3
RXRX 507	Professional Development	1
Winter Quarter		
RXEE 591	Introduction to Community Pharmacy Practice I	2
RXPS 512	Pharmaceutics II	4
RXPS 515	Pharmaceutics Laboratory I	0.5
RXPS 525	Physiology II	3
RXPS 582	Biochemistry II	3
RXRX 507	Professional Development	1
RXSA 545	Public Health and Lifestyles	3
Spring Quarter		
RELE 705	Ethics in Pharmacy Practice	3
RELT 740	World Religions and Human Health	3
RXEE 592	Introduction to Community Pharmacy Practice II	2
RXPC 572	Pharmacist Guided Self-Care II	3
RXPS 513	Pharmaceutics III	3
RXPS 516	Pharmaceutics Laboratory II	0.5
RXRX 507	Professional Development	1

RXSA 547	Pharmacy Law	2
RXTH 570	IPDM I: Introduction to Disease Management	2.5

**Second Year****Autumn Quarter**

RXDI 664	Drug Information and Literature Evaluation	3
RXEE 690 <sup>1</sup>	Introduction to Hospital Pharmacy Practice	2
RXPS 610	Pharmacokinetics	4
RXPS 651	Principles of Medicinal Chemistry I	3
RXR 604	Professional Development	1
RXSA 640	Epidemiology and Biostatistics	3
RXTH 671	IPDM II: Fluids and Electrolytes	2

**Winter Quarter**

RXPS 652	Principles of Medicinal Chemistry II	4
RXR 604	Professional Development	1
RXSA 751	Social-Behavioral Aspects of Pharmacy Practice	3
RXTH 683	IPDM IV: Endocrine	3.5
RXTH 684	IPDM III: Cardiovascular I	3.5

**Spring Quarter**

RELR 709	Christian Perspectives on Death and Dying	2
RXPS 653	Principles of Medicinal Chemistry III	3
RXR 604	Professional Development	1
RXSA 646	Principles of Management	3
RXTH 674	IPDM VI: Renal and Respiratory Diseases	3.5
RXTH 685	IPDM V: Cardiovascular II	3.5

**Third Year****Autumn Quarter**

RELE 706	Advanced Ethics in Pharmacy Practice	2
RXEE 790 <sup>2</sup>	Introduction to Clinical Pharmacy Practice	2
RXPC 761	Pharmacy Practice I	2
RXR 704	Professional Development	1
RXTH 770	IPDM VII: Infectious Diseases I	3.5
Electives <sup>3</sup>		9
RXTH 771	IPDM X: Neurology	3.5

**Winter Quarter**

RXPC 760	Clinical Pharmacokinetics	2
RXPC 762	Pharmacy Practice II	2
RXR 704	Professional Development	1
RXTH 772	IPDM IX: Infectious Diseases II	3.5
RXTH 773	IPDM VIII: Psychiatry	3.5

**Spring Quarter**

RXPC 763	Pharmacy Practice III	2
RXR 704	Professional Development	1
RXSA 743	Health Systems, Reimbursement, and Pharmacoeconomics	3
RXTH 704	IPDM XIII: Special Populations	3
RXTH 774	IPDM XII: Miscellaneous Conditions and GI Disorders	2.5
RXTH 775	IPDM XI: Oncology	2.5

**Fourth Year****Autumn Quarter**

RXEE 821	Advanced Pharmacy Practice Experience I	6
RXEE 822	Advanced Pharmacy Practice Experience II	6

2	<b>Winter Quarter</b>		
2.5	RXEE 823	Advanced Pharmacy Practice Experience III	6
	RXEE 824	Advanced Pharmacy Practice Experience IV	6
	<b>Spring Quarter</b>		
3	RXEE 825	Advanced Pharmacy Practice Experience V	6
2	RXEE 826	Advanced Pharmacy Practice Experience VI	6
	<b>Total Units:</b>		<b>189.5</b>

- <sup>1</sup> To be taken either Autumn, Winter, or Spring quarter of the second year
- <sup>2</sup> To be taken either Autumn, Winter, or Spring quarter of the third year
- <sup>3</sup> To be completed by the end of the third year (no more than 4 units of independent study can be applied to this requirement). Choose from the electives listed below. Elective courses are subject to change.

**Electives**

3.5	RXPS 710	Dietary Supplements	2
3.5	RXPS 782	Special Topics in Pharmaceutical Sciences	1-4
	RXPS 783	Special Topics in Pharmaceutical Sciences	1-4
	RXPS 784	Special Topics in Pharmaceutical Sciences	1-4
2	RXR 506	Introduction to Pharmacy Leadership	1
	RXR 798	Independent Study with Faculty	1-4
3	RXSA 750	Wall Street Journal	1
3.5	RXSA 757	Clinical Research and Methodology (CRM)	2
3.5	RXTH 757	Advanced Cardiovascular Life Support	3
	RXTH 782	Special Topics in Pharmacy Practice	1-4
	RXTH 783	Special Topics in Pharmacy Practice	1-4
	RXTH 784	Special Topics in Pharmacy Practice	1-4

**Normal time to complete the program**

4 years (12 academic quarters) – full-time enrollment required

# SCHOOL OF PUBLIC HEALTH

## Dean's welcome



We are living in exciting and challenging times for public health. The increase in diseases directly related to lifestyle choices, the reappearance of infectious diseases that science believed were under control, the widening gap between those who have and those who don't and its impact on their life and health are all examples of public health issues that demand our attention. And yet, they are not necessarily the most important. Why do bad things happen to good people? At the end of the day, what does any of this really matter? Am I important, of value to God or to other human beings? These questions are at the core of our existence; and the answer to them can make the difference in someone's life, health, and future.

This is the reason that Loma Linda University School of Public Health exists as one of the CEPH-accredited schools. We are a community that cares about public health issues. We value wholeness and the importance of healthy lifestyle decisions—offering the only M.P.H. degree program in lifestyle medicine and a thriving nutrition department. We are serious about creating and advancing knowledge as our faculty members and students engage in research that spans epidemiological studies and community-based participatory enterprises; and we care about people—not just as populations, but also as individuals—and about their access to comprehensive health care. We care about the environment we live in and the policies that are developed to empower people to make the right

choices. We care about working with individuals and communities as we all strive to effectively connect what we know with how we live.

The School of Public Health is special because it is part of an educational and health-care system that can be found in the whole world—from the most remote village to the most advanced metropolis; and our faculty members prepare our students to practice public health in such a world.

However, the reason we exist as a school goes beyond all that has been mentioned. We are here because we want to explore the other questions with you. When you leave this institution, our prayer is that you will deepen your relationship with a God who loves you, who values you as an individual, who has a mission for your life, and to whom you matter. We hope that you get a chance to meet Him in the classrooms, down the hallways, in devotional events and spiritual retreats, and especially in the faces of those we will serve together.

Welcome to the School of Public Health. As you browse through these pages, we encourage you to become acquainted with the many ways you can arrive at your professional destination—a degree in public health that will enable you to serve, contributing to healthy lifestyles in a global community from a faith-based perspective.

Helen Hopp Marshak, Ph.D.  
Dean, School of Public Health

## Mission, vision, values, and goals

### Mission

The mission of the School of Public Health is to bring hope, health, and healing to communities throughout the world through the discovery and dissemination of knowledge while integrating the Christian values of the Seventh-day Adventist Church.

### Vision

Preparing ourselves and others to maximize personal and community wellness through excellent faith-based public health education and practice.

### Values

Diversity—to humbly learn from all people while embracing and celebrating their health beliefs and practices.

Wholeness—to support the process of integrating spirituality with physical, social, emotional, intellectual, and character development.

Engagement—to be active contributors and participants in our profession as educators and learners, respectively.

### Goals

1. Constantly improve the quality of instruction in support of exceptional educational value.
2. Develop reciprocal and sustainable community-academic partnerships that lead to research, practice, and teaching that are responsive to societal needs.
3. Enhance the school's visibility in support of efforts to maximize enrollment.
4. Enhance the school's visibility in public health issues.
5. Enhance the school's operating resources through increased external (nontuition) sources.
6. Strengthen infrastructure supporting excellence in grant writing.
7. Recruit and retain a student body that reflects the diversity of the population served.

### Educational goals

Loma Linda University School of Public Health, a Seventh-day Adventist Christian institution, seeks to further the healing and teaching ministry of Jesus Christ "to make man whole" by:

- Educating ethical and proficient scholars through instruction, example, and the pursuit of truth.
- Expanding and providing advanced knowledge through research in various fields related to human health and disease.
- Providing advanced skills and competencies for professionals who plan to pursue a practice or research career.

## School foundations

### History

The school's foundation was laid in 1948 with the organization of the School of Tropical and Preventive Medicine, the purpose of which was to provide a base for research and teaching. In 1964, plans were laid for faculty and facilities to meet the requirements of the Committee on Professional Education of the American Public Health Association (APHA). Three years later, the School of Nutrition and Dietetics (established in 1922) and the Division of Public Health and Tropical Medicine were accredited by APHA and organized under the

name Loma Linda University School of Public Health. This name was changed to School of Health in October 1970 to reflect more clearly the school's emphasis on lifestyle. In response to changing societal perceptions and definitions of "public health," the original name, School of Public Health, was readopted in August 1987. The Center for Health Promotion, the Department of Preventive Medicine, and the Preventive Medicine Group were merged into the School of Public Health in 1990. The expanded resources realized by this merger stimulated further growth and development of the school to provide a dynamic learning and research environment for its students and faculty.

The school has maintained continuous accreditation since it was accredited at its inception in 1967 by the American Public Health Association. It is currently accredited by the Council on Education for Public Health (CEPH): 1010 Wayne Avenue, Suite 220, Silver Spring, MD 20910; and is also a member of the Association of Schools and Programs of Public Health (ASPPH).

## Master's degree programs

Master of Public Health (M.P.H.), Master of Business Administration (M.B.A.), and Master of Science (M.S.) degree programs are designed for those with appropriate backgrounds who are seeking to acquire graduate-level competencies in public health, health administration, nutrition, and biostatistics.

## Online programs

The School of Public Health offers master's degree programs in an online format in two majors to meet the needs of qualified individuals who seek to develop graduate-level competencies in public health but who for a variety of reasons choose not to be full-time, on-campus students.

The School of Public Health has considerable experience offering distance learning programs at the master's degree level. For more than thirty years, the School of Public Health has adapted its program delivery style to meet the needs of busy professionals. Currently the school offers an online postbaccalaureate certificate in lifestyle interventions, and an online M.P.H. degree in two areas: population medicine and health education. The Dr.P.H. degree in health education is also offered in a technology-mediated format. These programs cater to students in the U.S. and internationally.

### General degree requirements

All applicants to the online programs must meet the general admissions requirements found in Section II of this CATALOG.

### Online program financial information

#### Financial policies

Tuition for the online M.P.H. degree programs courses is the same as the on-campus tuition rate. Tuition must be paid in full at the time of registration.

#### Financial clearance

The student is expected to maintain a clear financial status at all times. Financial clearance must be obtained:

- before registering for any class;
- before receiving a diploma; or
- before requesting a transcript, statement of completion, or other certification to be issued to any person, organization, or professional board.

**Loans**

Inquiry about loans should be directed to the University Office of Financial Aid. Only students who are accepted into a degree program or federal financial aid-approved certificate program are eligible to apply. For loan purposes, online students registered for 4 units per quarter are considered to be enrolled half time.

**Checks**

Checks should be made payable to Loma Linda University and should show the student's name and social security or LLU ID student number to ensure that the correct account is credited.

**Online Master of Public Health**

The Online Master of Public Health Program is offered with majors in population medicine and in health education. Each is a three-year, online program with online orientation, community, and courses. Students begin their program in any of the four quarters of the academic year.

The program closes with a culminating activity, which includes a community practicum report, preparation of a portfolio, and an exit interview.

**Course load**

A full-time graduate course load consists of 8 units, and a half-time graduate course load is 4 units. Students in the distance learning program who need to qualify for financial aid must take a minimum of 4 units per quarter to establish and maintain eligibility.

**Proctors**

Some courses require a proctored examination. Each student is required to have on file a signed proctor contract with the name of a person who will serve as his/her permanent proctor. A proctored examination is automatically sent to this person. The proctor may not be a relative or someone living in the same house as the student. The registrar of a local college or university or a librarian is considered an appropriate proctor.

**Residence requirement**

There is no residence requirement for the online M.P.H. degree program. Students complete this program online.

**Additional requirements**

For additional policies governing Loma Linda University students, see Section II of this CATALOG, as well as the University *Student Handbook*. Students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation.

**Dean**

Helen Hopp Marshak

**Executive Associate Dean, Student Services and Administration**

Dwight Barrett

**Associate Dean, Research**

Samuel Soret

**Assistant Dean, Academic Administration**

Donna L. Gurule

**Assistant Dean, Academic Records**

Wendy Genovez

**Assistant Dean, Public Health Practice**

Daniel Handysides

**Core faculty, Center for Leadership in Health Systems**

Jim E. Banta, Jr.

Dwight Barrett

Elisa J. Blethen

Donn P. Gaede

Leonard K. Gashugi

Albin Grohar

Paul A. Hisada

Ronald H. Mataya

Karl J. McCleary

Edward S. McField, Jr.

**Core faculty, Center for Community Resilience**

Olukemi G. Adeoye

Sharilyn (Marci) Andersen

Khaled A. Bahjri

Juan Carlos Belliard

Mark M. Ghamsary

Peter C. Gleason

Donna L. Gurule

Daniel G. Handysides

Katherine Jones

Biblia S. Kim

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Rachel I. Lawrence

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Jisoo Oh

Nicolino S. Rizzo

Ed Santos

David J. Shavlik

Ryan G. Sinclair

Pramil N. Singh

Robin D. Smith

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Loretta J. Wilber

**Core faculty, Center for Nutrition, Healthy Lifestyle, and Disease Prevention**

W. Lawrence Beeson

Zaida R. Cordero-MacIntyre

Hildemar F. Dos Santos

Gary E. Fraser

Nicole M. Gatto

Ella H. Haddad

Sandra L. Handysides

R. Patricia Herring

Karen Jaceldo-Siegl

Jayakaran S. Job

Raymond Knutsen

Synnove M. Knutsen

Michelle Hamilton

Jerry W. Lee

Ernesto P. S. Medina

Rafael Molina

Graciela O. Molina

Keiji Oda

Sujatha Rajaram

Joan Sabaté

Diadrey-Anne T. Sealy

Gina Siapco

**Other faculty**

Godwin Nwadibia Aja

Stewart R. Albertson

Yen Ang

Mihran N. Ask

Mohan Balagopalan

Dora J. Barilla

Yessenia T. Bartley

Donna L. Bennett

Richard Blanco

Dianne L. Butler

Terrence L. Butler

Jesus J. Cazares

Sherma Charlemagne-Badal

Jerry E. Daly

Barbara F. Dickinson

Harvey A. Elder

Linda H. Ferry

Elaine H. Fleming

Thelma Gamboa-Maldonado

Bryan L. Haddock

Susan L. Hall

Linda G. Halstead

Kenneth W. Hart

Richard H. Hart

Gordon Hewes

Liane H. Hewitt

Lorraine L. Hinkleman

Wesley James

Christian W. Johnston

Katherine M. Jones

Robert I. Krieger

Kevin J. Lang

Susan K. Lewis

Harold J. Marlow, Jr.

Edward H. Martin

Doree L. Morgan

Olivia Moses

Makram A. Murad-Al-Shaikh

James O. Neergaard

Joyce B. Neergaard

Tricia Penniecook

Corwin Porter

Thomas J. Prendergast, Jr.

Brenda L. Rea

Susan E. Reische

Obed Rutebuka

Holly B. Schuh

Huma Shah

Jeanne F. Silberstein

Bruce E. Smith

Larry L. Thomas

Calvin J. Thomsen

Serena Tonstad

Padma Uppala

Maryellen Westerberg

Jerald W. Whitehouse

Seth A. Wiafe

Wesley S. Youngberg

Janice R. Zumwalt

### **Secondary and adjunct faculty**

Lorayne Barton

Lisa M. Beardsley-Hardy

Lynna Sue Belin

Damon P. Coppola

Noha S. Daher

Nicolae G. Dan

T. Allan Darnell

David T. Dyjack

Wayne S. Dysinger

Donald R. Hall

William C. Hoffman

Gary L. Hopkins

Peter N. Landless

Maximino A. Mejia

Mark J. Messina

Ryan A. Miller

Christine G. Neish

Ehren B. Ngo

Eric Ngo

Warren R. Peters

Martine Y. Polycarpe

Kathryn R. Reinsma

Joon W. Rhee

Douglas C. Richards

John A. Scharffenberg

Ann H. Stromberg

Donna G. Thorpe

Grenith J. Zimmerman

Kara N. Zografos

### **Emeritus faculty**

P. William Dysinger

Joyce W. Hopp

Patricia K. Johnston

Naomi N. Modeste

## **Accreditation**

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## **Centers**

### **Center for Leadership in Health Systems**

Executive Director, Karl J. McCleary

The Affordable Care Act has resulted in a complete paradigm shift where healthcare delivery and health systems are concerned. We are the only School of Public Health that offers an MBA in Healthcare. We also have a global network of institutions that offer healthcare to populations in areas as different as Malawi is from South Korea. This time in history offers a unique opportunity for us to provide leadership in how health is conceptualized, delivered, evaluated and how health care professionals are educated from an institution that holds prevention and wholeness as its core, and unites all the healthcare professional schools on the same campus.

### **Center for Community Resilience**

Executive Director, Samuel Soret

Evidence increasingly shows that cultivating a community's resilience is critical to its ability to bounce back from the adverse effects of disasters. Research also shows that minority and vulnerable communities often utilize faith-based community resources to deal with health and economic challenges. In recent years, faith-based organizations have emerged as important settings for disaster preparedness, mitigation and response. The academic center for Community Resilience will provide leadership with emphasis on collaboration, capacity building, information sharing and community based stewardship that increases and strengthens the capacity of neighborhood organizations, especially faith-based ones, to work together in solving problems while at the same time generating essential social, economic and spiritual capital that can be invaluable during times of stress. As we look at the social determinants of health, the built environment and the role of communities in individual health conditions, we are purposefully engaging in research and practice opportunities that explore how we can strengthen a

community's ability to successfully face natural or man-made disasters, to be resilient and whole, healthy communities for healthy individuals.

### Center for Nutrition, Healthy Lifestyle, and Disease Prevention

Executive Director, Joan Sabaté

Cardiovascular disease, diabetes, chronic respiratory disease and cancers account for 60% of all deaths worldwide, with an estimated 80% of these deaths occurring in low and middle income countries. The increase in the epidemic of non-communicable disease (NCD) in the developing countries is a result of the epidemiological transition, coupled with changes in diet and social environment, and the adoption of developed country lifestyles. According to the World Health Organization, lifestyle related chronic diseases in developing countries, particularly cardiovascular disease have placed a heavy burden on their health care systems (WHO 2002). Multiple studies examining and tackling the risk factors on NCDs have concluded that these conditions are largely preventable through the adoption of healthy diets, physical activity and non-consumption of tobacco and alcohol. Building on the Adventist Health Study's unique 50 plus years of research in lifestyle and plant based diets, this center will pioneer new knowledge and provide leadership for innovative, interdisciplinary, and multinational translational research collaborations aimed at reducing the risk, morbidity and mortality of unhealthy diet, physical activity, tobacco and alcohol use related NCDs for local and global constituents.

## Admissions

Applicants must meet Loma Linda University (p. 24) and school-specific admissions requirements. The school's admissions office and program director assure that applicants are qualified for the proposed curriculum and are capable of profiting from the educational experience offered by this University. This is accomplished by examining evidence of scholastic competence, moral and ethical standards, and significant qualities of character and personality. Applicants are considered for admission only on the recommendation of the program in which study is desired. Those who meet these requirements as well as the published deadlines may enroll.

In selecting students, the admissions office and program director look for evidence of self-discipline, personal integrity, and intellectual rigor. The committee also looks for evidence that students possess the capabilities required to complete the full curriculum in the allotted time and to achieve the levels of competence required.

### Where to write

Correspondence about admissions to all programs and requests for application information should be addressed to the Office of Admissions, School of Public Health, Loma Linda, CA 92350; or via e-mail to <admissions.sph@llu.edu>.

### Application review process

All completed applications are first reviewed by the admissions office. A recommendation on each application is then submitted to the appropriate program director, who makes the final decision regarding acceptance.

### Procedure

The procedure for application and acceptance is given below. All correspondence and documents are to be sent to the Office of

Admissions, School of Public Health, Loma Linda University, Loma Linda, CA 92350.

1. *Application.* Submit a complete application and accompanying documents to SOPHAS ([www.sophas.org](http://www.sophas.org) (<http://www.sophas.org>)).
2. *Transcripts.* Official transcripts from all postsecondary institutions attended must be sent to SOPHAS. If accepted, official transcripts will then need to be sent to Admissions Processing, Loma Linda University, Loma Linda, CA 92350.
3. *International evaluations.* All international (non-U.S.) transcripts must be submitted to one of the LLU-approved evaluation services. See <[llu.edu/central/apply/intltrans.page](http://llu.edu/central/apply/intltrans.page)> for a list of the approved companies. Copies of transcripts forwarded from evaluation services do not meet the requirement of official transcripts sent directly to LLU from the issuing institution. SOPHAS will only accept international transcripts submitted through World Education Services ([www.wes.org](http://www.wes.org) (<http://www.wes.org>)). Please Note: Transcript copies included only in official WES evaluation reports will also satisfy the requirement for official transcripts.
4. *References.* The applicant is asked to supply a minimum of three personal references. It is recommended that these include an academic reference, a reference from an employer, and a character or religious reference.
5. *Pre-entrance examination.* All official pre-entrance test scores (e.g., TOEFL, GRE or equivalent [e.g., MCAT]) as required by each program must be sent directly to SOPHAS by the testing organization.
6. *Interview.* The applicant's records will be screened when the supplementary application is submitted and the file is complete. The file will then be forwarded for program review; and, if necessary, the applicant may be invited for a personal interview.
7. *Acceptance.* The accepted student receives an acceptance letter and a link that will prompt payment of the class-holding fee and confirmation of acceptance. Official transcripts will need to be submitted to Admissions Processing prior to registration for first term.
8. *Pre-entrance health requirements/Immunizations.* New students are required to have certain immunizations and tests before registration. In order to avoid having a hold placed on registration, the student is encouraged to provide documentation to the Student Health Service prior to the start of regular registration. For further information, contact the Student Health Service office at 909/558-8770.
9. *Financial aid.* Application for financial aid should be submitted early, even before the student is admitted into the program. For further information, visit <[llu.edu/central/ssweb/finaid](http://llu.edu/central/ssweb/finaid)>.
10. *Financial requirement.* Non-U.S. citizens are required by U.S. immigration regulation to secure sufficient funds and pay for their first year's tuition and fees before they can register. In addition, they must provide documentary evidence of sufficient funds for their second year. International students will receive the necessary visa applications and registration clearance after they have submitted their deposit and payment plan.

## Admissions decisions

The Admissions Office and program director considers the following qualifications in making admission decisions:

Personal statement, letters of recommendation, overall G.P.A., GRE examination scores or equivalent, professional potential, and personal interview. Admission decisions fit into one of three categories: regular



admission, provisional status, or denial of admission. An international student cannot be granted a provisional acceptance.

### **Admissions requirements**

Specific requirements, which vary from program to program, should be determined from the area of interest. Requirements for admission into the degree programs are specified in the next section.

### **Prerequisite courses**

A grade of C or higher is required for all prerequisite courses. Prerequisites must be completed prior to acceptance.

### **Entrance tests**

Scores from the Graduate Record Examination (GRE) or equivalent are required with the application. Application forms for the GRE and information regarding examination times and places are furnished by the Educational Testing Service, GRE-ETS, P.O. Box 6000, Princeton, NJ 08541-6000, U.S.A.; and at <<http://www.ets.org>>. Applicants for the M.B.A. degree in health administration are required to submit scores from the Graduate Management Admission Test (GMAT) or equivalent, such as the GRE. Application for the GMAT can be found at <<http://www.mba.com/us>>.

## **General regulations**

Students of the University are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. Section III of this CATALOG provides the general setting for the programs of each school and outlines the subject and unit requirements for admission to individual professional programs. It is important to review specific program requirements in the context of the general requirements applicable to all programs.

### **University e-mail accounts**

The University accepts its moral, ethical, and legal responsibility for informing and reminding students of deadlines, regulations, and processes by issuing an e-mail account to every student and communicating with students by e-mail. It is the students' responsibility to read and respond to their e-mail messages from the University.

## **Learning environment**

### **Technology facilities**

Technology-mediated and fully online courses are part of the school's curricula. Students should be prepared to use e-mail, electronic library resources, online survey tools, course management tools, and other Internet communication tools while engaged in the School of Public Health learning environment. Through the online M.P.H., the technology-mediated Dr.P.H. degree programs, and the online post-baccalaureate certificate programs, the School of Public Health demonstrates its commitment to moving forward with a technology-supported and technology-facilitated learning environment.

Tutorials are available to assist members of this learning community in using the school's various tools.

### **Campus facilities**

Facilities for the School of Public Health—offices, lecture and seminar rooms, teaching and research laboratories, work and storage areas—are located mainly in and adjacent to Francis Nichol Hall. Additional offices and research facilities are located in Evans Hall, the Parkland Building, and the Centennial Complex.

## **Academic policies**

Students are responsible for informing themselves of and satisfactorily complying with the policies and meeting the regulations pertinent to registration, matriculation, and graduation.

### **Advanced standing**

Graduate students with previous course work in areas of public health may apply for limited units of advanced standing. If approved by the program director or department chair and the associate dean for academic affairs of the school, degree requirements—exclusive of elective units—are reduced. Courses taken during the past five years are considered in an evaluation of the student's qualification for advanced standing. Competency in courses taken more than five years previously may be considered if the content has been used professionally on a regular basis. No advanced standing is granted for life experience that is not in conjunction with previous course work.

### **Religion course work requirement**

Registration and completion of graduate-level religion course work is mandatory for completion of degree requirements. The religion requirement is designed to provide a spiritual dimension to the professional training of public health students, to provide students with an opportunity to further develop their skills in dealing with life's challenges, and to provide opportunity for personal spiritual growth. Transfer of course units from other universities and institutions is not allowed; nor is a waiver option available, regardless of educational background. Traditional letter grading is required.

Selection of religion courses to fulfill requirements for the various degrees should be made in consultation with the advisor, using the course schedule published online at <[llu.edu/central/ssweb](http://llu.edu/central/ssweb)>. Master's degree students are required to complete a 3-unit, 500-level religion course per degree sought; and doctoral students are required to complete three 500-level religion courses in each of the religion content areas: ethical, relational, and theological studies. Only courses with REL\_ code prefixes may be used to satisfy the religion course requirement. The religion requirement may not be waived by registering for a religion course at a university other than Loma Linda University.

### **Student classification**

Students enrolled in courses prior to receiving official acceptance into the School of Public Health are classified as "nondegree" students by the University. Students may retain this status only by permission of the director of admissions and academic records for a maximum of 12 units of credit before official acceptance into the school.

### **Convocation attendance**

Attendance at weekly University and quarterly school convocations is required. Unexcused absences are reported to the dean. Persistent failure to attend may jeopardize a student's regular standing.

### **Course attendance**

Only duly registered students may attend classes. Students are expected to attend all required contact elements in a course. Absences in excess of 15 percent may be sufficient cause for a failing or unsatisfactory grade to be recorded.

### **Adding an additional M.P.H. major**

Students who wish to add another major to their M.P.H. program must complete a written petition to revise or make a change in their program. This request will be reviewed by the relevant departmental committee for

approval to add the major. After approval, the student must work with the assigned advisor in the secondary department to determine the course work and other requirements that must be fulfilled for the additional major. These requirements must be specified on the Degree Compliance Report (DCR) for the student *within one quarter* of acceptance into the added major; otherwise the student will be administratively withdrawn from the added major. Because each combination of majors is unique, there is no guaranteed timeline for completion of the requirements for the additional major. Adding another major may also impact financial aid. Additional majors require a minimum of 18 unique units from the major core course work beyond those required for the primary major, with a grade point average of at least 3.0 for those added units. Coordination of the field practicum experience between the two majors is also required. All successfully completed majors will be listed on the student's transcript.

### Time limit

The time lapse from first enrollment in courses applied to a master's degree curriculum to the conferring of the degree may not exceed five years. For a doctoral degree, the maximum time allowed for advancement to candidacy is five years, and seven years to completion of the degree program. Students who show evidence of appropriate academic progress may be granted up to two one-year extensions for master's and three one-year extensions for doctoral degrees. These extensions are not automatic but must be initiated by student request and be approved by the major department and the associate dean for academic affairs. Exceeding the time limit requirements may have financial aid implications.

### Academic probation

Students who are not making satisfactory academic progress, as defined elsewhere in this Catalog, will be placed on academic probation. Students with two quarters of unsatisfactory performance jeopardize their standing in a degree or certificate program.

### Residency requirements

Residency requirements may be met by a student taking, through the School of Public Health, the minimum number of units specified for the appropriate degree.

The minimum didactic unit residency requirement for a single M.P.H. degree is 47 units (plus 9 units of transfer credit, or 56 units total) and for a single doctoral degree is 60 units (plus dissertation units). Advanced standing can be considered for previous course work relative to these requirements.

### Graduation requirements

A candidate for a degree shall have met the following conditions:

- Completed all requirements for admission.
- Satisfactorily completed all requirements of the curriculum, including specified attendance; number of credit units; specific course and field instruction; applicable qualifying and comprehensive examinations and culminating activities; and have a cumulative grade point average of 3.0 for graduate students, computed separately for the total degree program and for courses in the major area.
- Completed a field practicum or internship (if required by the program).
- Completed the culminating activity.
- Completed an online exit survey (at the conclusion of the program).
- Submitted a graduation petition two-to-four quarters before graduation, as specified by the University.

- Given evidence of responsiveness to the established aims of the University and of the school.
- Discharged financial obligations to the University and completed the exit interview with the Office of Student Finance.

The candidate who has completed the requirements at the end of the Spring Quarter is encouraged to be present at the conferring of degrees. Students desiring to participate in commencement ceremonies must do so at the spring (June) exercise immediately following completion of their assigned curricula.

The University reserves the right to prohibit participation in commencement exercises by a candidate who has not satisfactorily complied with all requirements.

### Grievance policy

Grievances related to sexual harassment, racial harassment, or discrimination against the disabled shall be pursued in accordance with University policies specifically relating to these items. Grievances related to academic matters or other issues covered by specific school policies shall be made pursuant to the policies of the school in which the student is enrolled. A student who questions whether the process provided by the school has followed its policy in regard to his/her grievance may request the Office of the Provost to conduct a review of the process used by the school in responding to his/her academic grievance. For more detailed information, please see the University *Student Handbook* for School of Public Health grievance policy and procedures.

### Academic advisement

It is the responsibility of students to know and fulfill all academic and graduation requirements and to make every reasonable effort to obtain adequate academic advisement. Frequent advisor contact helps to ensure that students have current academic information and are making adequate progress toward educational goals.

### Continuing education

The school offers nondegree short courses and workshops at various locations in the United States and overseas to meet the continuing education needs of School of Public Health alumni, other health professionals, and lay persons in the church and community. In addition, most degree courses are approved for continuing education credit.

### Financial information

The Office of the Dean is the final authority in all financial matters and is charged with the interpretation of all financial policies. Any exceptions to published policy in regard to reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members, program directors, or department chairs in regard to these matters is not binding on the school or the University unless approved by the dean.

Registration is not complete until tuition and fees on the required installment are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic year. There may be adjustments in tuition and fees as economic conditions warrant.

The student is expected to arrange for financial resources to cover all expenses before the beginning of each school year. Previous accounts with other schools or with this University must be settled prior to registration.

## Traineeships

United States Public Health Service traineeships provide grant money in support of public health training to citizens of the United States or to persons having in their possession a visa granting permanent residence in the United States. Allocation is made by the school to those who demonstrate financial need and who undertake specified programs of study. Further availability is contingent upon congressional funding. Applications are available from the School of Public Health Office of Financial Administration.

## Assistantships

A limited number of teaching and research assistantships are available through the academic departments and individual researchers. It is understood that the student will perform such duties as may be required by the one to whom the student is responsible, but such duties are not to exceed the equivalent of half-time employment. Students will be considered after they demonstrate knowledge and proficiency in the area in which they would work.

## Application for financial aid

Before a fellowship, traineeship, or assistantship is awarded, the student must have secured regular admission to the school. The student's academic record, financial need, and potential productivity are among the factors considered in the awarding of financial aid. Preference is given to complete applications received by March 2. Early application is advised.

## Loans

Loan funds may be available to School of Public Health students who show need as determined by a federal formula. Loans are restricted to citizens of the United States and eligible noncitizens. Certain funds are interest free while a student is enrolled at least half time. Inquiries about loans should be made to the Office of Financial Aid.

## Schedule of charges

Effective Summer Quarter 2015 (subject to change by trustee action):

### Tuition

\$880 Per unit: credit (on campus and online)

\$440 Per unit: audit (on campus and online)

### Doctoral-level courses only

\$925 Per unit: credit (on campus and online)

### Special tuition charges

\$500 Field practicum and internship (100 hours)

### Special fee

\$750 Special fee

### Special charges

\$50 Application (nonrefundable)

\$100 Acceptance deposit for master's degree students (nonrefundable)

\$250 Acceptance deposit for doctoral degree students (nonrefundable)

\$50 Late payment fee

\$20 Returned check fee

\$50 Late registration fee

\$50 Examination, other than regularly scheduled

\$50 Equivalency examination

### Miscellaneous expenses

cost Health-care items not covered by insurance

cost Breakage, damage, loss of University equipment

### International student deposit

\$8,000 Master's student

\$8,000 Doctoral student

## Refund policy

Tuition refunds are calculated on a prorated basis for up to 60 percent of the quarter, with no refund after that point. This calculation is based on the day a withdrawal from a course or program is processed by University Records. Students who drop a course from a block program of courses receive no refund.

If a student drops a course after completing 10 percent of a class, the student will receive a 90 percent refund. Because refunds are based on a percentage of the class completed, the days on which these percentage refunds will change are determined by the length of the term in which the course is scheduled.

## Awards and honors

Students demonstrating superior scholarship, professionalism, and promise of future contribution to the field of public health may be nominated for recognition. Faculty members and staff are also eligible for certain awards.

The BECKY BUSHMAN AWARD, established by Mary and Bliss Bushman, is given to individuals who best demonstrate healthy lifestyles, academic achievement, and contributions to society.

The CALLICOTT-REGISTER AWARD is given as a tuition assistance award to qualified nutrition students.

The PRESIDENT'S AWARD is given annually to a student who has demonstrated superior or excellent scholarship, actively participated in the affairs of the student and church communities, actively participated in general community service, and shown evidence of commitment to the highest ideals of the University.

The CHARLIE LIU AWARD is given by the student association to an outstanding student, faculty, or staff member who reflects the life of Christ through a caring spirit, a listening heart, and a commitment to peace.

The DEAN'S AWARD is given annually to a student who has demonstrated superior or excellent scholarship, actively participated in the affairs of the student and church communities, actively participated in general community service, and shown evidence of commitment to the highest ideals of the School of Public Health.

Nomination is made annually for membership in DELTA OMEGA, the national honor society for public health. Nominees must be from the top 25 percent of their class and demonstrate promise of significant contribution to the field of public health.

The GLEN BLIX AWARD is given annually to the graduating doctoral student in preventive care who best exemplifies excellence and leadership in preventive care.

The HALVERSON AWARD is presented to a graduating student who exemplifies excellence and promise of leadership in health administration.

The HULDA CROOKS AWARD is the Loma Linda University School of Public Health's premier student award acknowledging whole person excellence. The purpose of this endowment is to provide Loma Linda University School of Public Health funds for student awards for excellence, student-initiated research, and public health practice grants. The grants are designed to encourage Loma Linda University School of Public Health students to become involved in the practical application of their educational experience through research and public health practice. To receive a grant, students are required to submit proposals that will be competitively judged by the Awards and Traineeship Committee. Grant application will be considered once each academic school year, with up to two awards given each year.

Each year the School of Public Health presents cash awards of \$2000 to two students in honor of Hulda Crooks. In addition, there are \$1000-\$3000 research and public health practice grants available to currently registered School of Public Health students.

The JEANNE WEISSMAN RESEARCH AWARD is granted annually during the Spring Quarter to a Doctor of Public Health degree student who has maintained a G.P.A. of 3.2 or above and who has demonstrated financial need.

The P. WILLIAM DYSINGER EXCELLENCE IN TEACHING AWARD is given annually by the student association to a faculty member who exemplifies excellence in teaching, Christian commitment, and support for cultural diversity.

The RUTH WHITE AWARD is given to an outstanding student at commencement each year who exemplifies a spirit of cooperation and leadership, helpfulness in scholastic efforts, and sensitivity to students from diverse cultures.

The SELMA ANDREWS SCHOLARSHIP provides funding for international health majors to attend Global Health Council.

The WILLARD AND IRENE HUMPAL AWARD recognizes students who have gone the extra mile to give service to their church, their school, and their community; who are enthusiastic learners; and who have demonstrated financial need.

*Program and area-specific scholarships and awards may be viewed on the SPH Web site.*

## Programs

### Master's degrees

- Biostatistics—M.P.H. (p. 417), M.S. (p. 417), Comparison (p. 418)
- Environmental and Occupational Health—M.P.H. (p. 419)
- Epidemiology—M.P.H. (p. 420)
- Global Health—M.P.H. (p. 421)
- Health Care Administration—M.B.A. (p. 422)
- Health Education—M.P.H. (p. 424) (traditional, online)
- Health Policy and Leadership—M.P.H. (p. 427)
- Lifestyle Management—M.P.H. (p. 428)
- Nutrition—M.P.H. (p. 430), M.S. (p. 431)
- Population Medicine—M.P.H. (p. 433) (traditional, online)

### Doctoral degrees

- Epidemiology—Dr.P.H. (p. 436), Ph.D. (p. 437), Comparison (p. 438)
- Health Education— Dr.P.H. (p. 439) (traditional, technology mediated)
- Health Policy and Leadership—Dr.P.H. (p. 440)
- Nutrition—Dr.P.H. (p. 442)
- Preventive Care—Dr.P.H. (p. 443)

### Cognate Areas <sup>1</sup>

#### Emergency Preparedness and Response

EMPR 524	Local and State Emergency Preparedness and Response	3
EMPR 525	National and International Emergency Preparedness and Response	3
EMPR 526	Public Health Issues in Emergency Preparedness and Response	3
EMPR 540	Seminars in Emergency Preparedness and Response	3

Total Units 12

#### Health Care Administration

HADM 534	Health-Care Law	3
HADM 555	Health-Care Delivery Systems	4
HADM 601	Health Systems-Operations Management	3
HADM 605	Health-Care Quality Management	3

Total Units 13

#### Health Geoinformatics

HGIS 524	GIS Software Applications and Methods	3
HGIS 535	Integration of Geospatial Data in GIS	3
HGIS 536	Spatial Analytic Techniques and GIS	3
HGIS 547	GIS for Public Health Practice	3

Total Units 12

#### Lifestyle Intervention

HPRO 526	Lifestyle Diseases and Risk Reduction	3
HPRO 500	Stress Management	2
NUTR 529	Health Aspects of Vegetarian Eating	2,3
HPRO 573	Exercise Physiology I	3
HPRO 553	Addiction Theory and Program Development	3

Total Units 13-14

#### Maternal Child Health

HPRO 523	Maternal/Child Health: Policy and Programs	3
NUTR 534	Maternal and Child Nutrition	3
HPRO 556	High-Risk Infants and Children: Policy and Programs	3
HPRO 614	Seminar in Maternal and Child Health Practice	3

Total Units 12

#### Non-Profit Management

HADM 577	Governance for Non-Profit Excellence	3
HADM 578	Foundations of Fund Development	3
HADM 579	Legal Issues in Nonprofit Management and Policy	3

HADM 580	Foundations of Leadership	3
Total Units		12

#### Nutrition

NUTR 509 or NUTR 510	Public Health Nutrition and Biology Advanced Public Health Nutrition	3
NUTR 527	Assessment of Nutritional Status	3
NUTR 529	Health Aspects of Vegetarian Eating	2
NUTR 585	Topics in Global Nutrition	3
NUTR 534	Maternal and Child Nutrition	3
Total Units		14

#### Occupational Medicine

OMED 524	Foundations of Occupational Health and Safety	4
OMED 525	Clinical Toxicology and Occupational Health Disorders	4
OMED 526	Occupational Health and Safety Law and Ethics	4
Total Units		12

<sup>1</sup> Availability subject to demand.

## Certificates

The School of Public Health offers certificates in various programs to meet the needs of qualified individuals seeking to develop competencies in specialties in public health. Instruction for the certificate program is primarily provided by regular School of Public Health faculty members during regular quarter terms. Students are responsible for following regular registration procedures during regularly scheduled time periods. A minimum of 12 units, plus 1 unit of religion is required for a certificate. Units may not be shared with a concurrent degree program.

### General certificate information

#### Course work

Course sessions are conducted during regular term sessions. Certificate courses offered are regular School of Public Health courses that carry the same credit units as courses applicable toward degree programs. Certificate courses are taught on a quarter-term system, although selected courses may be offered by special arrangements.

#### Religion course requirement

Registration and completion of a 1-unit, graduate-level religion course is mandatory for completion of each certificate program. Religion courses must have an REL\_ prefix and be offered through Loma Linda University. The purpose of the religion requirement is to provide a spiritual dimension to the professional training of public health students, to provide students with an opportunity to further develop their skills in dealing with life's challenges, and to provide opportunity for personal spiritual growth. Course units will not be transferred from other universities or institutions; nor is waiver of this requirement an option, regardless of educational background. Traditional letter grading is required.

#### General certificate requirements

All applicants to the certificate programs must meet the general admissions requirements found in Section II of this CATALOG. Course work is graduate level; therefore, students must demonstrate eligibility for application to a graduate-level program.

### Course format

In general, courses are taught in the same format as regularly scheduled on-campus courses. However, in addition, Web-based courses and/or intensive format courses may be utilized. These courses are tailored to the adult learner, with clear application and examples from the public health professional world. These courses represent the same course requirements and credit units as those applicable to degree programs.

### Grade point average

A grade point average (G.P.A.) of 3.0 (B) must be maintained.

## Programs

- Emergency Preparedness and Response – Certificate (p. 411)
- Health Geoinformatics – Certificate (p. 412)
- Health-care Administration – Certificate (<http://llucatalog.llu.edu/public-health/health-admin-certificate>)
- Lifestyle Intervention – Certificate (p. 412)
- Maternal and Child Health – Certificate (p. 413)

## Emergency Preparedness and Response – Certificate

### Program director

Ehren Ngo

Closed to admissions for the 2016-2017 academic year.

The Emergency Preparedness and Response Program provides students with the knowledge and skills to effectively plan, implement, and evaluate domestic and international public health emergency response and recovery efforts. The certificate program seeks to develop and enhance the core emergency and preparedness competencies as outlined by the Association of the Schools of Public Health (ASPH) in the document "Master's Level Preparedness and Response Competency Model" (Version 1.1, November 2011 is available at <<http://www.aspph.org/educate/models/masters-preparedness-response/>>).

## Learner Outcomes

Upon completion of this program, students should be prepared to:

1. Take leadership and management roles in disaster preparedness and response.
2. Design a preparedness and response plan.
3. Create, execute, and evaluate tabletop exercises and drills.
4. Evaluate and assess community and institutional capacity for emergency preparedness and response.
5. Address the major public health issues that arise during emergencies.

## Individuals who may benefit from this program

- Government officials, i.e., public health, office of emergency preparedness, Native American tribal governments, and bioterrorism coordinators
- Local city, county, and health workers
- Hospital/Health-care administrators and clinicians
- Emergency, fire, law enforcement agencies
- Private industry
- Nongovernmental organizations/Private voluntary organizations

- Students
- First responders

## Admissions Requirements

- A bachelor's degree (or equivalent), with a cumulative G.P.A. of at least 3.0

## Program requirements

### Required

EMPR 524	Local and State Emergency Preparedness and Response	3
EMPR 525	National and International Emergency Preparedness and Response	3
EMPR 526	Public Health Issues in Emergency Preparedness and Response	3
EMPR 540	Seminars in Emergency Preparedness and Response	3
RELT 518	Adventist Heritage and Health	1
Total Units		13

### Normal time to complete the program

1 year based on less than full-time enrollment

## Health Geoinformatics – Certificate

### Program director

Closed to admissions for 2016-2017 academic year.

The purpose of the health geoinformatics certificate is to prepare participants to apply geospatial information science and technologies to public health practice, research, and learning. These skills are highly desired today as an integral part of health informatics competencies that are needed by health professionals—according to the 2011 RAND Corporation report, "Mapping the Gaps."

The Health Geoinformatics Program certificate is designed primarily for health professionals and students who have completed a bachelor's degree (or equivalent) from an accredited college or university with a cumulative G.P.A. of at least 3.0. Qualified candidates must demonstrate computer proficiency, although no previous experience with geographic information systems (GIS) technology is required. Advanced placement can be considered for applicants with previous GIS experience/training. In addition, interested Loma Linda University students, staff, and faculty who would like to learn about GIS applications in health may also apply.

## Learner outcomes

Upon successful completion of this program, students will be able to:

1. Use principles of geospatial information science as they relate to health research and practice.
2. Use state-of-the-art GIS software applications and techniques for accessing the spatially defined health information for building related, useful geodatabases.
3. Use effective geospatial data while producing and publishing customized maps and other visual displays of health data.
4. Employ GIS-based methods and techniques of spatial analysis that support health research and decision making in public health practice and policy.

5. Competently apply geospatial technology and methods in at least one key area of health geographics, such as disease mapping, tracking and assessment of environmental hazards and exposure, health planning and policy, community health, health education and communication, analysis of access to health services, or health-care geographics.
6. Implement and manage health GIS projects in government, nongovernment, and community settings.

## Indicators of educational effectiveness

1. Class project (course specific, at the discretion of the instructor).
2. Oral presentation (course specific, at the discretion of the instructor).
3. Portfolio (course specific, at the discretion of the instructor).
4. Participation in a qualifying examination offered annually by SkillsUSA, an organization that has partnered with the geospatial industry to develop a competition program that provides universities, colleges, and their students a way of validating their geospatial programs and measuring them against national standards.

Note: Indicators 1, 2, and 3 are course specific at the discretion of the instructor.

The program is open to health professionals, current Loma Linda University students enrolled in a master's or doctoral degree program, Loma Linda University faculty and staff (tuition benefits may apply), and anyone interested in GIS applications in the health field.

## Admissions Requirements

- A bachelor's degree (or equivalent), with a cumulative G.P.A. of at least 3.0

## Program requirements

### Required

HGIS 524	GIS Software Applications and Methods	3
HGIS 535	Integration of Geospatial Data in GIS	3
HGIS 536	Spatial Analytic Techniques and GIS	3
HGIS 547	GIS for Public Health Practice	3
RELT 518	Adventist Heritage and Health	1
Total Units		13

### Normal time to complete the program

1 year based on less than full-time enrollment

## Lifestyle Intervention – Certificate

### Program director

Hildemar Dos Santos

Closed to admissions for 2016-2017 academic year.

The certificate in lifestyle intervention prepares students to accurately assess the health-related lifestyle conditions, practices, and motivation of individuals and community groups in order to help them improve their health through implementation of health-related lifestyle intervention approaches.

## Learner outcomes

Upon completion of this certificate, students should be able to:

1. Accurately assess lifestyle practices and conditions.
2. Identify and apply appropriate dietary, fitness, and other lifestyle-based interventions.
3. Apply principles and methods to help individuals change their lifestyle-related health behaviors.
4. Decide when and how to refer individuals to various health-care professionals.
5. Provide leadership for community-based health promotion projects in selected settings.

Upon successful completion of the program, the student will be awarded a certificate in lifestyle intervention from Loma Linda University School of Public Health.

## Indicators of educational effectiveness

1. Completion with G.P.A. of 3.0 or higher
2. Class projects/presentations

## Completion of certificate requirements

People who may benefit from earning the certificate include:

- Practicing health professionals who desire more training in lifestyle intervention.
- Loma Linda University School of Public Health students who can add this certificate to their M.P.H. degree training by taking a few more classes.
- Loma Linda University students from other schools who desire competence in lifestyle intervention.
- Loma Linda University alumni.
- Other individuals who wish to provide lifestyle education in their communities.

## Admissions Requirements

- A bachelor's degree (or equivalent), with a cumulative G.P.A. of at least 3.0

## Program requirements

### Required

HPRO 500	Stress Management	2
HPRO 526	Lifestyle Diseases and Risk Reduction	3
HPRO 553	Addiction Theory and Program Development	3
HPRO 573	Exercise Physiology I	3
NUTR 529	Health Aspects of Vegetarian Eating	2,3
RELT 518	Adventist Heritage and Health	1
Total Units		14-15

### Normal time to complete the program

1 year based on less than full-time enrollment

## Maternal and Child Health – Certificate

**Program director**  
Patti Herring

Closed to admissions for 2016-2017 academic year.

The purpose of this certificate is to familiarize students with the complex issues associated with planning, implementing, and evaluating maternal and child health programs for men and women.

## Learner outcomes

Upon completion of this certificate program, students will be able to:

- Describe key public health issues in the field of maternal and child health.
- Utilize principles of behavior change in the promotion of maternal and child health.
- Plan, implement, and evaluate public health programs addressing multifaceted, integrated programs in maternal and child health based on current operational models.
- Write competitive proposals for grants and contracts in the field of maternal and child health.

## Indicators of educational effectiveness

1. Appropriate course assignments and projects.
2. At least a bachelor's degree (or equivalent), with a cumulative G.P.A. of at least 3.0.
3. Completion of certificate requirements.

## Admissions requirements

This certificate program is primarily designed for M.P.H. degree or doctoral degree students whose focus is not maternal and child health; and is offered in conjunction with such programs. Health professionals who have completed a bachelor's degree (or equivalent) from an accredited college or university with a cumulative G.P.A. of 3.0 or higher may also be admitted into the program. Students from other schools and departments are encouraged to add a certificate in maternal and child health to their existing programs.

## Program requirements

### Required

HPRO 523	Maternal/Child Health: Policy and Programs	3
HPRO 556	High-Risk Infants and Children: Policy and Programs	3
HPRO 614	Seminar in Maternal and Child Health Practice	3
NUTR 534	Maternal and Child Nutrition	3
RELT 518	Adventist Heritage and Health	1
Total Units		13

### Normal time to complete the program

1 year based on less than full-time enrollment

## Master's degrees

The Master of Public Health (M.P.H.), Master of Business Administration (M.B.A.), and Master of Science (M.S.) degree programs are designed for those with appropriate backgrounds who are seeking to acquire graduate-level competencies in public health, health administration, nutrition, and biostatistics.

- Biostatistics – M.S. (<http://llucatalog.llu.edu/public-health/biostatistics>), M.P.H. (<http://llucatalog.llu.edu/public-health/biostatistics>) Comparison (p. 418)
- Environmental and Occupational Health – M.P.H. (p. 419)

- Epidemiology – M.P.H. (p. 420)
- Global Health – M.P.H. (p. 421)
- Health Care Administration – M.B.A. (p. 422)
- Health Education – M.P.H. (p. 424) (traditional, online), Comparison (p. 427)
- Health Policy and Leadership – M.P.H. (p. 428)
- Lifestyle Management – M.P.H. (p. 428) (online)
- Nutrition – M.P.H. (<http://llucatalog.llu.edu/public-health/nutrition>), M.S. (<http://llucatalog.llu.edu/public-health/nutrition>)
- Population Medicine – M.P.H. (p. 433) (traditional, online)

## Admissions

The admissions requirements described below are in addition to the University admissions requirements (p. 24) and program requirements. The minimum eligibility requirements for admission to a master's degree program include the following:

- a baccalaureate degree or equivalent from a regionally accredited institution, with a G.P.A. of 3.0 or above.
- satisfactory performance in the Graduate Record Examination (G.R.E.) or equivalent; scores must have been attained within the last five years. Other scores are acceptable. Please contact the admissions office for details.
- Applicant may be interviewed by program directors and/or faculty.
- Religious affiliation is not a requirement; but students are expected to adhere to on-campus requirements of modest dress, abstinence from alcohol and smoking, and attendance at weekly chapel.

Applicants must satisfy the program-specific admission requirements, including but not limited to pre-requisite courses, license requirements and years of experience. Admissions decisions are based on a review of applicant's transcripts, written statement, letters of recommendation, G.R.E. or equivalent scores, and interview (if necessary). **Satisfying minimum requirements does not guarantee admission.**

## M.P.H.

### Master of Public Health

The program leading to the Master of Public Health (M.P.H.) degree is designed to provide broad preparation in the fundamentals of public health, while at the same time offering opportunity for some specialization in areas of interest.

The degree is offered with major concentrations in the areas of biostatistics, environmental and occupational health, epidemiology, global health, health policy and leadership, health education, lifestyle medicine, maternal and child health, nutrition, and population medicine. Second major concentrations can be added in addition to the primary major.

### Public health core requirements

All graduate degree students in the School of Public Health are expected to develop an understanding of the areas of knowledge basic to public health. This is accomplished by completing the following integrated, interdisciplinary public health core courses:

PCOR 501	Public Health for Community Resilience	5
PCOR 502	Public Health for a Healthy Lifestyle	5
PCOR 503	Public Health and Health Systems	5

Students are expected to identify a specific area of concentration or major. They may opt to add additional course work leading to a second major or area of emphasis.

### Culminating experience

The Culminating Experience gives a common platform for students to demonstrate proficiency in the professional competencies required of public health practitioners. This non-course degree requirement is designed to enhance the student's professional communication skills by developing a professional presence and demonstrating proficiency in and service within the Public Health profession. This process involves collaboration with and mentoring by the program faculty advisor. The items selected for inclusion into the Culminating Experience will be developed into a professional portfolio with the intent to prepare the student for a job interview.

The student's advisor will be responsible to verify all content and evaluate using a rubric, with an acceptable score received on the portfolio prior to graduation.

- **Develop a Professional Presence** with a minimum of three (3) items, including but not limited to the following:
  - *Resume or Curriculum Vitae*, depending on the student's experience. This would be reviewed by the faculty advisor and/or the Writing Center for completeness.
  - *Professional social media site*. Examples include LinkedIn and Research Gate, depending on the student's career path. This will be reviewed by the program advisor for completeness.
  - *Student membership* to a public health-related professional organization (e.g., APHA, ACHE).
  - *Contributing to the public health knowledge* through the SPH's blog, website or other online media.
- **Demonstrate Proficiency and Service to the Profession** with a minimum of three (3) items, including but not limited to the following:
  - *Obtain the CPH credential*. This exam can be taken upon completion of the MPH core (PCOR 501, 502, 503 series).
  - *Complete community service*. A minimum number of 100 hours required for this to be counted. Opportunities are available, including CAPS, SACHS clinic, OPHP, Healthy People conference, SA activities and others. Proof of hours will be required.
  - *Submit an abstract to a professional conference*. This can be an individual or group effort. Faculty advisor must assist and mentor the student to be successful in completing this project.
  - *Deliver an oral presentation*. Examples include the field practicum presentation, a course project, a research project, or a work-based project. This presentation, open to all SPH students and faculty, must be 10-30 minutes in length, depending on the venue, and be evaluated by program faculty via standardized SPH rubric. The faculty advisor must mentor the student by reviewing their presentation, including a dry-run one week prior to the presentation date, to ensure high quality content and delivery.
  - *Prepare a manuscript*. The substance must cover a public health topic, such as the oral presentation, an abstract, a poster, a research project, a course project, or the field practicum project. The student will work with their faculty advisor to decide which journal to prepare the manuscript for submission, follow required formatting for submission for publication. Submission and acceptance of the manuscript are not a requirement for completion.



- *Other items*, such as submission of a grant, group projects, policy brief, research project, leadership role, awards and certificates of honors, personal statement of career goals or mission statement, etc. The goal is to capture other items that demonstrate competence or expertise in a particular area of Public Health.

### Field practicum

In accordance with Loma Linda University's mission—"To make man whole"—the School of Public Health provides students with rich experiences, as well as training opportunities that include all dimensions of health: physical, mental, spiritual, intellectual, and environmental. Part of this training occurs during the practice experience—which may be referred to as field practicum, applied research, or internship, depending on the department. It can be performed during one or more quarters and generally consists of 400 hours, but must be at least 100 hours. The practice experience at the School of Public Health is an opportunity for students to apply the knowledge they learn in the classroom, enhance their understanding of public health, and contribute to the health of the community in which they are engaged. The experience allows students to demonstrate their ability to synthesize and integrate prior learning into real-life, public health settings.

### Peace Corps Master's International Program/Master of Public Health

#### Peace Corps volunteers/International

The Peace Corps was established in 1961 to provide U.S. citizens an opportunity to serve their country in the cause of peace by living and working in developing countries. Over the years as the needs of host countries have evolved, the Peace Corps has continued striving to attract individuals whose education, experience, and cross-cultural sensitivity can address global needs as they arise; and who can facilitate sustainable, community-centered development. After identifying a number of areas in which there was a shortage of personnel with specialized expertise—including the area of public health—the Peace Corps established the Master's International Program in 1987. This program is designed not only to meet the increasing demand from Peace Corps host countries for volunteers with higher levels of education and technical expertise, but also to provide volunteers the opportunity to incorporate Peace Corps service into graduate education pursuits.

Loma Linda University is one of more than eighty universities currently participating in the Master's International Program. It is one of more than thirteen universities that offer this prestigious program in conjunction with the Master of Public Health degree, which includes global health emphasis.

Prospective students must be accepted both by Loma Linda University School of Public Health into the Master of Public Health degree program, and by the Peace Corps into the Master's International Program.

To join the Peace Corps, the applicant must be a U.S. citizen, at least 18 years of age, and in good physical health.

For information regarding additional eligibility criteria and the excellent benefits package (including language and cultural training, living and housing expenses in the field, medical and dental coverage, deferment of student loan repayment, transportation allowance to and from one's service assignment, vacation time and allowances, financial readjustment and allowance, and employment assistance postservice), contact the Peace Corps at 800/424-8580, ext. 1843; or Office of

University Programs at <<http://www.peacecorps.gov>>. Students can also contact the school's Peace Corps liaison at <[sphpcinfo@llu.edu](mailto:sphpcinfo@llu.edu)>.

After acceptance into the program, the student completes the course work on the Loma Linda campus.

When the academic course work has been completed, the student enters a three-month intensive language, technical, and cross-cultural training period in the assigned host country with Peace Corps. Upon completion of the training period, the student is then a full-fledged volunteer and begins the twenty-four month service period.

While on assignment, MIP/M.P.H. degree program students receive an internship or a field-practicum tuition scholarship.

Upon satisfactory completion of the Peace Corps assignment and the culminating activity report, the student is awarded the M.P.H. degree.

#### Peace Corps fellows/USA (community program)

Peace Corps fellows receive scholarships and full credit for Peace Corps service and are eligible for work-study and medical benefits. The University provides fellows (returned Peace Corps volunteers) with 6 units of tuition waiver. All master's-level students must complete a field practicum. Returned volunteers can use their service abroad to satisfy this requirement—a savings of time and money. Fellows will help coordinate community-based learning activities in the neighborhoods of San Bernardino, California. (Internship requires access to an automobile.) Specific responsibilities include assisting faculty in organizing projects and in helping to mentor students.

### Residencies for physicians

Residency training in the specialties of general preventive medicine and public health and in occupational medicine, as well as a combined residency in family and preventive medicine, are offered by the School of Public Health for qualified physicians. Both the residency training and the combined residency programs are accredited by the Accreditation Council for Graduate Medical Education (ACGME) and prepare residents for certification by the American Board of Preventive Medicine (ABPM). Both specialties require the successful completion of an accredited M.P.H. degree.

Those interested in applying to these training programs should contact the residency office by calling 909/ 558-4918 or by visiting the following web address: <<http://www.lluprevmedres.org>>.

#### Preventive medicine residency

The three-year program consists of an internship year followed by two years of integrated academic and practicum experiences. Two internship positions are offered through the National Residency Matching Program (NRMP) each year.

The program combines the academic and practicum experience over two years. During this time, residents will complete their M.P.H. degree and rotate at the community training sites. Practice sites include the Center for Health Promotion, the Jerry L. Pettis VA Medical Center, Kaiser Permanente Medical Center, San Bernardino County Department of Public Health, and the Inland Empire Health Plan.

Under the guidance of the residency and faculty members at the School of Public Health, each resident conducts a senior project on a topic of choice during the senior year.

### **Family and preventive medicine residency**

The Family and Preventive Medicine Residency Program combines curricular elements of a three-year family medicine residency and a three-year preventive medicine residency into an efficient training program of four years. During the first year, residents complete a family medicine internship but also set aside time to begin course work towards their Master of Public Health (M.P.H.) degree. The second year remains family medicine-centered but also includes a preventive medicine rotation and further M.P.H. degree course work. During the third and fourth years, there is an equal mix of family and preventive medicine rotations and M.P.H. degree course work, as well as elective time. The residency has strengths in global health and lifestyle medicine. Exposures to these areas occur in rotations, electives, M.P.H. degree classes, and senior research projects.

### **Occupational medicine residency**

Physicians who have completed an internship (PGY-1) year are eligible to apply for the two-year occupational medicine program, which involves an integrated academic and practicum phase. Residents select an M.P.H. degree major in environmental health and occupational health. If an accepted applicant has already completed an accredited degree with a major emphasis in an area other than environmental health, s/he will be required to take the following courses during the training: ENVH 589 Environmental Risk Assessment, ENVH 581 Principles of Industrial Hygiene, and ENVH 587 Environmental Toxicology.

The program emphasizes the clinical and applied aspects of occupational and environmental medicine. It focuses on the health of individuals and groups in relationship to work, hazards in the workplace, and environmental issues. The University takes special interest in the assessment of individual health hazards and the identification and promotion of practices that help to reduce risk and prevent or postpone disease and injury.

Under the guidance of the residency and faculty members of the School of Public Health, each resident completes a research project on a topic of choice during the senior year.

### **Addiction medicine fellowship**

The fellowship program provides addiction medicine experience and opportunities, and utilizes a wide range of evaluation and treatment settings. Fellows will be involved with treatment and education groups, lectures, and teaching of internal medicine residents, family practice residents, preventive medicine residents, and medical students.

Applicants must have successfully completed an accredited residency training program in any medical specialty and have a valid medical license in the state of California.

Fellows rotate at the following sites: Loma Linda University Behavioral Medicine Center, Betty Ford Center, and Kaiser-Fontana Chemical Dependency Recovery Program.

The start date for a one-year fellowship is July 1 of each year, though this is negotiable.

## **M.B.A.**

### **Master of Business Administration**

The program leading to the Master of Business Administration (M.B.A.) degree is designed to develop the management and administrative skills of those involved in the public and private health-care industries.

The Master of Business Administration (M.B.A.) degree provides a broad understanding of health-care management and hands-on experience in applying learned principles. The M.B.A. degree is designed for those whose professional objective is a career in health-care management. The residency period provides experience in a health-care organization. Graduates are prepared for careers at upper administrative levels in health-care organizations—including hospitals, public agencies, health-care networks, group practices, long-term care, and managed care.

## **M.S.**

### **Master of Science**

The Master of Science (M.S.) degree in biostatistics is a two-year curriculum that emphasizes statistical methods, data analysis, and computing; as well as some epidemiology methods. It is intended for health professionals and other professionals who want to add biostatistics to their competencies.

The Master of Science (M.S.) degree in nutrition is offered to meet the specific needs of those who desire advanced training in nutritional sciences. The Master of Science degree in nutrition has the following objectives:

1. To provide a basic science approach to understanding advanced areas in human nutrition.
2. To enhance research skills by developing or applying advanced laboratory techniques in human nutrition research.

More information about these areas of specialization can be found in the Biostatistics and Nutrition Program sections of this CATALOG.

## Biostatistics – M.P.H.

### Program directors

Khaled Bahjri  
David Shavlik

The M.P.H. degree curriculum in biostatistics includes courses in biostatistics, computer programming, and epidemiology. A research project is required, but not a thesis.

This degree curriculum is intended to prepare graduates for a career in public health, including the collection, management, analysis, and interpretation of health-related data.

### Learner outcomes

Upon completion of the M.P.H. degree curriculum in biostatistics, the graduate should be able to:

- Apply a wide range of contemporary statistical methods to health-related issues.
- Assist in design and implementation of research studies, including formulating research questions, appropriate study designs, sample size, sampling scheme, data-collection methods, and analyses.
- Critically review literature relevant to statistical methods and interpretation.
- Serve as statistical consultant to health professionals on research projects.

### Educational effectiveness indicators

Program learner outcomes as evidenced by:

- Signature assignments linked to course and noncourse requirements
- Field practicum report
- Culminating experience (p. 414)

### Prerequisite

In addition to the entrance requirements for all M.P.H. degrees (p. 414), applicants to the M.P.H. program in biostatistics must have:

- Calculus (one course)

### Program requirements

#### Public Health Core

PCOR 501	Public Health for Community Resilience	5
PCOR 502	Public Health for a Healthy Lifestyle	5
PCOR 503	Public Health and Health Systems	5

#### Major

EPDM 509	Principles of Epidemiology	3
EPDM 510	Epidemiologic Methods I	3
EPDM 515	Clinical Trials	3
STAT 521	Biostatistics I	4
STAT 522	Biostatistics II	4
STAT 523	Biostatistics III	4
STAT 525	Applied Multivariate Analysis	3
STAT 535	Modern Nonparametric Statistics	3
STAT 545	Survival Analysis	3
STAT 548	Analytical Applications of SAS	2

STAT 557	Research Data Management	3
STAT 564	Survey and Advanced Research Methods	3
STAT 569	Advanced Data Analysis	3
STAT 594	Statistical Consulting	2

#### Religion

RELE 534	Ethical Issues in Public Health (or REL_)	3
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#### Research

STAT 694A	Research	1
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#### Field experience

Practicum units are in addition to the minimum didactic units required for the degree

PHCJ 798A	Public Health Practicum (Minimum of 4 units/200 hours) or PHCJ 798 Public Health Practicum	
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Total Units		62
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### Noncourse requirements

#### EPDM/STAT forums

During their program, students are required to attend a minimum of fifteen forums in Epidemiology, Biostatistics, and/or in the Adventist Health Study.

#### Culminating experience

See standard culminating experience requirements (p. 414).<sup>1</sup>

<sup>1</sup> For two of the three options (Demonstrating Proficiency and Service to the Profession), students in the Biostatistics MPH program will be required to deliver an oral presentation and prepare a manuscript.

### Normal time to complete the program

2 years (7 academic quarters) based on less than full-time enrollment

## Biostatistics – M.S.

### Program directors

Khaled Bahjri  
David Shavlik

The Master of Science (M.S.) degree in biostatistics is a two-year curriculum that emphasizes statistical methods, data analysis, and computing; as well as some epidemiology methods. It is intended for health professionals and for other professionals who want to add biostatistics to their competencies. Another target group consists of persons with a quantitative background (engineering, mathematics, physics) who want to become statisticians. The M.S. degree in biostatistics also prepares students to pursue Ph.D. degrees in biostatistics and epidemiology. The degree trains persons for collaborative research endeavors across disciplines (health-care industry, insurance, and most other disciplines in which research and statistics are an integral part of the collaboration). A publishable format thesis is required. Students work with faculty as research associates during their training.

### Learner outcomes

Upon completion of the M.S. degree curriculum in biostatistics, the graduate should be able to:

- Apply appropriate statistical theory and methods to the solution of applied statistical problems.

- Design and implement a research study, including formulating research questions, appropriate study designs, sample size, sampling scheme, data-collection methods, and analyses.
- Critically review literature relevant to statistical methods and interpretation of statistical findings, and identify strengths and weaknesses of design.
- Serve as statistical consultant and collaborator with health professionals on research projects, communicate the results of analyses, and write the statistical methods and results sections of a research paper.
- Select appropriate statistical methods to analyze data and establish and manage databases using current computer software (e.g., SAS, R, SPLUS, and SPSS).

## Educational effectiveness indicators

- Midterm and final examinations
- Thesis completion
- Written and oral presentation and defense of thesis
- Course evaluation

## Prerequisite

- Calculus (one course)
- Linear algebra (one course)
- Probability and statistics (two courses)

## Degree requirements

Public Health		
PHCJ 606	Public Health Fundamentals	3
Major		
EPDM 509	Principles of Epidemiology	3
EPDM 510	Epidemiologic Methods I	3
EPDM 515	Clinical Trials	3
STAT 521	Biostatistics I	4
STAT 522	Biostatistics II	4
STAT 523	Biostatistics III	4
STAT 525	Applied Multivariate Analysis	3
STAT 535	Modern Nonparametric Statistics	3
STAT 545	Survival Analysis	3
STAT 548	Analytical Applications of SAS	2
STAT 557	Research Data Management	3
STAT 564	Survey and Advanced Research Methods	3
STAT 569	Advanced Data Analysis	3
STAT 594	Statistical Consulting	2
Religion		
RELE 534	Ethical Issues in Public Health (or REL_)	3
Thesis		
STAT 695	Thesis	4
Total Units		53

## Noncourse requirements

### EPDM/STAT forums

During their program, students are required to attend a minimum of fifteen forums in Epidemiology, Biostatistics, and/or in the Adventist Health Study.

## Culminating activity

The culminating activity includes a research thesis, with a written publishable paper and oral presentation; professional portfolio; and an exit interview with the program director.

## Normal time to complete the program

1.66 years (6 academic quarters) based on full-time enrollment; part time permitted

## Biostatistics – M.S., M.P.H. Comparison

	Course Title	MPH	MS
Public Health			
PCOR 501	Public Health for Community Resilience	5.0	
PCOR 502	Public Health for a Healthy Lifestyle	5.0	
PCOR 503	Public Health and Health Systems	5.0	
PHCJ 606	Public Health Fundamentals		3.0
Totals		15.0	3.0
	Course Title	MPH	MS
Major			
EPDM 509	Principles of Epidemiology	3.0	3.0
STAT 521	Biostatistics I	4.0	4.0
EPDM 510	Epidemiologic Methods I	3.0	3.0
EPDM 515	Clinical Trials	3.0	3.0
STAT 522	Biostatistics II	4.0	4.0
STAT 523	Biostatistics III	4.0	4.0
STAT 525	Applied Multivariate Analysis	3.0	3.0
STAT 535	Modern Nonparametric Statistics	3.0	3.0
STAT 545	Survival Analysis	3.0	3.0
STAT 548	Analytical Applications of SAS	2.0	2.0
STAT 557	Research Data Management	3.0	3.0
STAT 564	Survey and Advanced Research Methods	3.0	3.0
STAT 569	Advanced Data Analysis	3.0	3.0
STAT 594	Statistical Consulting	2.0	2.0
Totals		43.0	43.0
	Course Title	MPH	MS
Religion			
RELE 534	Ethical Issues in Public Health (or REL_)	3.0	3.0
Totals		3.0	3.0
	Course Title	MPH	MS
Research			
STAT 694A	Research	1.0	
Totals		1.0	
	Course Title	MPH	MS
Thesis			
STAT 695	Thesis		4.0
Totals			4.0
Overall Totals		62.0	53.0

Course Title	MPH	MS
<b>Field experience</b>		
PHCJ 798B or Public Health Practicum (400 798A hours) <sup>1</sup>		4.0
<b>Totals</b>		4.0

<sup>1</sup> Practicum units are in addition to the minimum didactic units required for the degree.

## Environmental and Occupational Health – M.P.H.

### Program director

Robin Smith

The M.P.H. degree curriculum in environmental and occupational health is designed for individuals with professional practitioner career objectives in the area of environmental and occupational health. It helps prepare them to meet the growing employment market for environmental health specialists, industrial hygienists, geographic information system specialists, and other professions that examine human-environment interactions. Students who complete this curriculum will acquire the professional and scientific skills to perform as environmental quality control professionals in local, state, or federal government health departments/agencies; and in private business/industry. The program has been approved by the State of California Environmental Health Specialist Registration Committee (<http://www.cdph.ca.gov/certlic/occupations/Pages/REHS.aspx>), 1616 Capitol Avenue, Building 174–2nd floor, Sacramento, CA 95899. Satisfactory completion of this curriculum meets, in part, the eligibility requirements to sit for the registered environmental health specialist (REHS) examination administered by the California Department of Public Health. Satisfactory performance on the examination qualifies individuals for practice as registered environmental health specialists in California and, by reciprocity, in the forty-nine remaining states. Admission into the M.P.H degree curriculum is considered for individuals with a solid science background.

### Learner outcomes

Upon completion of the degree, the graduate should be able to:

- Analyze sources, pathways, and routes of exposure to environmental and occupational contaminants and determine populations with high risk; and outline mitigation strategies.
- Assess and evaluate environmental and occupational hazards pertaining to air, water, food, and soil in communities both locally and globally; and design innovative techniques and devices to improve standard of living and quality of life.
- Apply risk assessment and risk management concepts to develop effective guidelines and policies to mitigate and manage environmental and occupational hazards and to improve human health outcomes.

### Educational effectiveness indicators

Program learner outcomes as evidenced by:

- Signature assignments linked to course and noncourse requirements
- Field practicum report
- Culminating experience (p. 414)

### Prerequisites

In addition to the entrance requirements for all M.P.H. degrees (p. 414), applicants to the M.P.H. degree program in environmental and occupational health must have:

- Biological science with laboratory (one year)
- General chemistry with laboratory (one year)
- General physics with laboratory (one year)
- Calculus or college algebra (one course)
- Organic chemistry with laboratory (minimum of two-quarter sequence)

### Corequisite

- General microbiology with laboratory (one course), taken during the first two quarters of the program

### Program requirements

#### Public health core

PCOR 501	Public Health for Community Resilience	5
PCOR 502	Public Health for a Healthy Lifestyle	5
PCOR 503	Public Health and Health Systems	5

#### Major

ENVH 515	Food Quality Assurance	3
ENVH 567	Hazardous Materials and Solid-waste Management	3
or ENVH 586	Environmental Health Administration	
ENVH 568	Water Quality Assurance	3
ENVH 569	Environmental Sampling and Analysis	4
ENVH 581	Principles of Industrial Hygiene	3
ENVH 587	Environmental Toxicology	3
ENVH 589	Environmental Risk Assessment	3
ENVH 605	Seminar in Environmental and Occupational Health	1
ENVH 566	Outdoor Air Quality and Human Health	3
or ENVH 575	Indoor Air Quality	

#### Religion

RELE 534	Ethical Issues in Public Health (or REL_)	3
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<b>Cognates/Electives</b> <sup>1</sup>		12
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#### Field experience

Practicum units are in addition to the minimum didactic units required for the degree

PHCJ 798D	Public Health Practicum (Minimum of 8 units/400 hours)	
	or PHCJ 798 Public Health Practicum	
	or PHCJ 798 Public Health Practicum	
	or PHCJ 798 Public Health Practicum	

<b>Total Units</b>		56
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<sup>1</sup> Choose from defined cognates (p. 410) or select from electives, in consultation with advisor.

### Culminating Experience

In addition to standard culminating experience requirements (p. 414), all environmental and occupational health students must satisfactorily complete a comprehensive examination prior to graduation. The examination will allow students to demonstrate their ability to integrate

and apply skills and knowledge expected of master's-level environmental health practitioners.

## Normal time to complete the program

1.5 years (9 academic quarters) based on full-time enrollment; part time permitted

# Epidemiology – M.P.H.

## Program director

David Shavlik

The program leading to an M.P.H. degree in epidemiology provides theoretical and practical training applicable to a variety of public health issues. Two concentrations are offered by the program, and each is designed to meet a particular professional need.

## Learner outcomes

Upon completion of this program, the graduate should be able to:

- Assist in design and implementation of health research studies—including formulating research questions, determining appropriate study design, data collection, statistical analyses, data interpretation, and reporting of results.
- Collaborate with or serve as a research consultant to health professionals.
- Be familiar with disease surveillance and response, and with basic screening theory.
- Critically review the health literature.
- Experience contemporary advancements in epidemiologic methods (research epidemiology).
- Demonstrate understanding of the basic theory and practice of clinical trials (medical epidemiology).

## Educational effectiveness indicators

Program learner outcomes as evidenced by:

- Signature assignments linked to course and noncourse requirements
- Field practicum report
- Culminating experience (p. 414)

## Prerequisite

In addition to the entrance requirements for all M.P.H. degrees (p. 414), applicants to the M.P.H. degree program in epidemiology must have:

- College algebra or equivalent (calculus preferred)
- Additional prerequisites specific to chosen concentration

## Concentrations

### Medical epidemiology

The M.P.H. degree in medical epidemiology specifically targets health professionals (e.g., M.D., nurses, P.T., O.T., pharmacists) who are interested in becoming proficient in research or in practicing epidemiology in a public health setting (e.g., public health department, CDC, cancer registries, WHO) or clinical setting (hospital epidemiologists).

### Concentration-specific prerequisite in addition to prerequisites required for the degree

- A health-care-related degree
- Bachelor's degree or master's degree with two years of postgraduate direct patient-care experience: (e.g., nursing, social work, dental hygiene, physical therapy, occupational therapy, psychology)
- Accepted into or completed clinical practice-related doctoral degree program: (e.g., M.D., D.O., D.D.S., D.N.P., D.P.T., Pharm.D.). Must have completed at least two years in a clinical program.

### Research epidemiology

Research epidemiology is designed for persons interested in a career studying the relationship of risk factors to a variety of disease outcomes (e.g., the effect of nutrients, inactivity, stress, high blood pressure, environmental exposure, obesity, heart disease, cancer, osteoporosis, longevity, infectious diseases, reproductive outcomes, etc.).

### Concentration-specific prerequisites in addition to prerequisites required for the degree

- Three semester or four quarter undergraduate courses in the biological sciences

## Program requirements

### Medical epidemiology concentration

#### Public health core

PCOR 501	Public Health for Community Resilience	5
PCOR 502	Public Health for a Healthy Lifestyle	5
PCOR 503	Public Health and Health Systems	5

#### Major

EPDM 509	Principles of Epidemiology	3
EPDM 510	Epidemiologic Methods I	3
EPDM 511	Epidemiologic Methods II	3
EPDM 512	Epidemiologic Methods III	3
EPDM 515	Clinical Trials	3
EPDM 635A	Epidemiological Studies of Seventh-day Adventists A	1

STAT 515	Grant- and Contract-Proposal Writing	3
STAT 521	Biostatistics I	4
STAT 522	Biostatistics II	4
STAT 548	Analytical Applications of SAS	2
STAT 564	Survey and Advanced Research Methods	3
EPDM 565	Epidemiology of Cancer	3
or EPDM 566	Epidemiology of Cardiovascular Disease	

#### Religion

RELE 534	Ethical Issues in Public Health (or REL_)	3
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#### Electives

EPDM 5__	Epidemiology Elective <sup>1</sup>	3
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#### Research project

EPDM 699A	Applied Research	1
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Total Units		57
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#### Field experience

Practicum units are in addition to the minimum didactic units required for the degree

PHCJ 798A	Public Health Practicum (100 hours)	2
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<sup>1</sup> Chosen in consultation with advisor

## Research epidemiology concentration

### Public health core

PCOR 501	Public Health for Community Resilience	5
PCOR 502	Public Health for a Healthy Lifestyle	5
PCOR 503	Public Health and Health Systems	5

### Major

EPDM 509	Principles of Epidemiology	3
EPDM 510	Epidemiologic Methods I	3
EPDM 511	Epidemiologic Methods II	3
EPDM 512	Epidemiologic Methods III	3
STAT 515	Grant- and Contract-Proposal Writing	3
STAT 521	Biostatistics I	4
STAT 522	Biostatistics II	4
STAT 548	Analytical Applications of SAS	2
STAT 557	Research Data Management	3
STAT 564	Survey and Advanced Research Methods	3
EPDM 565	Epidemiology of Cancer	3
or EPDM 566	Epidemiology of Cardiovascular Disease	
EPDM 515	Clinical Trials	3
or EPDM 555	Epidemiologic Methods in Outcomes Research and Continuous Quality Improvement	

### Religion

RELE 534	Ethical Issues in Public Health (or REL_)	3
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### Cognates/Electives

Choose from defined cognates or select from electives

EPDM 5__	Epidemiology Elective <sup>1</sup>	6
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### Research project

EPDM 699A	Applied Research	1
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Total Units 62

### Field experience

Practicum units are in addition to the minimum didactic units required for the degree

PHCJ 798B	Public Health Practicum (200 hours)	4
or PHCJ 798A	Public Health Practicum	

<sup>1</sup> Chosen in consultation with advisor

## EPDM/STAT forums

During their program, students are required to attend a minimum of fifteen forums in epidemiology, biostatistics, and/or in the Adventist Health Study.

## Culminating experience

See standard culminating experience requirements (p. 414).\*

\* For two of the three options (Demonstrating Proficiency and Service to the Profession), students in the Epidemiology MPH program will be required to deliver an oral presentation and prepare a manuscript.

## Normal time to complete the program

Medical Epidemiology concentration — 2 years (8 academic quarters) based on full-time enrollment; part time permitted

Research Epidemiology concentration — 2.33 years (9 academic quarters) based on full-time enrollment; part time permitted

## Global Health – M.P.H.

### Program director

Donn Gaede

## Program description

The M.P.H. degree in global health prepares committed professionals who are both technically competent and cross-culturally skilled in creating and facilitating sustainable health and development programs in diverse settings and populations. Utilizing an experiential, evidence-based model of learning while building on the global health competencies defined in the model developed by the Association of Schools and Programs of Public Health in 2011, the program enables graduates to contribute to a better quality of life for all people—especially those who are vulnerable, underserved, marginalized, and disadvantaged. The program's extensive network of global and local faculty and organizational resources affords a broad spectrum of options for students to learn and practice the "art and science" of this exciting discipline.

The program prepares career professionals who work in the nonprofit, relief, or development sectors. Graduates of the program may qualify for positions in nongovernmental, faith-based, and community-based organizations; county, state, and national health departments; private foundations; and public health enterprises and public health practice organizations. Graduates also find positions in government and transnational organizations, such as the World Health Organization, UNICEF, the World Bank, Centers for Disease Control and Prevention (CDC); and national assistance organizations like the United States Agency for International Development (USAID). Further academic training is also an option for graduates interested in teaching and research. Those with prior field experience and additional language/s proficiency (for example, French or Spanish) are generally given preference both during student admission and later when applying for jobs.

Utilizing an experiential approach, the competency-based curriculum is built around three primary themes:

- developing and maintaining a sustainable, healthy environment;
- supporting and empowering communities, families, and individuals in their efforts to attain optimal health and development;
- advocating for social justice, human rights, and equity among vulnerable populations.

The program is designed around three learning domains that enable graduates to have:

- a broad, comprehensive knowledge base or theoretical framework covering the major concepts and key issues in global health;
- appropriate competencies and skill sets (for example, in program planning/evaluation, grant proposal preparation, communication and informatics, research, advocacy, leadership, etc.);
- a Christian, faith-based worldview that informs activities in the practice environment.

## Learner outcomes

Graduates are expected to apply cross-cultural skills and demonstrate technical competence in:

- capacity strengthening for enhancement of global public health programs, infrastructure, and workforce.
- collaborating and partnering with the ability to select, recruit, and work with a diverse range of global health stakeholders.
- ethical reasoning and professional practice with the ability to identify and respond with integrity to ethical issues in diverse economic, political, and cultural contexts, and promote accountability for the impact of policy decisions upon public health practice at local, national, and international levels.
- advocating for justice, equity (including gender equity), human rights, and universal access to health and social services that contribute to individual and community well-being.
- program management with the ability to design, implement, and evaluate global health programs to maximize contributions to effective policy, enhanced practice, and improved and sustainable health outcomes.
- sociocultural and political awareness and the conceptual basis with which to work effectively within diverse cultural settings and across local, regional, national, and international political landscapes,
- strategic analysis, with the ability to use systems thinking to analyze a diverse range of complex and interrelated factors shaping health trends in order to formulate programs at the local, national, and international levels.

## Educational effectiveness indicators

Program learner outcomes as evidenced by:

- Signature assignments linked to course and noncourse requirements
- Field practicum report
- Culminating experience (p. 414)

## Prerequisite\*

See entrance requirements for all M.P.H. degrees (p. 414).

## Program requirements

### Public health core

PCOR 501	Public Health for Community Resilience	5
PCOR 502	Public Health for a Healthy Lifestyle	5
PCOR 503	Public Health and Health Systems	5

### Major

GLBH 545	Integrated Community Development <sup>1</sup>	4
GLBH 564	Fundamentals of Community Health and Development I	2
GLBH 565	Interventions in Community Health and Development I	3
GLBH 566	Fundamentals of Community Health and Development II	2
GLBH 567	Interventions in Community Health and Development II	3
GLBH 568	Fundamentals of Community Health and Development III	2
GLBH 569	Interventions in Community Health and Development III	3
GLBH 605	Seminar in Global Health	1
STAT 515	Grant- and Contract-Proposal Writing	3

### Religion

RELE 534	Ethical Issues in Public Health (or REL_)	3
<b>Cognates/Electives <sup>2</sup></b>		15
Total Units		56

### Practicum

Practicum units are in addition to the minimum graduate units required for the degree

Choose one option

#### Option 1

PHCJ 798D	Public Health Practicum ((Minimum of 8 units/400 hours))	8
or PHCJ 798A	Public Health Practicum	
or PHCJ 798B	Public Health Practicum	
or PHCJ 798C	Public Health Practicum	

#### Option 2

GLBH 797	MIP Residency in Global Health	12
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<sup>1</sup> This field-based course involves international travel and fulfillment of required prerequisites. A separate laboratory fee must be paid at the time of registration into this course (subject to change, if needed).

<sup>2</sup> Choose from defined cognates (p. 410) or select from electives, in consultation with advisor.

## Culminating experience

See standard culminating experience requirements (p. 414).

## Normal time to complete the program

2.33 years (9 academic quarters) based on full-time enrollment; part time permitted

# Health Care Administration – M.B.A.

### Program director

Elisa J. Blethen

## Description

The School of Public Health offers a Master of Business Administration (M.B.A.) degree in health-care administration. The degree provides students with a broad understanding of health-care management in line with appropriate and relevant industry-leading competencies. In addition, students will engage in practical experience to apply the principles learned through an 800-hour practicum in the health sector. Graduates are prepared for administrative careers in health service organizations—including medical centers, health plans, physician groups and dental practices, and long-term and managed-care settings, among others.

This degree program provides students with the knowledge, skills, and practice necessary to further their administrative careers in the health-care sector.

Health professionals who are currently employed and have at least five years of professional work experience in health-care administration are eligible to apply for a waiver of up to 9 units, as well as a portion of practicum hours, as specified, of the M.B.A. degree program.

## Learner outcomes

Upon completion of this degree, the student should be able to:

- Understand the health-care environment.



- Demonstrate leadership skills and accountability aptitude.
- Integrate strategic awareness and innovative thinking.
- Demonstrate business management skills and stewardship principles.
- Demonstrate public health policy and global awareness.

- Field practicum report
- Culminating experience

## Vision statement

The M.B.A. degree program in the School of Public Health aims to be globally recognized as a provider of excellent, quality health-care management education with an emphasis on service, using a values-based approach to confront health-care issues. Students will be prepared to confront and solve complex problems in health-care delivery using evidence-based analytics, theory, and practice.

## Mission statement

The mission of the M.B.A. degree program in the School of Public Health is to provide quality education to new and midcareer professionals locally, nationally, and globally who are interested in health-care management. The program fully integrates a health-care perspective in all course work, which is guided by theoretical frameworks, scholarship, and informed practice. Faculty practice holistic Christian principles and seek to develop students into conscientious and ethical leaders who will integrate innovative solutions to health-care challenges.

## Values

In addition to the seven values held by Loma Linda University, the M.B.A. degree program also upholds the following:

*Professionalism*—The demonstration of ethics, sound professional practice, social accountability, and community stewardship. The desire to act in a way that is consistent with one's values and what one says is important.

*Initiative*—Identifying a problem, obstacle, or opportunity; and taking action in light of this identification to address current or future problems or opportunities. Initiative should be seen in the context of proactively doing things and not simply thinking about future actions.

*Collaboration*—The ability to work cooperatively with others, to be part of a team. Collaboration applies when a person is a member of a group of people functioning as a team.

*Accountability*—The ability to hold people accountable to standards of performance or to ensure compliance using the power of one's position or force of personality appropriately and effectively, with the long-term good of the organization in mind.

## Educational effectiveness

Educational effectiveness will be determined by papers, presentations, experiential exercises, tests, field practicum projects/papers, and an exit interview. There will also be a competency inventory survey conducted two times during the student's program of study at Loma Linda University—upon starting the M.B.A. degree program and at the end upon completion of all classes and the practicum experience.

## Educational effectiveness indicators

Program learner outcomes as evidenced by:

- Signature assignments linked to course requirements and program learning outcomes

## Prerequisites

The following undergraduate-level courses are required and may be taken as a MOOC or other online course where a certificate is received.

- Micro-economics (one course)
- Accounting (one course)

## Health-care administration practicum

The practicum is a supervised work experience for emerging administrative health-care professionals in a Master of Business Administration (MBA) degree program. Students from this program will engage in an 800-hour project in a health-care setting—such as a hospital, long-term care facility, or community clinic. The purpose of the practicum is to provide students with the opportunity to apply academic learning in an interdisciplinary environment and to integrate public health concepts and skills from their program of study. The depth and breadth of the experience varies by site location and project availability. This is done in the context of carefully planned and implemented field-based experience in a real world setting. The practicum is participatory in nature rather than observational, and is designed to address students' program competencies and career interests while also making contributions to the placement site/organization.

While these hours will be spent at the organization, the student's work will be guided and evaluated through the Student Practicum Course on Canvas/LiveText. The units for which the student will need to register will vary according to the hours that will be completed that quarter. The practicum coordinator will work closely with students and their mentors in monitoring student progress. Students will present their experiences to the program faculty and students in final papers and oral presentations.

The practicum experience may not be required of students who have five years of health-care administration experience. In order to potentially reduce or waive the practicum hours, students with five years or more of experience will complete a competency inventory assessment to demonstrate their experience. Students enrolled in a professional clinical program who are also enrolled in the M.B.A degree program are required to complete 400 hours in their practicum since their clinical education is counted as exposure to practical and professional development.

## Individuals who may benefit from the program

Individuals interested in administrative careers in health service organizations—including hospitals, health plans, physician groups and dental practices, and long-term and managed care settings, among others.

## Program requirements

### Public health core

HADM 505	Managerial Statistics and Epidemiology for Healthcare	4
PHCJ 606	Public Health Fundamentals	3

### Major

HADM 506	Principles of Health-Care Finance	3
HADM 507	Principles of Accounting in Health Care	3

HADM 514	Health-Care Economics	3
HADM 528	Organizational Behavior in Health Care	3
HADM 529	Health-Care Negotiations and Conflict Resolution	3
HADM 534	Health-Care Law	3
HADM 542	Managerial Accounting for Health-Care Organizations	3
HADM 555	Health-Care Delivery Systems	4
HADM 559	Health-Care Marketing	3
HADM 564	Health-Care Finance	3
HADM 574	Managing Human Resources in Health-Care Organizations	3
HADM 575	Management Information Systems in Health Care	3
HADM 601	Health Systems-Operations Management	3
HADM 604	Health Systems Strategic Planning	3
HADM 605	Health-Care Quality Management	3
HADM 690	Health-Care Management Capstone	3
<b>Religion</b>		
RELE 535	Ethical Issues in Health-Care Management	3
<b>Electives</b> <sup>1</sup>		
		3
Total Units		62

**Practicum**

Practicum units are in addition to the minimum didactic units required for the degree

HADM 724A	Health-Care Administration Practicum (Total of 16 units/800 hours)	16
or HADM 724B Health-Care Administration Practicum		
or HADM 724C Health-Care Administration Practicum		
or HADM 724D Health-Care Administration Practicum		

<sup>1</sup> Choose a course in consultation with advisor

**Noncourse requirements**

*Culminating experience.* The M.B.A. degree student is required to produce a final report at the end of the HCAP experience and to present the findings at a formal presentation arranged as part of the grade for the practicum course. They will also complete a final project and portfolio as part of the Integrated Capstone (HADM 690 Health-Care Management Capstone).

*Professional membership.* During their first quarter, students are required to secure and maintain membership in the American College of Healthcare Executives (ACHE) for the duration of the M.B.A. degree program.

*Colloquia.* Participation in ten hours of noncredit colloquia designed to acquaint students with various aspects of the health-care industry is required of all students.

*Exit interview and survey.* Students are required to fill out an exit survey and attend an exit interview with the M.B.A. degree program director or faculty representative at the conclusion of the program. They will also complete a competency inventory survey at the conclusion of the program.

**Normal time to complete the program**

2 years (7 academic quarters) based on full-time enrollment; part time permitted

**Health Education – M.P.H.****Program director**

Anna Nelson

The number of required courses for the Master of Public Health (M.P.H.) degree programs is based on the core public health and health education competencies, selected major area of emphasis, and elective course work. The number of required units, culminating activity requirement, and length of field practicum are specified upon acceptance. The student develops an appropriate program plan in consultation with his/her faculty advisor.

**Program formats**

Course work for the health education program may be pursued in the following formats:

- a traditional, on-campus program
- an online program

The health education major focuses on educational, interpersonal, community, and legislative factors that promote positive health behaviors. The curriculum emphasizes interventions based on scientific data and established behavioral and learning theories that promote public health through the processes of education and community organization.

Students who complete the curriculum may function as community health educators in a variety of public and private settings. They are academically prepared to conduct community assessments; design, implement, and evaluate health education interventions; organize health promotion efforts; and assist individuals and communities to better utilize techniques of health behavior change.

Students select course work from each of several practice and content areas to enhance the applied portion of the curriculum. Professional practice is addressed during the laboratory and field experience portions of the curriculum. Students may develop skills while working in community agencies and in health-care, school, and work/site settings.

Graduates are eligible to sit for the credentialing examination in health education—certified health education specialist (CHES) or MCHES—offered by the National Commission for Health Education Credentialing, Inc., <http://www.nchec.org/>.

**Learner outcomes**

Graduates of the program with a major in health education will have the skills necessary to:

- Design, develop, implement, market, and evaluate health promotion and education programs utilizing principles from human learning motivation, communication, organizational behavior, and health behavior changes.
- Collaborate with other professionals in using resources to educate the public about health.
- Evaluate and appropriately apply public health research findings to the practice of health education.

- Provide leadership or technical assistance for public health projects in selected settings.
- Meet didactic and professional practice requirements for certification as health education specialists.

## Educational effectiveness indicators

Program learner outcomes as evidenced by:

- Signature assignments linked to course and noncourse requirements
- Field practicum report
- Culminating experience (p. 414)

## Prerequisite

- Behavioral science (two courses, one of which is an introductory psychology course)

## Web site information

For more information, please see our Web site at <llu.edu/public-health/online>.

## Program requirements

### On Campus

#### Public health core

PCOR 501	Public Health for Community Resilience	5
PCOR 502	Public Health for a Healthy Lifestyle	5
PCOR 503	Public Health and Health Systems	5

#### Major

HPRO 524	Child and Adolescent Health	3
HPRO 530	Fundamentals of Research in Health Behavior and Health Education	3
HPRO 535	Health Education Administration and Leadership	3
HPRO 537A	Community Programs Laboratory—A <sup>1,5</sup>	2
HPRO 537B	Community Programs Laboratory—B <sup>2,5</sup>	2
HPRO 537C	Community Programs Laboratory—C <sup>5</sup>	1
HPRO 538	Health Education Program Development and Evaluation <sup>2</sup>	3
HPRO 539	Policy and Issues in Health Education	3
HPRO 589	Qualitative Research Methods <sup>1</sup>	3
STAT 515	Grant- and Contract-Proposal Writing	3

#### Religion

RELE 534	Ethical Issues in Public Health (or REL_)	3
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<b>Cognate/Electives<sup>3</sup></b>		12
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Total Units		56
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#### Field experience

Practicum units are in addition to the minimum didactic units required for the degree

PHCJ 798D	Public Health Practicum (400 hours) <sup>4</sup>	8
	or PHCJ 798A Public Health Practicum	
	or PHCJ 798B Public Health Practicum	
	or PHCJ 798C Public Health Practicum	

<sup>1</sup> HPRO 537A and HPRO 589 to be taken concurrently.

<sup>2</sup> HPRO 537B and HPRO 538 to be taken concurrently.

<sup>3</sup> Choose from defined cognates (p. 410) or select from electives in consultation with advisor. At the discretion of the program director, a student may be required to take a graduate level writing course. This course would count towards the elective units.

<sup>4</sup> Returning peace corps fellows may receive advanced standing for the practicum and need to present a written report.

<sup>5</sup> HPRO 537 A, B, and C must be taken during the same year

## Online

### Corequisites

PHCJ 501	Introduction to On-line Learning	1
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### Public health core

PCOR 501	Public Health for Community Resilience	5
PCOR 502	Public Health for a Healthy Lifestyle	5
PCOR 503	Public Health and Health Systems	5

### Major

HPRO 524	Child and Adolescent Health	3
HPRO 530	Fundamentals of Research in Health Behavior and Health Education	3
HPRO 535	Health Education Administration and Leadership	3
HPRO 538	Health Education Program Development and Evaluation	3

HPRO 539	Policy and Issues in Health Education	3
HPRO 589	Qualitative Research Methods	3
HPRO 696	Directed Study/Special Project	4
AHCJ 519	Graduate Wholeness Portfolio <sup>3</sup>	1
STAT 515	Grant- and Contract-Proposal Writing	3

### Religion

RELE 534	Ethical Issues in Public Health (or REL_)	3
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<b>Cognates/Electives<sup>1</sup></b>		12
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Total Units		56
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### Field experience

Practicum units are in addition to the minimum didactic units required for the degree

PHCJ 798D	Public Health Practicum (400 hours) <sup>2</sup>	8
	or PHCJ 798A Public Health Practicum	
	or PHCJ 798B Public Health Practicum	
	or PHCJ 798C Public Health Practicum	

<sup>1</sup> Choose from defined cognates (p. 410) or select from electives in consultation with advisor. At the discretion of the program director, a student may be required to take a graduate level writing course. This course would count towards the elective units.

<sup>2</sup> Returning peace corps fellows may receive advanced standing for the practicum and need to present a written report.

<sup>3</sup> Students will register for 0 units for autumn, winter, and spring quarters. Students will register for 1 unit in summer.

## Culminating experience

In addition to the standard culminating experience requirements (p. 414), students in the Health Education MPH program will be required to sit for the CHES exam.

### **Normal time to complete the program**

2.33 years (9 academic quarters) based on less than full-time enrollment

### **Comparison**

See the comparison (p. 427) of the On Campus and Online tracks of this program.

## Health Education M.P.H. – On Campus, Online Comparison

	Course Title	On Campus	Online
<b>Corequisite</b>			
PHCJ 501	Introduction to On-line Learning		1.0
Totals			
	Course Title	On Campus	Online
<b>Public Health Core</b>			
PCOR 501	Public Health for Community Resilience	5.0	5.0
PCOR 502	Public Health for a Healthy Lifestyle	5.0	5.0
PCOR 503	Public Health and Health Systems	5.0	5.0
Totals		15.0	15.0
	Course Title	On Campus	Online
<b>Major</b>			
AHCJ 519	Graduate Wholeness Portfolio		1.0
HPRO 696	Directed Study/Special Project		4.0
HPRO 524	Child and Adolescent Health	3.0	3.0
HPRO 530	Fundamentals of Research in Health Behavior and Health Education	3.0	3.0
HPRO 535	Health Education Administration and Leadership	3.0	3.0
HPRO 538	Health Education Program Development and Evaluation (taken concurrently with HPRO 537B)	3.0	3.0
HPRO 539	Policy and Issues in Health Education	3.0	3.0
HPRO 553	Addiction Theory and Program Development	3.0	3.0
HPRO 589	Qualitative Research Methods (taken concurrently with HPRO 537A)	3.0	3.0
HPRO 537A	Community Programs Laboratory—A	2.0	
HPRO 537B	Community Programs Laboratory—B	2.0	
HPRO 537C	Community Programs Laboratory—C	1.0	
Totals		26.0	26.0
	Course Title	On Campus	Online
<b>Religion</b>			
RELE 534	Ethical Issues in Public Health (or REL_)	3.0	3.0
Totals		3.0	3.0
	Course Title	On Campus	Online
<b>Selected Electives</b>			
Cognates/Electives <sup>1</sup>		12.0	12.0
Totals		12.0	12.0
	Course Title	On Campus	Online
<b>Field experience</b>			
Practicum units are in addition to the minimum didactic units required for the degree			
PHCJ 798A, 798B, 798C, Public Health Practicum (4-8 units/200-400 hours) or 798D			
Totals			

<sup>1</sup> Choose from defined cognates (p. 410) or select from electives, in consultation with advisor.

## Health Policy and Leadership – M.P.H.

**Program director**  
Jim Banta

The Master of Public Health (M.P.H.) degree in health policy and leadership attracts students who have a strong desire to address the social determinants of health and the complex organizational and policy challenges characteristic of current health systems. Students are trained in health policy analysis and development, communication, advocacy, and civil engagement; as well as health organization management and leadership, economics, negotiation, and strategic planning. Our students

are prepared for a broad array of careers at the intersection of health, health policy, management, and public health. Graduates work in health and public health agencies at the local, state, federal, and international levels, community organizations, advocacy organizations, and health-care organizations—including hospitals, health clinics, and medical groups. Students have the unique advantage of studying in an institution that is part of a health system with more than 80 hospitals across the United States and hospitals in more than 21 countries on 6 continents.

## Learner outcomes

Upon completion of this degree, the graduate should be able to:

- Identify social, political, economic, and legal factors that contribute to disparities in health care and population health.
- Develop, analyze, evaluate, and advocate for policy to improve the health status of populations.
- Produce and distribute health policy communications for decision makers and other intended stakeholders.
- Demonstrate leadership, team building, negotiation, and conflict resolution skills to build consensus, partnerships, and coalitions.
- Adhere to professional ethics while promoting a high standard of personal integrity, compassion, and respect for others.

## Job trends

- Graduates are involved in developing and analyzing local, state, federal, and international policies that affect public health.
- Graduates provide leadership in policy analysis and advocacy in health-care delivery settings, advocacy organizations, governmental and nonprofit agencies, community-based organizations, consulting firms, and federal health agencies.
- Graduates provide leadership in negotiations and conflict resolution in health-care settings.
- Graduates can provide leadership in strategic planning for health-care organizations.

## Educational effectiveness indicators

Program learner outcomes as evidenced by:

- Signature assignments linked to course and noncourse requirements
- Field practicum report
- Culminating experience (p. 414)

## Prerequisite

See entrance requirements for all M.P.H. degrees (p. 414).

## Individuals who may benefit from the program

Participants will be drawn primarily from public health; but they also will be drawn from health care, higher education, community-based organizations, and those working in public policy. This program is specifically designed for individuals interested in multidisciplinary approaches to problem solving and creating a healthier future.

## Program requirements

### Public health core

PCOR 501	Public Health for Community Resilience	5
PCOR 502	Public Health for a Healthy Lifestyle	5
PCOR 503	Public Health and Health Systems	5

### Major

HADM 510	Health Policy Analysis and Synthesis	3
HADM 514	Health-Care Economics	3
HADM 529	Health-Care Negotiations and Conflict Resolution	3
HADM 534	Health-Care Law	3
HADM 536	Health Policy Communications	3
HADM 545	Government Policy and Health Disparities	3
HADM 580	Foundations of Leadership	3
HADM 586	Building Healthy Communities: Integrative Health Policy	3

HADM 604	Health Systems Strategic Planning	3
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### Religion

RELE 534	Ethical Issues in Public Health (or REL_)	3
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<b>Cognates/Electives</b> <sup>1</sup>		12
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### Field experience

Practicum units are in addition the minimum didactic units required for the degree.

PHCJ 798D	Public Health Practicum (Total of 8 units/400 hours)	
	or PHCJ 798 Public Health Practicum	
	or PHCJ 798 Public Health Practicum	
	or PHCJ 798 Public Health Practicum	

Total Units		57
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<sup>1</sup> Choose from defined cognates (p. 410) or select from electives in consultation with advisor.

## Culminating experience

In addition to standard culminating experience requirements (p. 414), students in the Health Policy and Leadership MPH program are required to attend quarterly meetings, and complete an exit interview with the program director or faculty representative at the conclusion of the program.

## Normal time to complete the program

2.33 years (9 academic quarters) based on full-time enrollment; part time permitted

# Lifestyle Management – M.P.H.

### Program director

Hildemar Dos Santos

The Lifestyle Medicine Program is designed for students who want to work in areas involved in the prevention of chronic diseases, designing and implementing preventive programs for corporations and community organizations. The program is also intended for health professionals to empower them to provide lifestyle change interventions and promote healthy behaviors for their patients.

The curriculum emphasizes interventions based on scientific data and established behavioral and learning theories that promote individual and public health through the processes of education, health behavior change, and health promotion.

The program also focuses on teaching public health practice courses that are needed to possess core skills in public health, evaluating scientific literature, and in understanding and applying the science of disease prevention in the context of mind-body interaction. More practice-oriented classes teach the scientific basis and applications of exercise and nutrition counseling, tobacco cessation, and health behavior change techniques.

Graduates may use the skills acquired in the program to assess employee health, corporation culture, and resources in order to provide programs and activities to help manage chronic diseases, decrease health expenditure and provide healthy and happy work environments. They are academically prepared to apply preventive methodologies to chronic diseases and risk factors, conduct individual health assessments, provide lifestyle counseling, properly evaluate and apply lifestyle-related research findings, and lead and evaluate health promotion projects.

## Learner outcomes

Graduates of the program in lifestyle medicine will:

- Assess health profiles and needs of corporations.
- Accurately assess lifestyle-related risk factors for chronic diseases.
- Provide appropriate interventions in regard to these risk factors, e.g., exercise, nutrition, and tobacco dependence- prevention programs.
- Evaluate and properly apply lifestyle-related research findings.
- Provide leadership for and evaluate community-based health promotion projects.

## Educational effectiveness indicators

Program learner outcomes as evidenced by:

- Signature assignments linked to course and noncourse requirements
- Field practicum report
- Culminating experience (p. 414)

## Prerequisite

In addition to the entrance requirements for all M.P.H. degrees (p. 414), applicants to the M.P.H. degree Lifestyle Medicine Program must have:

- Anatomy and physiology

## Program requirements

### Public health core

PCOR 501	Public Health for Community Resilience	5
PCOR 502	Public Health for a Healthy Lifestyle	5
PCOR 503	Public Health and Health Systems	5

### Major

HPRO 500	Stress Management	2
HPRO 515	Mind-Body Interactions and Health Outcomes	4
HPRO 526	Lifestyle Diseases and Risk Reduction	3
HPRO 527	Obesity and Disordered Eating	3
HPRO 553	Addiction Theory and Program Development	3
HPRO 565	Tobacco Use: Prevention and Interventions	3
HPRO 573	Exercise Physiology I	3
HPRO 590	Worksite Wellness	3
HPRO 606	Motivational Interviewing	2
NUTR 509	Public Health Nutrition and Biology	3

NUTR 529	Health Aspects of Vegetarian Eating	3
HADM 528	Organizational Behavior in Health Care	3
<b>Religion</b>		
RELE 534	Ethical Issues in Public Health (or REL_)	3
<b>Electives</b> <sup>1</sup>		
		6
Total Units		59

### Field experience

Practicum units are in addition to the minimum didactic units required for the degree

PHCJ 798D	Public Health Practicum (400 hours)	8
or PHCJ 798A	Public Health Practicum	
or PHCJ 798B	Public Health Practicum	
or PHCJ 798C	Public Health Practicum	

<sup>1</sup> Chosen in consultation with advisor

### Culminating experience requirements

See standard culminating experience requirements (p. 414).

### Normal time to complete the program

2 years (7 academic quarters) based on full-time enrollment; part time permitted

## Nutrition with coordinated program in dietetics – M.P.H.

### Program director

Celine Heskey

The Master of Public Health (M.P.H.) degree curriculum in nutrition and dietetics enables students to meet the didactic and supervised practice requirements for registration eligibility in dietetics. The purpose of registration is to protect the health, safety, and welfare of the public by encouraging high standards of performance by persons practicing in nutrition and dietetics.

Students in the M.P.H. or Dr.P.H. degree curricula may establish eligibility to write the registration examination to become a registered dietitian (RD) by completing this program. The program is accredited by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics (AND), <http://www.eatrightpro.org/>.

## Learner outcomes

The curriculum integrates the requirements of the M.P.H. degree in nutrition with the competency requirements, foundation, knowledge, and skills to practice dietetics, as defined by ACEND. In addition to the learning outcomes of the M.P.H. degree curriculum (see Public Health Nutrition), graduates will:

- Integrate their knowledge of biological mechanisms underlying the effect of food and nutrients on health to the solution of public health problems.
- Function independently and collaboratively as leader or member of a team to plan, manage, and evaluate community-based nutrition promotion activities.
- Critically analyze studies and apply findings to nutrition interventions.

- Scrutinize public policies and processes related to food and nutrition and explore their impact on health outcomes.
- Articulate the role of vegetarian dietary practices on human health, the environment, and ecology.
- Demonstrate effectiveness in the nutritional care process consistent with competencies defined by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics (AND).
- Apply systems management and use of resources to the provision of nutritional services.

## Educational effectiveness indicators

Program learner outcomes as evidenced by:

- Signature assignments linked to course and noncourse requirements
- Field practicum report
- Culminating experience (p. 414)

## Prerequisite

- General chemistry
- Organic chemistry
- Microbiology
- Physiology
- Human nutrition or equivalent

## Individuals who may benefit from the program

Graduates with bachelor's degrees or higher who seek credentialing as registered dietitians (RDs).

## Program requirements

### Corequisites

DTCS 544	Medical Nutrition Therapy II	5
DTCS 554	Advanced Medical Nutrition Therapy	3
DTCS 566	Food Chemistry and Experimental Foods	4
DTCS 575	Food Systems Management	4
NUTR 490	Topics in Foods and Food Preparation	1
NUTR 526	Nutrition Counseling and Education	2
NUTR 537	Nutrition Education Practicum	1
NUTR 597	Special Topics in Clinical Nutrition	2
Total Units		22

### Public health core

PCOR 501	Public Health for Community Resilience	5
PCOR 502	Public Health for a Healthy Lifestyle	5
PCOR 503	Public Health and Health Systems	5

### Major

NUTR 504	Nutritional Metabolism	5
NUTR 510	Advanced Public Health Nutrition	3
NUTR 517	Advanced Nutrition I: Carbohydrates and Lipids	4
NUTR 518	Advanced Nutrition II: Proteins, Vitamins, and Minerals	4
NUTR 519	Phytochemicals	2
NUTR 525	Nutrition Policy, Programs, and Services	3

NUTR 527	Assessment of Nutritional Status	3
NUTR 531	Community Nutrition Intervention I	2
NUTR 532	Community Nutrition Intervention II	1
NUTR 534	Maternal and Child Nutrition	3
NUTR 535	Research Applications in Nutrition	3
NUTR 564	Contemporary Issues of Vegetarian Diets	2
NUTR 605	Seminar in Nutrition	1

### Religion

RELE 534	Ethical Issues in Public Health (or REL_)	3
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### Electives

NUTR 578	Exercise Nutrition (or other elective chosen in consultation with advisor)	3
or NUTR 694	Research	

Total Units		57
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### Field experience

#### Corequisites

DTCS 777	Food Systems Management Affiliation	6
DTCS 778	Clinical Nutrition Affiliation	12

#### Field practicum

PHCJ 798D	Public Health Practicum (400 hours)	8
or PHCJ 798A	Public Health Practicum	
or PHCJ 798B	Public Health Practicum	
or PHCJ 798C	Public Health Practicum	

Total Units		26
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## Culminating Experience

In addition to the standard culminating experience requirements (p. 414), students in the Nutrition with coordinated program in dietetics MPH will be required to complete a written comprehensive examination.

## Normal time to complete the program

2.33 years (9 academic quarters) based on full-time enrollment; part time permitted

## Nutrition – M.P.H.

### Program director

Ella Haddad

The Master of Public Health (M.P.H.) degree program in nutrition provides specialized training in community nutrition within the multidisciplinary public health programs offered by the School of Public Health (SPH). The program is designed to train professionals to assume leadership positions in assessing community nutrition needs; and in planning, directing, and evaluating the nutrition component of health-promotion and disease-prevention efforts.

Public health nutritionists work in a variety of settings in government and voluntary agencies, public and private community health centers, ambulatory care clinics, schools, industries, private practice, and specialized community health projects. They function as directors and administrators of nutrition programs, nutrition care providers, advocates, educators, counselors, consultants, and researchers.



## Learner outcomes

The curriculum of the M.P.H. degree in nutrition prepares students for careers in public health and community nutrition. It is appropriate for individuals with professional credentials, such as medicine, dentistry, dietetics, or nursing. Students may opt to complete a research project with publication potential in lieu of a field practicum.

Upon completion of the program, graduates will:

- Integrate their knowledge of biological mechanisms underlying the effect of food and nutrients on health to the solution of public health problems.
- Function independently and collaboratively as leader or member of a team to plan, manage, and evaluate community-based nutrition promotion activities.
- Critically analyze studies and apply findings to nutrition interventions.
- Scrutinize public policies and processes related to food and nutrition and explore their impact on health outcomes.
- Articulate the role of vegetarian dietary practices on human health, the environment, and ecology.

## Educational effectiveness indicators

Program learner outcomes as evidenced by:

- Signature assignments linked to course and noncourse requirements
- Field practicum report
- Culminating experience (p. 414)

## Prerequisites

- General chemistry
- Organic chemistry
- Microbiology
- Physiology
- Human nutrition or equivalent

## Individuals who may benefit from the program

- Graduates of bachelor's degree programs in chemistry, biology, social sciences, etc., who seek advanced degrees in nutrition or the health professions.
- Health professionals, such as physicians, nurses, dentists, allied health professionals, and registered dietitians.

## Program requirements

### Corequisites

NUTR 490	Topics in Foods and Food Preparation	1
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### Public health core

PCOR 501	Public Health for Community Resilience	5
PCOR 502	Public Health for a Healthy Lifestyle	5
PCOR 503	Public Health and Health Systems	5

### Major

NUTR 504	Nutritional Metabolism	5
NUTR 510	Advanced Public Health Nutrition	3
NUTR 517	Advanced Nutrition I: Carbohydrates and Lipids	4

NUTR 518	Advanced Nutrition II: Proteins, Vitamins, and Minerals	4
NUTR 519	Phytochemicals	2
NUTR 525	Nutrition Policy, Programs, and Services	3
NUTR 527	Assessment of Nutritional Status	3
NUTR 564	Contemporary Issues of Vegetarian Diets	2
NUTR 605	Seminar in Nutrition	1

### Religion

RELE 534	Ethical Issues in Public Health (or REL_)	3
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### Cognates/Electives<sup>1</sup>

DTCS 554	Advanced Medical Nutrition Therapy	
HPRO 527	Obesity and Disordered Eating	
NUTR 526	Nutrition Counseling and Education	
NUTR 543	Concepts in Nutritional Epidemiology	
NUTR 578	Exercise Nutrition	
NUTR 585	Topics in Global Nutrition	
STAT 515	Grant- and Contract-Proposal Writing	
NUTR 694	Research	

### Field practicum

Practicum units are in addition to the minimum didactic units required for the degree.

PHCJ 798D	Public Health Practicum (8 units/400 hours) or PHCJ 798 Public Health Practicum or PHCJ 798 Public Health Practicum or PHCJ 798 Public Health Practicum	
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Total Units		57
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<sup>1</sup> Choose from defined cognates (p. 414), or select from the following electives in consultation with advisor

## Culminating experience

In addition to standard culminating experience requirements (p. 414), students in the Nutrition MPH program will be required to complete a written comprehensive examination.

## Normal time to complete the program

2 years (8 academic quarters) based on full-time enrollment; part time permitted

## Nutrition – M.S.

### Program director

Ella Haddad

The Master of Science (M.S.) degree Nutrition Program is suitable for persons planning to pursue a doctoral degree in nutrition or other related areas and for persons preparing to teach at the secondary or university level. The program provides background experience for those interested in research careers in academic or industry settings and provides advanced training in basic nutrition for physicians and other health professionals.

The M.S. degree requires a minimum of 48 units. Two options, a thesis (research track) and a nonthesis (course work track), are available. For the research track, the student fulfills the core requirements and implements and completes a research project that culminates in either a publishable manuscript or a thesis. For the course work track, the student fulfills total unit requirements by completing courses in nutrition and by

participating in an ongoing research project. A written comprehensive examination is required for both options.

## Learner outcomes

The M.S. degree Nutrition Program is offered to meet the specific needs of those who desire advanced training in nutritional sciences. Upon completion of the program, graduates will:

- Understand physiological and biochemical mechanisms influencing human systems and how food and nutrients impact function.
- Understand the role of vegetarian dietary practices in human health, the environment, and ecology.
- Demonstrate the ability to conduct and publish applied research in nutrition.

## Educational effectiveness indicators

Indicators of educational effectiveness include successful completion of a comprehensive examination, oral defense of a thesis project, a publishable paper, and an exit interview with the program director.

## Prerequisite

- Basic nutrition
- General chemistry through organic chemistry
- Microbiology
- Physiology

## Individuals who may benefit from the program

Persons who hold a baccalaureate degree in science, or physicians and other health professionals who desire to pursue teaching or a doctoral degree, may benefit from the program; as well as persons who desire training in nutritional sciences to prepare them for conducting and publishing applied nutrition research.

## Program requirements

### Course work track

#### Corequisites <sup>1</sup>

NUTR 490	Topics in Foods and Food Preparation	1
NUTR 504	Nutritional Metabolism	5

#### Public Health

EPDM 509	Principles of Epidemiology	3
PHCJ 606	Public Health Fundamentals	3

#### Major

NUTR 510	Advanced Public Health Nutrition	3
NUTR 517	Advanced Nutrition I: Carbohydrates and Lipids	4
NUTR 518	Advanced Nutrition II: Proteins, Vitamins, and Minerals	4
NUTR 519	Phytochemicals	2
NUTR 527	Assessment of Nutritional Status	3
NUTR 534	Maternal and Child Nutrition	3
NUTR 564	Contemporary Issues of Vegetarian Diets	2
NUTR 605	Seminar in Nutrition	1

#### Religion

RELE 534	Ethical Issues in Public Health (or REL_)	3
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#### Electives

Choose from the following or in consultation with an advisor: 5

HPRO 527	Obesity and Disordered Eating	
NUTR 543	Concepts in Nutritional Epidemiology	
NUTR 578	Exercise Nutrition	
NUTR 585	Topics in Global Nutrition	
STAT 515	Grant- and Contract-Proposal Writing	

#### Statistics and research

NUTR 535	Research Applications in Nutrition	3
NUTR 694	Research	3
STAT 509	General Statistics	4
or STAT 521	Biostatistics I	
STAT 514	Intermediate Statistics for Health-Science Data	3
STAT 548	Analytical Applications of SAS	2
or STAT 549	Analytical Applications of SPSS	

Total Units 51

## Research track

#### Corequisites

NUTR 490	Topics in Foods and Food Preparation	1
NUTR 504	Nutritional Metabolism	5

#### Public Health

EPDM 509	Principles of Epidemiology	3
PHCJ 606	Public Health Fundamentals	3

#### Major

NUTR 510	Advanced Public Health Nutrition	3
NUTR 517	Advanced Nutrition I: Carbohydrates and Lipids	4
NUTR 518	Advanced Nutrition II: Proteins, Vitamins, and Minerals	4
NUTR 519	Phytochemicals	2
NUTR 564	Contemporary Issues of Vegetarian Diets	2
NUTR 605	Seminar in Nutrition	1

#### Religion

RELE 534	Ethical Issues in Public Health (or REL_)	3
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#### Electives

Choose from the following or in consultation with advisor: 7

HPRO 527	Obesity and Disordered Eating	
NUTR 543	Concepts in Nutritional Epidemiology	
NUTR 578	Exercise Nutrition	
NUTR 585	Topics in Global Nutrition	
STAT 515	Grant- and Contract-Proposal Writing	

#### Statistics and research

NUTR 539	Research Methods in Nutrition	2
NUTR 694	Research	6
STAT 514	Intermediate Statistics for Health-Science Data	3
STAT 509	General Statistics	4
or STAT 521	Biostatistics I	
STAT 548	Analytical Applications of SAS	2
or STAT 549	Analytical Applications of SPSS	

#### Thesis

NUTR 695	Thesis	2
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Total Units 51

<sup>1</sup> Courses can be taken concurrently with the M.S. degree program if not previously passed with a B grade or better.

## Culminating experience

Included in the culminating experience are a written comprehensive examination prior to the thesis experience, and one publishable paper upon completion of the thesis experience.

## Normal time to complete the program

Research Track – 1.33 year (5 academic quarters) based on full-time enrollment; part time permitted

Course work Track – 1.33 year (5 academic quarters) based on full-time enrollment; part time permitted

# Population Medicine – M.P.H.

## Program director

Manjit "Mike" Randhawa

The Population Medicine Program is designed to meet the needs of practicing health professionals who have experience in direct patient care and wish to augment their current careers with additional information and skills in population management. The students will be competent in analyzing the health of a patient population and understanding the social, environmental, and biological determinants of health in that population.

Individuals who may benefit from this program are practicing health professionals, such as physicians, dentists, pharmacists, nurses, social workers, physical therapists, and psychologists; and students who are currently enrolled in clinical practice-related doctoral degrees (e.g., M.D., D.O., D.D.S., Pharm.D.). This degree will provide clinicians with cutting-edge knowledge and a skill set to integrate population-based health-care approaches into their everyday clinical practice.

## Learner outcomes

Upon completion of this degree, the graduate should be able to:

- Competently engage in research and practice activities within the field of population medicine and describe the core framework for population-based health-care approaches.
- Apply population-based health-care approaches at the patient and community levels.
- Conduct population-based applied and translational research, including the collection, analysis, and interpretation of data.
- Identify the need and design, implement, and evaluate a population-based program(s) or intervention(s) intended to prevent, treat, or manage public health-related concern(s).
- Develop and report findings that are culturally and linguistically appropriate for the intended target audience (patient, community, and academe)

## Educational effectiveness indicators

Program learner outcomes as evidenced by:

- Signature assignments linked to course and noncourse requirements
- Field practicum report
- Culminating experience (p. 414)

## Prerequisite

In addition to the entrance requirements for all M.P.H. degrees (p. 414), applicants to the M.P.H. degree program in population medicine must have:

- A health-care-related degree
  - Bachelor's or master's degree with two years of postgraduate, direct patient-care experience (e.g., nursing, social work, dental hygiene, physical therapy, occupational therapy, psychology).
  - Accepted into or completed clinical practice-related doctoral degree program (e.g., M.D., D.O., D.D.S., D.N.P., D.P.T., Pharm.D.). Must have completed at least two years in a clinical program.
- GRE examination
  - Can be waived with either completion of a clinical practice-related doctoral degree (e.g., M.D., D.O., D.D.S., D.N.P., D.P.T., Pharm.D., or Ph.D.) or by entrance examination for a clinical practice-related doctoral degree (e.g., MCAT, DAT)
- Anatomy and/or physiology (one course)
- Behavioral science (one course)

## Program requirements

### Corequisite

PHCJ 501	Introduction to On-line Learning	1
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### Public Health Core

PCOR 501	Public Health for Community Resilience	5
PCOR 502	Public Health for a Healthy Lifestyle	5
PCOR 503	Public Health and Health Systems	5

### Population Medicine Major

PMED 521	Population Medicine I	4
PMED 522	Population Medicine II	4
PMED 523	Population Medicine III	4

### Religion

RELE 534	Ethical Issues in Public Health (or REL_)	3
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<b>Cognates/Electives</b> <sup>1</sup>		26
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Total Units		56
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### Field experience

Practicum units are in addition to the minimum didactic units required for the degree

PHCJ 798D	Public Health Practicum (400 hours)	8
or PHCJ 798A	Public Health Practicum	
or PHCJ 798B	Public Health Practicum	
or PHCJ 798C	Public Health Practicum	

<sup>1</sup> Choose from defined cognates (p. 410) or select from electives in consultation with advisor.

## Culminating experience

See standard culminating experience requirements (p. 414).

## Normal time to complete the program

2 years (5 academic quarters) based on full-time enrollment; part time permitted

# Doctoral degrees

## Admissions

The admissions requirements for the doctoral degree programs described below are in addition to the University admissions requirements (p. 24) and program requirements. The minimum eligibility requirements for admission to a doctoral degree program include the following:

- An M.P.H. degree or master's degree in a related field from a regionally accredited institution, with a G.P.A. of 3.5 or above. Applicants with a master's degree in another field may indicate their relevant training, research experience, or educational background comparable to the M.P.H. Dr.P.H. degree applicants who are admitted without an M.P.H. may be required to take additional course work at the graduate level to satisfy M.P.H. core competencies.
- Satisfactory performance on GRE or equivalent is required; scores must have been attained within the past five years. Although we do not have a minimum GRE score requirement, 50<sup>th</sup> percentile or higher in each of the three sections of the GRE (verbal, quantitative, and writing) is considered competitive.
- Religious affiliation is not a requirement; but students are expected to adhere to on-campus requirements of modest dress, abstinence from alcohol and smoking, and attendance at weekly chapel, as applicable.

Applicants must satisfy the program-specific admission requirements, including but not limited to prerequisite courses and years of experience. Admissions decisions are based on a review of applicant's transcripts, written statement, research interest, concept paper, letters of recommendation, GRE scores or equivalent, and interview. Satisfying minimum requirements does not guarantee admission.

## Dr.P.H. degree

The Doctor of Public Health (Dr.P.H.) degree is designed to provide comprehensive academic and research and advanced practice training in the field of public health. Students may enroll on a full- or part-time basis; however, they must advance to candidacy within five years of entering the program, and complete the program within seven years. Majors are available in:

- Epidemiology
- Health Education – on campus and technology mediated
- Nutrition
- Preventive Care
- Health Policy and Leadership

The doctoral programs offer training for careers in which advanced analytical and conceptual capabilities are required (e.g., teaching, research, practice, consultation, and top-level administration). Students' research and dissertations are key components in the development of critical thinking related to public health and their major fields.

A minimum of two years is generally required to complete course work if full time; however, the number of units required depends on the specific major chosen. Time to completion of dissertation is variable. Program plans are described under individual majors.

Students whose academic backgrounds include substantial graduate study in public health and/or the major field may be granted advanced standing. The number of units of course work required to complete the

program may be reduced accordingly but is not to be fewer than 60 units plus dissertation units at Loma Linda University.

### Learner outcomes

Upon completion of the Doctor of Public Health degree program, students will be able to:

- Apply ethical principles to the field of public health.
- Demonstrate a commitment to lifelong learning to support the pursuit of truth.
- Demonstrate a core set of research skills.
- Use data and theory to identify public health problems.
- Formulate appropriate research questions.
- Choose appropriate research designs.
- Develop data-collection instruments.
- Collect, enter, and manage data.
- Analyze and interpret data.
- Communicate, both orally and in written form, results to the scientific and lay communities.
- Write program and grant proposals and compete for external funding.

### Comprehensive and qualifying examinations

Students are required to demonstrate ability and readiness to proceed with doctoral study and research by successfully passing appropriate comprehensive and/or qualifying examinations. The specific format and timing are dependent on the major field of study. Organization of the material, professional presentation, and reference to authorities in the field and the literature are expected.

### Dr.P.H. degree corequisites

Students must have an MPH from an accredited institution, complete 15 units from the public health core (PCOR), or complete graduate-level coursework in the five Public Health disciplinary areas (epidemiology, biostatistics, behavioral sciences/health education, environmental health, health administration/policy).

### Advancement to candidacy

Advancement to candidacy is granted by the associate dean for academic affairs. As part of advancement to candidacy, a dissertation guidance committee is formally appointed, provided students have:

- Shown evidence of superior scholarship and ability.
- Fulfilled all course requirements.
- Satisfactorily passed the appropriate examinations.
- Received approval of the individual's dissertation committee for the research and dissertation proposal.

### Research and dissertation

The dissertation is a scholarly statement of the results of original research. It should advance knowledge in the major field. It must be an independent investigation and include analysis and interpretation of data and discussion of findings. It should be skillfully written and of such scholarship and scientific value as to demonstrate a mastery of research methodology. Students are encouraged to use the publishable paper format (required in some majors) rather than the traditional form. The dissertation is defended orally before the doctoral research committee and presented publicly before invited faculty, peers, and the academic and health community. Additional information is detailed in the school's *Doctoral Handbook*.

### Teaching and research assistantships

A limited number of research and teaching assistantships are available. Students on assistantships make a time commitment for experience and may need to limit their academic load in order to participate in these activities.

### Postdoctoral fellowships

One-year fellowships may be available in various programs. They are tailored to the applicant's interest (in accordance with training opportunities), expressed needs, and funding. Details can be obtained from the dean.

## Ph.D. degree

The Doctor of Philosophy (Ph.D.) degree is designed to provide comprehensive research and academic training. Students may enroll on a full- or part-time basis; however, they must advance to candidacy within five years of entering the program. The Ph.D. degree in epidemiology is currently offered. The Ph.D. degree offers training for top-level jobs in research and academia. The program is specifically targeted to doctoral-level health professionals who want to move into a research and academic career. However, those with a master's degree in a relevant field and with documented research experience are also eligible for this program. Students' research and dissertation are key components in the development of critical thinking.

Course work is generally completed in two years, if full time. Time to completion of dissertation is variable. The specific program plans are described under the epidemiology department.

Students whose academic backgrounds include substantial graduate study in a cognate field may be granted advanced standing. The number of units of course work required to complete the program may be reduced accordingly but is not to be fewer than 60 units plus dissertation units at Loma Linda University.

### Learner outcomes

Upon completion of the Doctor of Philosophy degree in epidemiology, students will be able to:

- Identify areas requiring biomedical or epidemiologic research and design, and conduct appropriate study to address the question(s).
- Write grant proposals to obtain funding for research.
- Select and execute appropriate and valid analyses of data using available statistical software.
- Write, interpret, and publish results of conducted research; and communicate orally.
- Develop and teach classes at the graduate level within their area of expertise.

### Comprehensive and qualifying examinations

Students are required to demonstrate ability and readiness to proceed with doctoral study and research by successfully passing the comprehensive examination. The examination includes writing a grant proposal on a specific topic, conducting independent statistical analyses on a provided dataset, oral examination, and oral presentation of the grant proposal. Organization of the material, professional presentation, and reference to authorities in the field and the literature are expected.

### Advancement to candidacy

Advancement to candidacy is granted by the associate dean for academic affairs upon recommendation by the doctoral subcommittee. As

part of advancement to candidacy, a dissertation guidance committee is formally appointed provided students have:

- Shown evidence of superior scholarship and ability.
- Fulfilled all course requirements.
- Satisfactorily passed the appropriate examinations.
- Received approval of the dissertation committee for the research and dissertation proposal.

### Research and dissertation

The dissertation is a scholarly statement of the results of original research. It should advance knowledge in the major field. It must be an independent investigation and include analysis and interpretation of data and discussion of findings. It should be skillfully written and of such scholarship and scientific value as to demonstrate a mastery of research methodology. Students are required to use the publishable paper format rather than the traditional form. Before their dissertation defense, students must have published one paper and submitted two more papers and responded to reviewers' comments on both. The dissertation is defended orally before the doctoral research committee and presented publicly before invited faculty, peers, and the academic and health community. Additional information is detailed in the Faculty of Graduate Studies' *Dissertation and Thesis Format Guide* and in the SPH *Doctoral Handbook*.

### Teaching and research assistantships

As part of their training, Ph.D. degree students must be involved as teaching assistants and laboratory assistants in introductory- and advanced-level courses, as well as give at least one lecture in one of the EPDM/STAT courses. A limited number of research and teaching assistantships are available. Students working as assistants make a time commitment for experience and may need to limit their academic load in order to participate in these activities.

### Postdoctoral fellowships

One-year fellowships may be available. They are tailored to the applicant's interest (in accordance with training opportunities), expressed needs, and funding. Details can be obtained from the dean.

## Programs

- Epidemiology – Dr.P.H. (p. 436), Ph.D. (p. 437), (Comparison (p. 438))
- Health Education – Dr.P.H. (p. 439)
- Health Policy and Leadership – Dr.P.H. (p. 440)
- Nutrition – Dr.P.H. (p. 442)
- Preventive Care – Dr.P.H. (p. 443)

# Epidemiology – Dr.P.H.

## Program director

Jayakaran S. Job

The Doctor of Public Health (Dr.P.H.) degree is an advanced professional degree with a focus on evidence-based public health practice, applied theory, and research. The Dr.P.H. degree program develops graduates with well-rounded skills who are able to administer and practice public health epidemiology in governmental, international, nonprofit, and private sector settings (such as local county and state health departments, the Centers for Disease Control and Prevention, the World Health Organization); as well as to engage in teaching, research, and service in academia.

The curriculum is planned on an individual basis and is designed around the student's interest and academic needs, the program requirements, and the nature of the proposed research project. The student is expected to gain relevant teaching experience as part of the program. Students are responsible for gaining the commitment of an appropriate faculty member to serve as their research mentor.

## Learning objectives

Upon completion of the Dr.P.H. degree, the student will be able to independently:

- Demonstrate knowledge of disease etiology, progression, and prevention and control, as relevant to public health practice and research.
- Identify and address public health issues from a broad range of disciplines and perspectives by applying evidence-based theory and research to design, for example, research proposals (using National Institutes of Health [NIH] guidelines).
- Use effective communication methods (including oral presentations and peer-reviewed publications) across diverse audiences to inform and influence public health actions.
- Critically evaluate, analyze, and synthesize biomedical literature and health-related data to advance programs, policies, and systems to promote public health.
- Apply professional, ethical leadership and administrative skills in public health settings.

## Educational effectiveness indicators

- Student assistance
- Comprehensive examination
- Dissertation

## Prerequisites

In addition to the entrance requirements for all Dr.P.H. degrees (p. 434), applicants to the Dr.P.H. degree in epidemiology program must have:

- M.P.H. degree in either epidemiology or biostatistics preferred
- Organic chemistry
- Statistics
- Behavioral science
- Microbiology
- Biochemistry

Applicants should also have taken the following courses, or equivalent courses at the graduate level:

- EPDM 510 Epidemiologic Methods I
- EPDM 511 Epidemiologic Methods II
- STAT 521 Biostatistics I
- STAT 548 Analytical Applications of SAS

## Program requirements

In addition to the standard DrPH corequisites, (p. 434) the DrPH program in Epidemiology requires the following:

### Corequisites

May be taken during first two quarters of program, in addition to units required for degree; advanced standing from previous MPH degrees considered.

EPDM 512	Epidemiologic Methods III	3
STAT 522	Biostatistics II	4

### Epidemiology Core

EPDM 515	Clinical Trials	3
EPDM 635A	Epidemiological Studies of Seventh-day Adventists A	1
EPDM 635B	Epidemiological Studies of Seventh-day Adventists B	1
STAT 515	Grant- and Contract-Proposal Writing	3
STAT 564	Survey and Advanced Research Methods	3

### Selectives

EPDM 555	Epidemiologic Methods in Outcomes Research and Continuous Quality Improvement	9
HPRO 543	Writing for Health Professionals	
NUTR 543	Concepts in Nutritional Epidemiology	
STAT 523	Biostatistics III	
STAT 525	Applied Multivariate Analysis	
STAT 535	Modern Nonparametric Statistics	
STAT 545	Survival Analysis	
STAT 557	Research Data Management	
STAT 569	Advanced Data Analysis	

### Descriptive epidemiology <sup>1</sup>

EPDM 565	Epidemiology of Cancer	3
or EPDM 566	Epidemiology of Cardiovascular Disease	

Choose from the following: 6

EPDM 544	Epidemiology of Infectious Disease	
EPDM 565	Epidemiology of Cancer	
EPDM 566	Epidemiology of Cardiovascular Disease	
EPDM 567	Epidemiology of Aging	
EPDM 588	Environmental and Occupational Epidemiology	

### Biomedical sciences

AHCJ 538	Histology	3
HPRO 501	Human Anatomy and Physiology I	6
HPRO 531	Pathology of Human Systems I	3
HPRO 532	Pathology of Human Systems II	3
NUTR 517	Advanced Nutrition I: Carbohydrates and Lipids	4
or NUTR 518	Advanced Nutrition II: Proteins, Vitamins, and Minerals	

### Administration and leadership

Choose from the following, subject to availability of the course and sufficient course enrollment: 6

HADM 510	Health Policy Analysis and Synthesis	
HADM 514	Health-Care Economics	
HADM 528	Organizational Behavior in Health Care	
HADM 529	Health-Care Negotiations and Conflict Resolution	
HADM 542	Managerial Accounting for Health-Care Organizations	
HADM 559	Health-Care Marketing	
HADM 574	Managing Human Resources in Health-Care Organizations	
HADM 584	Current Topics in Health Policy and Leadership	
HADM 585	Policy Development for a Twenty-First Century Health System	
HADM 595	Leadership—Past, Present, and Future	
HADM 604	Health Systems Strategic Planning	
HADM 605	Health-Care Quality Management	

#### Religion

RELE 5__	Graduate-level ethics	3
RELR 5__	Graduate-level relational	3
RELT 5__	Graduate-level theological	3

#### Other required courses

EPDM 606	Doctoral Seminar in Epidemiology <sup>2</sup>	9
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**Electives**<sup>3</sup> 12

#### Research and dissertation

EPDM 685	Preliminary Research Experience	2
EPDM 694	Research <sup>4</sup>	2
EPDM 697	Dissertation Proposal	3
EPDM 698	Dissertation <sup>4</sup>	12

Total Units 103

<sup>1</sup> 3 units must be chosen from either EPDM 565 or EPDM 566. Remaining 6 units can be chosen from courses listed.

<sup>2</sup> One unit per every fall, winter and spring quarters in program, minimum of 9 units

<sup>3</sup> Chosen in consultation with advisor; usually from another discipline or school

<sup>4</sup> Repeated registrations may be required to fulfill total units

## Additional Requirements

### EPDM/STAT forums

Doctoral students are required to attend a minimum of ten epidemiology, biostatistics, and/or Adventist Health Study forums during each year of their program.

### Culminating experience

As a part of the culminating experience, the student completes two publishable papers for submission to peer reviewed journals, successfully defends dissertation, and submits a committee approved dissertation manuscript. Further details provided in the Doctoral Handbook.

### Normal time to complete the program

5.33 years based on less than full-time enrollment

# Epidemiology – Ph.D.

Program director

Jayakaran S. Job

The aim of the Doctor of Philosophy (Ph.D.) degree program is to prepare students entering with a strong background in the health sciences for a career in research and teaching in academic institutions, governmental agencies, research institutes, nonprofit organizations, or private industry. Although in contrast with the Dr.P.H. graduates, those with the Ph.D. degree may exhibit proficiency in "narrower lines of research and often with different types of research methods." They continue their careers, for example, teaching at a university, conducting research in a national laboratory, or engaging in population-based fieldwork around the world.

The curriculum is designed to fulfill program requirements while also addressing the nature of the student's research interest and academic needs. Ph.D. degree students are expected to critically evaluate and write scientific journal articles as part of their educational training. They are also expected to gain adequate experience in pedagogy. Each student is responsible for identifying an appropriate faculty who will serve as his/her research mentor during the program.

## Learning objectives

Students completing the Ph.D. degree program in epidemiology are expected to develop high-level knowledge of epidemiologic theory and methodology and to apply this knowledge to the design, conduct, statistical analysis, and interpretation of data from population-based research in the health sciences.

The graduate of this program will be able to:

- Demonstrate knowledge of human disease etiology and apply this knowledge to epidemiologic investigations.
- Interpret descriptive epidemiologic data to generate hypotheses in the examination of possible risk factors for disease.
- Critically evaluate the scientific literature pertaining to exposure and disease relationships, study designs, measures of association, issues of bias, confounding and effect modification; and identify gaps in knowledge.
- Utilize classical, modern, and innovative epidemiologic methods to design studies and to develop research proposals using National Institutes of Health (NIH) guidelines.
- Apply quantitative skills to analyze and synthesize epidemiologic data and to use statistical software packages.
- Communicate epidemiologic concepts and findings orally and in written format (e.g., publishable manuscripts) to diverse audiences.

## Educational effectiveness indicators

- Comprehensive examination
- Concept paper
- Dissertation proposal
- Dissertation
- Submittable papers
- Published paper
- Course evaluations of student instructor

## Prerequisite

Doctoral-level health professional degree  
or

Master's degree in related field, with documented research experience (such as published or submitted paper) and the following courses:

- Anatomy
- Physiology
- Pathology
- Histology
- Microbiology
- Biochemistry

The following courses, or equivalent courses at the graduate level:

- EPDM 509 Principles of Epidemiology
- STAT 521 Biostatistics I
- STAT 548 Analytical Applications of SAS

### Teaching assistantship/Laboratory assistantship

Ph.D. degree students are required to participate as teaching or laboratory assistants in introductory and advanced methodological courses. Further, they are expected to obtain experience in lecturing by developing and delivering at least one class lecture during their doctoral training.

## Program requirements

Advanced standing from previous degrees considered.

Epidemiologic methods		
EPDM 510	Epidemiologic Methods I	3
EPDM 511	Epidemiologic Methods II	3
EPDM 512	Epidemiologic Methods III	3
EPDM 515	Clinical Trials	3
EPDM 635A	Epidemiological Studies of Seventh-day Adventists A	1
EPDM 635B	Epidemiological Studies of Seventh-day Adventists B	1
STAT 515	Grant- and Contract-Proposal Writing	3
STAT 522	Biostatistics II	4
STAT 564	Survey and Advanced Research Methods	3
Descriptive epidemiology		
Choose from the following:		12
EPDM 544	Epidemiology of Infectious Disease	
EPDM 555	Epidemiologic Methods in Outcomes Research and Continuous Quality Improvement	
EPDM 565	Epidemiology of Cancer	
EPDM 566	Epidemiology of Cardiovascular Disease	
EPDM 567	Epidemiology of Aging	
EPDM 588	Environmental and Occupational Epidemiology	
EPDM 625	Special Topics in Epidemiology	
Religion		
RELR 5__	Graduate-level relational	3
RELE 525	Ethics for Scientists	3
or RELE 534	Ethical Issues in Public Health	
RELT 615	Seminar in Philosophy of Religion	3
or RELT 617	Seminar in Religion and the Sciences	
Other required courses		
EPDM 606	Doctoral Seminar in Epidemiology <sup>1</sup>	9
Cognates		
	Elective <sup>2</sup>	6
Research and dissertation		

EPDM 685	Preliminary Research Experience	2
EPDM 694	Research <sup>3</sup>	6-8
EPDM 697	Dissertation Proposal	3-5
EPDM 698	Dissertation <sup>3</sup>	12
Total Units		83-87

<sup>1</sup> 1 unit per every fall, winter, and spring quarters in program, minimum of 9 units

<sup>2</sup> Courses chosen in consultation with advisor; may be from a different discipline, school or institution.

<sup>3</sup> Repeated registrations required to fulfill total units

### Additional requirements

#### Forums/Seminars

Doctoral students are required to attend a minimum of ten Epidemiology, Biostatistics, and/or Adventist Health Study seminars during each year of their program.

#### Culminating experience

As a part of the culminating experience, the student completes three publishable scientific papers for submission to peer reviewed journals (of which one must be accepted for publication), successfully defends dissertation, and submits a committee approved dissertation manuscript. Further details provided in the Doctoral Handbook.

#### Normal time to complete the program

3.33 years based on less than full-time enrollment

## Epidemiology – Dr.P.H., Ph.D. Comparison

	Course Title	DrPH	PhD
Corequisites			
EPDM 512	Epidemiologic Methods III	3.0	
STAT 522	Biostatistics II	4.0	
Totals			
	Course Title	DrPH	PhD
Epidemiologic Methods			
Select 9 units of the following:		9.0	
EPDM 555	Epidemiologic Methods in Outcomes Research and Continuous Quality Improvement		
HPRO 543	Writing for Health Professionals		
NUTR 543	Concepts in Nutritional Epidemiology		
STAT 523	Biostatistics III		
STAT 525	Applied Multivariate Analysis		
STAT 535	Modern Nonparametric Statistics		
STAT 545	Survival Analysis		
STAT 557	Research Data Management		
STAT 569	Advanced Data Analysis		
EPDM 515	Clinical Trials	3.0	3.0
EPDM 635A	Epidemiological Studies of Seventh-day Adventists A	1.0	1.0



EPDM 635B	Epidemiological Studies of Seventh-day Adventists B	1.0	1.0
STAT 515	Grant- and Contract-Proposal Writing	3.0	3.0
STAT 564	Survey and Advanced Research Methods	3.0	3.0
EPDM 510	Epidemiologic Methods I		3.0
EPDM 511	Epidemiologic Methods II		3.0
EPDM 512	Epidemiologic Methods III		3.0
STAT 522	Biostatistics II		4.0
<b>Totals</b>		<b>20.0</b>	<b>24.0</b>

Course Title	DrPH	PhD	
<b>Descriptive Epidemiology</b>			
EPDM 565 or 566	Epidemiology of Cancer	3.0	3.0
EPDM 544	Epidemiology of Infectious Disease	3.0	3.0
EPDM 566	Epidemiology of Cardiovascular Disease	3.0	3.0
EPDM 567	Epidemiology of Aging	3.0	3.0
EPDM 588	Environmental and Occupational Epidemiology	3.0	3.0
<b>Totals</b>	<b>15.0</b>	<b>15.0</b>	

Course Title	DrPH	PhD	
<b>Biomedical Sciences</b>			
AHCJ 538	Histology	3.0	
HPRO 501	Human Anatomy and Physiology I	6.0	
HPRO 531	Pathology of Human Systems I	3.0	
HPRO 532	Pathology of Human Systems II	3.0	
NUTR 517 or 518	Advanced Nutrition I: Carbohydrates and Lipids	4.0	
<b>Totals</b>	<b>19.0</b>		

Course Title	DrPH	PhD
<b>Administration and Leadership</b>		

Select 6 units of the following: 6.0

HADM 510	Health Policy Analysis and Synthesis		
HADM 514	Health-Care Economics		
HADM 528	Organizational Behavior in Health Care		
HADM 529	Health-Care Negotiations and Conflict Resolution		
HADM 542	Managerial Accounting for Health-Care Organizations		
HADM 559	Health-Care Marketing		
HADM 574	Managing Human Resources in Health-Care Organizations		
HADM 584	Current Topics in Health Policy and Leadership		
HADM 585	Policy Development for a Twenty-First Century Health System		
HADM 595	Leadership—Past, Present, and Future		
HADM 604	Health Systems Strategic Planning		

<b>HADM 605 Health-Care Quality Management</b>			
<b>Totals</b>		<b>6.0</b>	
Course Title	DrPH	PhD	Religion
RELE 5__	Graduate-level Ethics	3.0	
RELT 5__	Graduate-level Theological	3.0	
REL R 5__	Graduate-level Relational	3.0	3.0
RELE 525 or 534	Ethics for Scientists		3.0
RELT 615 or 617	Seminar in Philosophy of Religion		3.0
<b>Totals</b>		<b>9.0</b>	<b>9.0</b>

Course Title	DrPH	PhD	
<b>Other Required Courses</b>			
EPDM 606	Doctoral Seminar in Epidemiology <sup>3</sup>	9.0	9.0
<b>Totals</b>	<b>9.0</b>	<b>9.0</b>	

Course Title	DrPH	PhD
<b>Cognates</b>		
Elective <sup>4</sup>		6.0
<b>Totals</b>		<b>6.0</b>

Course Title	DrPH	PhD
<b>Electives</b>		
Elective <sup>4</sup>	12.0	
<b>Totals</b>	<b>12.0</b>	

Course Title	DrPH	PhD	
<b>Research and Dissertation</b>			
EPDM 694	Research <sup>5</sup>	2.0	6.0
EPDM 685	Preliminary Research Experience	2.0	2.0
EPDM 697	Dissertation Proposal	3.0	3.0
EPDM 698	Dissertation <sup>5</sup>	12.0	12.0
<b>Totals</b>	<b>19.0</b>	<b>23.0</b>	

Overall Totals 109.0 86.0

<sup>1</sup> May be taken during first two quarters of program, in addition to units required for degree; advanced standing from previous M.P.H. degrees considered

<sup>2</sup> Dr.P.H. degree students must choose 3 units from EPDM 565 or EPDM 566. Remaining 6 units to be chosen from list. Ph.D. degree students choose a total of 12 units from list.

<sup>3</sup> 1 unit per every Fall, Winter and Spring quarter in program; minimum of 9 units

<sup>4</sup> Courses in any one public health discipline or from another LLU school, in consultation with advisor.

<sup>5</sup> Repeated registrations required to fulfill total units

## Health Education – Dr.P.H.

### Program director

Anna Nelson

The Dr.P.H. degree in health education is designed for individuals who desire to add depth to their health education specialization and develop research and leadership capabilities. The emphasis on health education offers advanced knowledge and competencies in the health education process and includes advocacy, critical analysis, leadership, professionalism, and ethics; as well as other health education domains.

The Dr.P.H.degree in health education is offered in two formats: on campus and online technology-mediated.

The online technology-mediated format targets working professionals. The curriculum consists of synchronous learning, online courses, and blended courses. Specific hardware and software requirements for the program must be met. Students are expected to be present on campus during the research process to defend their proposals and dissertation.

## Learner outcomes

Upon completion of the Dr.P.H. degree in health education, the graduate should be able to:

- Conduct health education research and evaluation utilizing basic statistical concepts.
- Generate health-related educational training/curricular materials and conduct professional seminars and training programs.
- Promote and assist in the development of grant-writing proposals and applications for community-based health education research.
- Creatively apply theoretical concepts to program design for health education interventions/write and submit manuscripts to professional journals for publication.
- Demonstrate educational leadership skills, policy development, and strategic planning for organizations and agencies.

## Educational effectiveness indicators

- Comprehensive examination
- Dissertation proposal defense (qualifying examination)
- Advancement to candidacy
- Publishable research paper
- Dissertation defense

## Prerequisite

In addition to the entrance requirements for all Dr.P.H. degrees (p. 434), applicants to the Dr.P.H. degree program in health education must have:

- M.P.H. degree in health education, health behavior, or health promotion; or a master's degree in a health-related field preferred
- Post-master's degree work experience preferred
- Social science (two courses, which may include psychology, sociology, or cultural anthropology)
- Quantitative proficiency (e.g., statistics course, quantitative score on the GRE examination, or other demonstration of proficiency)

## Program requirements

### Corequisites

See standard DrPH corequisites (p. 434).

### Health Education Major

HPRO 543	Writing for Health Professionals	3
HPRO 588	Health Behavior Theory and Research	4
HPRO 589	Qualitative Research Methods	3
HPRO 608	Advanced Seminar in Health Education <sup>1</sup>	6
HPRO__	Health Education <sup>2</sup>	12

### Administration and leadership

HPRO 535	Health Education Administration and Leadership	3
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	Elective <sup>3</sup>	9
<b>Cognate</b>		
	Elective <sup>4</sup>	9
<b>Religion</b>		
RELE 5__	Graduate-level ethics	3
RELR 5__	Graduate-level relational	3
RELT 5__	Graduate-level theological	3
<b>Research and evaluation</b>		
HPRO 534A	Research Methods	2
HPRO 534B	Research Methods	2
HPRO 544	Health Education Evaluation and Measurement	3
HPRO 685	Preliminary Research Experience	2
HPRO 697	Dissertation Proposal	6
PHCJ 604	Research Seminar <sup>5</sup>	2
STAT 514	Intermediate Statistics for Health-Science Data <sup>6</sup>	3
STAT 549	Analytical Applications of SPSS	2
STAT 568	Data Analysis <sup>7</sup>	3
<b>Dissertation</b>		
HPRO 698	Dissertation <sup>8</sup>	12
<b>Total Units</b>		<b>95</b>

<sup>1</sup> Multiple registrations required to fulfill total units. 2 units in Autumn, Winter and Spring terms.

<sup>2</sup> Choose 12 units, in consultation with advisor. A minimum of nine (9) units must be taken from HPRO.

<sup>3</sup> Courses chosen in consultation with advisor

<sup>4</sup> Courses chosen in consultation with advisor; usually from a different discipline or school

<sup>5</sup> Taken after HPRO 534A Research Methods and HPRO 534B Research Methods

<sup>6</sup> Taken after STAT 549 Analytical Applications of SPSS

<sup>7</sup> Taken after STAT 514 Intermediate Statistics for Health-Science Data

<sup>8</sup> Multiple registrations required to fulfill total units

## Culminating experience

As a part of the culminating experience, the student completes two publishable scientific papers for submission to peer reviewed journals, successfully defends dissertation, and submits a committee approved dissertation manuscript. Further details provided in the Doctoral Handbook.

## Normal time to complete the program

5 years based on less than full-time

## Health Policy and Leadership – Dr.P.H.

### Program director

Edward S. McField

The Dr.P.H. degree curriculum in health policy and leadership emphasizes a mixture of professional and academic skills, such as leadership and management, finance and philanthropy, community engagement and advocacy, policy analysis and development, ethics, and research methods. The current, rapidly changing health and health-care landscapes—marked by significant health disparities and varied

challenges—demands a diversity of leadership talents. Moreover, creative approaches are needed to meet these challenges. The Doctor of Public Health degree in health policy and leadership at Loma Linda University provides a unique and wonderful opportunity to serve at the very heart of the intersection of leadership and policy, preparing participants for success in leadership positions that have major influence on policies, programs, and the public health system. In respecting their experience and backgrounds, participants in the program may also be called co-learners to emphasize the collegiate and peer-learning environment, including their interaction with faculty members and other mentors. As part of their degree requirements, participants prepare a dissertation. The dissertation will address a problem or issue of interest and of practical relevance to an organization. The dissertation may deal with needs assessment, benchmark study, program design and development, program implementation, program evaluation, or some combination of the above.

The Doctor of Public Health (Dr.P.H.) degree is the highest professional degree for the public health generalist. Participants will focus on public health practice and demonstrate broad knowledge related to professional skills. Consistent with the department's intentional interdisciplinary approach to doctoral education, this Dr.P.H. degree program offers learners the opportunity to customize an academic plan designed to fulfill their program requirements through unique core courses and a variety of electives offered by the School of Public Health. With approval, in developing their academic plan, learners may also identify courses offered throughout Loma Linda University. Drawing from resources in the School of Public Health and the program faculty's training and expertise in management, leadership, and policy, participants are able to develop leadership skills and competencies in selected policy areas, such as:

1. Health services and health care
2. Systems design and organizational change
3. Health disparities and health equity
4. Food and nutrition
5. Mother-infant health
6. Poverty and social welfare
7. Behavior and mental health
8. Water, air quality, and the built environment
9. Nonprofits and philanthropy
10. Resource development and generation

## Learning outcomes

In addition to the University learning outcomes (p. 19), the Health Policy and Leadership Program has five additional learning outcomes.

1. *Leadership and management*: Engage in reflective leadership and demonstrate understanding of a broad range of management and leadership issues, including governance, valuing diversity, planning, conflict resolution, and change processes.
2. *Health policy*: Demonstrate understanding of health policy development.
3. *Ethics and equity*: Demonstrate commitment to ethical choices and values of justice and equity, including skills in policy advocacy.
4. *Community and population health*: Demonstrate understanding of principles of community building, social determinants of health, and the delivery, quality, and costs of health and health care for individuals and populations.

5. *Scholarship*: Demonstrate skills in evaluating, conducting, and reporting research.

## Educational effectiveness indicators

- Comprehensive examination
- Dissertation proposal defense (qualifying examination)
- Advancement to candidacy
- Publishable research paper
- Dissertation defense

## Individuals who may benefit from the program

Given the context of Loma Linda University, participants will be midlevel-to-senior-level managers in public health, health care, public and government agencies, higher education, social welfare organizations, nongovernmental organizations (NGOs), faith-based organizations, community-based organizations (CBOs), and other related groups. Consistent with the program's focus on social determinants of health to promote health equity, individuals from nonhealth sectors are encouraged to apply. Two important requirements for those admitted into the program are that: (a) they will have had sufficient experience in the workplace (three or more years), and (b) they are currently employed in an organization that is supportive of their degree program and the unique requirement to develop a "learning environment" at the workplace.

## Prerequisite

See entrance requirements for all Dr.P.H. degrees. (p. 434)

## Program requirements

### Corequisites

See standard DrPH corequisites (p. 434).

### Major – Leadership

HADM 581	Orientation for Leadership I: Vision and Understanding	4
HADM 582	Orientation for Leadership II: Exploring the Nature of Leadership	4
HADM 583	Orientation for Leadership III: Setting a New Direction	4
HADM 584	Current Topics in Health Policy and Leadership	1-2
HADM 589	Advanced Practice in Leadership (Must be taken 3 times and may be repeated up to 8 credits.)	2
HADM 595	Leadership—Past, Present, and Future	3
HADM 604	Health Systems Strategic Planning	3
HADM 689	Graduate Seminar in Leadership	2-4

### Major – Health Policy

HADM 585	Policy Development for a Twenty-First Century Health System	3
HADM 588	Leadership, Policy, and Environmental Change	3
HADM 620	Health Policy Theories and Concepts	4
HADM 510	Health Policy Analysis and Synthesis <sup>1</sup>	3-4
or HADM 625	Health Policy Advocacy and Civic Engagement	

### Public health

HADM 586	Building Healthy Communities: Integrative Health Policy	3
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HADM 587	Health Policy and Research	3
EPDM 5__	Epidemiology Elective <sup>2</sup>	3
<b>Cognates or electives</b> <sup>3</sup>		
HPRO 543	Writing for Health Professionals Elective <sup>4</sup>	3 6
<b>Religion</b>		
One course required from each of the following areas. May include one additional elective.		
RELR 5__	Graduate-level Relational	3
RELE 5__	Graduate-level ethics	3
RELT 5__	Graduate-level theological	3
<b>Research</b>		
HADM 614	Research Design and Practice I	3
HADM 615	Research Design and Practice II	3
HADM 685	Preliminary Research Experience	3
HADM 505	Managerial Statistics and Epidemiology for Healthcare	2-4
or STAT 549	Analytical Applications of SPSS	
HADM 699	Applied Research	3
<b>Dissertation</b>		
HADM 697	Dissertation Proposal	4
HADM 698	Dissertation	8
Total Units		89-94

<sup>1</sup> Choose one in consultation with advisor

<sup>2</sup> Advanced epidemiology course chosen in consultation with advisor.

<sup>3</sup> Cognate or elective courses are to be chosen in consultation with the student's advisor, taking into consideration the student's previous experience and present interests. These units may be selected from courses offered by the School of Public Health or by other schools within the University; and must reflect a specific emphasis, or additional statistical or data analysis that will be required by the student's dissertation research.

<sup>4</sup> Choose in consultation with advisor

## Culminating experience

As a part of the culminating experience, the student completes two publishable papers for submission to peer reviewed journals, successfully defends dissertation, and submits a committee approved dissertation manuscript. Further details provided in the Doctoral Handbook.

## Capstone project

In addition to the dissertation defense, which is itself a major culminating experience, participants will present their portfolios at the end of the program. The portfolios are based on the academic plan and the eight areas of leadership competency, supported by evidence and validated as sections are completed, and assessed at the end of the program as the participants present them in the culminating degree activity.

## Normal time to complete the program

3.66 years based on less than full-time enrollment

# Nutrition – Dr.P.H.

## Program director

Sujatha Rajaram

The Doctor of Public Health (Dr.P.H.) degree in nutrition program is designed to provide advanced knowledge, skills, and competencies required to meet the increasing needs of public health nutrition at the doctoral level in the areas of research, academia, programs/policies, and leadership. Research emphasis is on plant-based diets in the prevention of chronic diseases, nutritional epidemiology, and community nutrition.

## Learner outcomes

Upon completion of the program, graduates will be able to:

- Contribute to the theory and practice of public health nutrition.
- Apply for funding to conduct research studies and design and implement a nutrition research project.
- Produce scientific papers and presentations.
- Demonstrate effective leadership skills.

## Educational effectiveness indicators

- Comprehensive examination
- Dissertation proposal defense (qualifying examination)
- Advancement to candidacy
- Two publishable scientific papers
- Dissertation defense
- One presentation at a scientific meeting

## Prerequisite

In addition to the entrance requirements for all Dr.P.H.degree, (p. 434)

- Master's degree in nutrition preferred; or an M.S. or M.P.H. degree with completion of all prerequisite courses; or a health professional degree at the master's level or higher (M.D. or equivalent).
- Advanced biochemistry (may be taken concurrently with the program)
- Anatomy and physiology
- Behavioral science (one course)
- Quantitative and analytical proficiency as evidenced by GRE scores

All prerequisites must be completed with a passing grade of B or higher.

## Individuals who may benefit from the program

Those who may benefit from the program include individuals seeking careers in:

- academia and research.
- leadership in public health nutrition in government and nonprofit organizations.

## Program requirements

### Corequisites

See standard DrPH corequisites (p. 434).

### Nutrition Major

NUTR 510	Advanced Public Health Nutrition	3
NUTR 517	Advanced Nutrition I: Carbohydrates and Lipids	4
NUTR 518	Advanced Nutrition II: Proteins, Vitamins, and Minerals	4

NUTR 519	Phytochemicals	2
NUTR 525	Nutrition Policy, Programs, and Services	3
NUTR 527	Assessment of Nutritional Status	3
NUTR 534	Maternal and Child Nutrition	3
NUTR 543	Concepts in Nutritional Epidemiology	3
NUTR 564	Contemporary Issues of Vegetarian Diets	3
NUTR 608	Doctoral Seminar in Public Health Nutrition	3
NUTR 620	Advanced Topics in Nutrition	6
<b>Religion</b>		
RELE 5_	Graduate-level Ethics	3
RELR 5_	Graduate-level Relational	3
RELT 5_	Graduate-level Theological	3
<b>Electives</b> <sup>1</sup>		14
<b>Research and evaluation</b>		
NUTR 539	Research Methods in Nutrition	2
NUTR 685	Preliminary Research Experience	2
NUTR 697	Dissertation Proposal	4-6
PHCJ 604	Research Seminar	2
PHCJ 630	Concepts and Practical Issues of Secondary Data	3
STAT 514	Intermediate Statistics for Health-Science Data	3
STAT 515	Grant- and Contract-Proposal Writing	3
STAT 549	Analytical Applications of SPSS	2
STAT 564	Survey and Advanced Research Methods	3
STAT 568	Data Analysis	3
<b>Dissertation</b>		
NUTR 698	Dissertation	12
Total Units		99-101

<sup>1</sup> Choose 14 units, in consultation with advisor, from the areas of nutrition, public health, basic science or leadership and administration; a minimum of six (6) units must be from NUTR

## Culminating experience

As a part of the culminating experience, the student completes two publishable papers for submission to peer reviewed journals, successfully defends dissertation, and submits a committee approved dissertation manuscript. Further details provided in the Doctoral Handbook.

## Normal time to complete the program

4.33 years based on less than full-time enrollment

# Preventive Care – Dr.P.H.

### Program director

Hildemar Dos Santos

The Preventive Care Program is designed to prepare high-level health professionals in wellness and lifestyle management intervention. Emphasis is on academic preparation, practical skills, and administrative abilities in developing, implementing, and evaluating programs and protocols designed to address a wide spectrum of health issues—particularly those dealing with chronic disease. These programs and protocols include physical and mental health risk appraisal, nutritional assessment and recommendations, exercise testing and prescription, and smoking cessation counseling.

The program seeks to demonstrate and elucidate the intimate connection between mind and body. Graduates address the combined influences of nutrition, exercise, stress, smoking and other lifestyle factors on the promotion of health and the prevention of disease.

This program is exclusive for health practitioners with a license to practice in the U.S. Physicians, nurses, dentists, physical therapists, registered dietitians, occupational therapists, etc., can apply for this program. Non-physicians are not able to practice medicine upon completion of this degree.

## Learner outcomes

Upon completion of this program, the graduate should be able to:

1. Design and implement wellness and lifestyle intervention protocols, seminars, and training programs.
2. Conduct lifestyle assessment and counseling for patients with lifestyle-related diseases and lifestyle consultancy to health professionals.
3. Conduct chemical dependency interventions.
4. Contribute to the theory and practice of preventive care through research and graduate-level teaching.
5. Demonstrate effective leadership skills in public health and clinical settings.

## Educational effectiveness indicators

- Comprehensive examination
- Qualifying examination (proposal defense)
- Internship
- Dissertation defense
- Publishable papers
- Portfolio review

## Prerequisite

In addition to the entrance requirements for all Dr.P.H. degrees (p. 434), applicants to the Dr.P.H. degree Preventive Care Program must have:

- Clinical health professional degree, including but not limited to medicine, osteopathy, dentistry, nursing, clinical psychology, pharmacy, or physical therapy; or training as a nurse practitioner, physician assistant, chiropractor, licensed exercise physiologist, or registered dietitian. Must have completed at least two years in a clinical program.
- Biochemistry
- Anatomy and Physiology
- Pharmacology

## Program requirements

### Corequisites

In addition to standard DrPH corequisites (p. 434), the DrPH program in Preventive Care requires the following courses that can be taken early on in the program in addition to units required for the degree.

### Corequisites

HPRO 501	Human Anatomy and Physiology I	6
HPRO 526	Lifestyle Diseases and Risk Reduction	3

HPRO 565	Tobacco Use: Prevention and Interventions	3
HPRO 606	Motivational Interviewing	2
HPRO 573	Exercise Physiology I	3
NUTR 504	Nutritional Metabolism	5
<b>Major</b>		
HPRO 500	Stress Management	2
HPRO 515	Mind-Body Interactions and Health Outcomes	4
HPRO 527	Obesity and Disordered Eating	3
HPRO 529	Preventive and Therapeutic Interventions in Chronic Disease	4
HPRO 553	Addiction Theory and Program Development	3
HPRO 578	Exercise Physiology II	3
HPRO 586	Introduction to Preventive Care	1
HPRO 587	Preventive Care Practice Management	2
HPRO 588	Health Behavior Theory and Research	4
NUTR 517	Advanced Nutrition I: Carbohydrates and Lipids	4
NUTR 518	Advanced Nutrition II: Proteins, Vitamins, and Minerals	4
NUTR 527	Assessment of Nutritional Status	3
NUTR 578	Exercise Nutrition	2
<b>Cognates or electives</b>		
	Elective <sup>1</sup>	12
<b>Religion</b>		
One course required from each of the following three areas. May include one additional elective.		
RELE 5__	Graduate-level Ethics	3
RELR 5__	Graduate-level Relational	3
RELT 5__	Graduate-level Theological	3
<b>Research and evaluation</b>		
HPRO 534A	Research Methods	2
HPRO 534B	Research Methods	2
HPRO 697	Dissertation Proposal	4
PHCJ 604	Research Seminar	2
STAT 514	Intermediate Statistics for Health-Science Data	3
STAT 549	Analytical Applications of SPSS	2
STAT 568	Data Analysis	3
<b>Research and dissertation</b>		
HPRO 698	Dissertation <sup>2</sup>	12
Total Units		90

**Internship <sup>3</sup>**

Internship units are in addition to the minimum didactic units required for the degree

HPRO 704D	Internship (400 hours) <sup>3</sup>	8
	or HPRO 704A Internship	
	or HPRO 704B Internship	
	or HPRO 704C Internship	

<sup>1</sup> Cognate or elective courses are to be chosen in consultation with the student's advisor, taking into consideration the student's previous experience and present interests. These units may be selected from courses offered by the School of Public Health or by other schools within the University; and must reflect a specific preventive care emphasis, clinical practice focus, or additional statistical or data analysis that will be required by the student's dissertation research.

<sup>2</sup> Multiple registrations required to fulfill total units

<sup>3</sup> Internship units must be completed in 4 mandatory areas: Drayson Center Preventive Care Clinic (2 units/100 hours), Stop Smoking Program at the Loma Linda Veterans Hospital (2 units/100 hours), Obesity Management (2 units/100 hours), and Other Lifestyle Medicine Site (2 units/100 hours).

For internship hours, students must register for any of the following courses: HPRO 704A (100h), HPRO 704B (200h), HPRO 704C (300h), or HPRO 704D (400h).

**Culminating experience**

As a part of the culminating experience, the student completes two publishable papers for submission to peer reviewed journals, successfully defends dissertation, and submits a committee approved dissertation manuscript. Further details provided in the Doctoral Handbook.

**Normal time to complete the program**

7 years based on less than full-time enrollment

# SCHOOL OF RELIGION

## Dean's welcome



Welcome to the most unusual school of Loma Linda University. The School of Religion has several degree programs that associate areas in the sciences with religion. But the major task of the School of Religion remains enriching programs in the other seven schools of the University with a faith-based, wholistic approach to the health sciences. So, in whatever program you have enrolled, you will come in contact with School of Religion offerings that have been uniquely designed to help you prepare for wholistic ministry within your chosen profession. Studying at Loma Linda University is about more than just careers and professions; it is about mission and purpose for all of life. The School of Religion is pleased to have an important role in helping to prepare you for the most fulfilling life and career possible.

Detailed information about our master's degrees and our new doctoral program in religion is contained in this section of the Catalog. These programs have been designed to specifically equip graduates with skills in clinical ministry, chaplaincy, bioethics, and the integration of religion with both the sciences and health. However, within the framework of our academic programs, we also offer a unique opportunity for LLU students in other professional programs to apply for dual enrollment in either bioethics or clinical ministry. Students enrolled in dentistry (D.D.S.), marital and family therapy (M.S.), medicine (M.D.), nursing (M.S.), psychology (Psy.D. or Ph.D.), and social policy and social research (M.A.) are eligible to apply for admission to the master's degree in either the

Bioethics or Clinical Ministry program. Please refer to The Combined Degrees Programs of the University section to learn more about our dual enrollment degree programs.

On behalf of the faculty and staff of the School of Religion, let me personally invite you to seriously consider the courses and the programs that we offer. We can help strengthen your faith; broaden your spiritual and academic horizons; enhance your ability to serve; and prepare you not only for this life, but also for eternity.

May God enrich your studies,

Jon Paulien, Ph.D.  
Dean, School of Religion

## School foundations

### History

In the configuration of Loma Linda University as a health sciences university, the role of religion as integrative in each of the programs of the University is mandated and continuously affirmed by the University administration and the Board of Trustees.

In July of 1990, the Faculty of Religion (now the School of Religion) was established to assist in this integration.

### Philosophy

As implied by its motto, "To make man whole," the University affirms these tenets as central to its view of education:

- God is the Creator and Sustainer of the universe.
- Humanity's fullest development entails a growing understanding of the individual in relation to both God and society.
- The quest for truth and professional expertise, in an environment permeated by religious values, benefits the individual and society and advances the ministry of the Seventh-day Adventist Church.

### Mission statement

The School of Religion is committed to the following four tasks, as informed by the teachings and practice of the Seventh-day Adventist heritage and mission:

1. To promote Christian wholeness for faculty and students in their personal and professional lives and witness.
2. To provide a religion curriculum with the following emphases:
  - Theological studies (biblical, historical, doctrinal, mission, and philosophical).
  - Ethical studies.
  - Relational studies (applied theology, clinical ministry, and psychology of religion).
3. To foster and support research in theological, ethical, and relational disciplines.
4. To serve the University, the church, and the larger world community by personal involvement in fostering deeper spirituality, theological integrity, and social justice.

### Dean

Jon Paulien

### Associate Dean

Leo Ranzolin

### Primary faculty

Erik Carter

Janice De-Whyte

Jeff Gang

Carla Gober Park

Andy Lampkin

David R. Larson

Theodore N. Levterov

Jon Paulien

Zdravko Plantak

Richard Rice

Randy Roberts

Siroj Sorajjakool

Calvin Thomsen

Sigve Tonstad

James W. Walters

Whitny Braun

Zane Yi

### Secondary faculty

Henry H. Lamberton

D. Graham Stacey

### Associated faculty

Jon Ciccarelli

George Dzimiri

Raewyn Hankins

Warren Johns

William Johnsson

Marquelle Klooster

Igor Kokhan

Kathy McMillan

Grace Oei

Siegfried Roeske

Randall Skoretz

Keith Wakefield

### Emeritus professor

Wil Alexander

Ivan Blazen

David L. Taylor, Jr.

Louis Venden

## Admissions

The program admissions committees of the University intend that an applicant to any of the schools is qualified for the proposed curriculum and is capable of profiting from the educational experience offered by this University. The admissions committees of the schools accomplish this by examining evidence of scholastic competence, moral and ethical standards, and significant qualities of character and personality. Applicants are considered for admission only on the recommendation of the program in which study is desired.



In addition to Loma Linda University (p. 24) admissions requirements, the applicant must also complete the following requirements:

- A four-year baccalaureate degree (or its equivalent) from an accredited college or university is a prerequisite for admission to the School of Religion. Transcripts of the applicant's scholastic record should show appropriate preparation, in grades and content, for the curriculum chosen.
- Applicants to the Clinical Ministry Program, Chaplaincy Program, or the Religion and the Sciences Program are expected to present an undergraduate record with a grade point average of B (3.00) or better in the overall program and in the major field. Some students with an overall grade point average between 2.50 and 3.00 may be admitted provisionally to graduate standing, provided the grades during the junior and senior years are superior, or there is other evidence of capability. For scholarship requirements for the Bioethics Program, please go to the Bioethics Program section in this CATALOG.
- A personal interview is desirable and should be arranged with the director of the program in which the student wishes to study.
- Since there is some variation in the pattern of undergraduate courses prescribed by different programs, the student should note the specific requirements of the chosen program. Deficiencies may be removed while enrolled; prerequisites must be completed prior to acceptance into the program.

### Application deadlines

The School of Religion has a rolling admission policy in which completed applications are reviewed and students are accepted on a continual basis. Applications must be completed by the deadlines listed for the quarter in which the student wishes to enroll:

- Autumn Quarter: August 1
- Winter Quarter: November 1
- Spring Quarter: February 1
- Summer Quarter: May

## General regulations

Students of the University are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. Section III gives the general setting for the programs of each school and the subject and unit requirements for admission to individual professional programs. It is important to review specific program requirements in the context of the general requirements applicable to all programs.

### Academic probation

Degree students whose cumulative G.P.A. at the end of any quarter is less than 3.0 will be placed on academic probation. The number of units for subsequent registrations is restricted to a maximum of 12 per quarter. Students who are on academic probation and fail to earn a 3.0 for the next quarter, or who fail to have an overall G.P.A. of 3.0 after two quarters, jeopardize their standing in a degree or certificate program and may be dismissed from school.

### Concurrent admission

Students may not be admitted to a School of Religion program while admitted to another program at this University or elsewhere. The exception to this are the combined degrees programs, discussed at the end of Section III of this CATALOG.

## Financial information

The Office of the Dean is the final authority in all financial matters and is charged with the interpretation of all financial policies. Any exceptions to published policy in regard to reduction or reimbursement of tuition must be approved by the dean. Any statement by individual faculty members, program directors, or department chairs in regard to these matters is not binding on the school or the University unless approved by the dean.

Registration is not complete until tuition and fees on the required installments are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic year. There may be adjustments in tuition and fees as economic conditions warrant.

## On- and off-campus student housing

Students may go to <llu.edu/central/housing> for housing information and a housing application form.

## Additional requirements

For additional policies, governing Loma Linda University students, see Section II of this CATALOG, as well as the University *Student Handbook*. Students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation.

## Programs

- Bioethics – M.A. (p. 447), Certificate (p. 447)
- Chaplaincy – M.S.Chap. (p. 449)
- Clinical Ministry – M.A. (p. 450), Certificate (p. 450)
- Denominational Studies for Chaplains – Certificate (p. 452)
- Religion and Health – D.Sc. (p. 453)
- Religion and Society – M.A. (p. 455)

## Bioethics – M.A., Certificate

### Program director

Zdravko Plantak

The purpose of the Bioethics Program—an interdisciplinary course of graduate study leading to a Master of Arts degree—is to prepare qualified persons to engage in education, research, and service pertinent to the ethical issues in health care and human biology.

This degree is designed primarily for two types of students: those who desire the Master of Arts degree as a step toward graduate work at the doctoral level, and those who wish to acquire the degree in order to complement their career in health care or another field.

This academic program is enhanced by its close association with the Center for Christian Bioethics and its 4,000-volume library.

## Objectives

Graduates of the Bioethics Program will be able to demonstrate:

1. A broad knowledge of the field of bioethics.
2. Mastery of at least one area of bioethical inquiry.
3. Research and writing skills of a caliber to contribute to bioethical literature.

- An understanding of the relationship among personal, professional, and social ethics.

## Course requirements

In order to receive the Master of Arts degree in bioethics from Loma Linda University, the student will complete a minimum of 48 units of course work as herein specified, with an overall grade average of B+ (3.30) or higher, with no grade lower than a C; and with no grade lower than a B- in a required course.

## Transfer credits

Students are permitted to transfer up to 8 units of approved graduate-level courses from other accredited institutions into the Bioethics Program.

## Special features

RELE 598 Master's Seminar I: This capstone seminar reflects on previous class work and involves integration of conceptual presuppositions, ethical theories, and ethical principles. Mastery of a broad knowledge of the field through an examination will be assessed by the bioethics faculty. (All program faculty and students are invited to attend sessions they choose from these two seminars.)

RELE 599 Master's Seminar II: Each student enters class with a research paper, likely prepared in an earlier course. With collegial critique, these papers are prepared for publication and submitted to at least one peer-review journal. Papers demonstrate the ability to identify an issue, analyze it, use relevant literature, and creatively conceptualize or even advance the discussion. Professional students are encouraged to write for their professional publications, adopting relevant size and editorial considerations. Paper(s) will total 20–25 pages.

## Certificate

The Bioethics Program certificate is designed to provide basic competence in bioethics to a health-care professional. It consists of 28 units of academic credit: three core bioethics courses (RELE 524 Bioethics and Society, RELE 588 Explorers of the Moral Life, and RELE 589 Biblical Ethics); plus electives taken from bioethics course offerings. A student can take a clinical track by including RELE 545 Bioethics Case Conference I, RELE 554 Clinical Ethics Practicum I, and RELE 555 Clinical Ethics Practicum II. The certificate can be completed in two to three quarters of full-time study.

## Admissions

In addition to Loma Linda University (p. 24) and School of Religion (p. 446) admissions requirements, the applicant must also complete the following requirements:

Typically, applicants will meet the following criteria for admission:

- Minimal GRE percentile scores of 60 (verbal), 60 (analytical writing), and 35 (quantitative). In some professional programs (e.g., M.D. and D.D.S.), students and graduates need not take the GRE, although other requirements apply.
- An undergraduate grade point average of B+ (3.30) or better in the overall program.
- An 800-word essay on the applicant's background and goals and how earning an M.A. degree in bioethics at Loma Linda University is envisioned to further such goals.

- A personal interview.
- Three letters of recommendation from current or former professors.

More important than any single admissions factor is the cumulative sense that the applicant is capable of and committed to serious academic work. Hence, the applicant might also submit an essay—published or from previous class work—that demonstrates creative, analytical thinking.

Information on admission, tuition, and student life and an online application can be found on the Web at <llu.edu/central/apply>.

## Program requirements

### M.A.

#### Required

RELE 524	Bioethics and Society	4
RELE 545	Bioethics Case Conference I	1
RELE 588	Explorers of the Moral Life	3
RELE 589	Biblical Ethics	3
RELE 598	Master's Seminar I	3
RELE 599	Master's Seminar II	2

#### Standard electives

Choose required units from the following: <sup>1</sup>		32
RELE 525	Ethics for Scientists	
RELE 534	Ethical Issues in Public Health	
RELE 548	Christian Social Ethics	
RELE 554	Clinical Ethics Practicum I	
RELE 555	Clinical Ethics Practicum II	
RELE 564	Ethics and Health Disparities	
RELE 565	The Good, the Bad, and the Ugly: Moral Aspects of Art and Illness	
RELE 566	Heroes of Health Care	
RELE 567	World Religions and Bioethics	
RELE 568	Bioethics and the Law	
RELG 674	Reading Tutorial	
RELG 697	Independent Research	

Total Units		48
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<sup>1</sup> Up to 8 units of approved graduate-level courses from other LLU schools or other accredited institutions may be chosen.

### Normal time to complete the program

1.33 years (5 academic quarters) based on full-time enrollment; part time permitted

### Certificate

#### Required

RELE 524	Bioethics and Society	4
RELE 588	Explorers of the Moral Life	3
RELE 589	Biblical Ethics	3

#### Standard electives

Choose required units from the following:		18
RELE 525	Ethics for Scientists	
RELE 534	Ethical Issues in Public Health	
RELE 548	Christian Social Ethics	
RELE 554	Clinical Ethics Practicum I	

RELE 555	Clinical Ethics Practicum II	
RELE 564	Ethics and Health Disparities	
RELE 565	The Good, the Bad, and the Ugly: Moral Aspects of Art and Illness	
RELE 566	Heroes of Health Care	
RELE 567	World Religions and Bioethics	
RELE 568	Bioethics and the Law	
Total Units		28

### Normal time to complete the program

1 year (3 academic quarters) based on full-time enrollment; part time permitted

## Chaplaincy – M.S.Chap.

### Program director

Calvin Thomsen

The program leading to the Master of Science in Chaplaincy degree (M.S.Chap.) prepares the student to enter the pastoral field as a professional chaplain through demonstrating competence in four core areas:

1. Theory of pastoral care competencies (integration of theological, psychological, and sociological perspectives into the practice).
2. Identity and conduct competencies (formation of pastoral identity within the clinical context, including integration of professional ethics in daily practice).
3. Pastoral competencies (provision of effective pastoral care using appropriate pastoral, spiritual, and theological resources).
4. Professional competencies (integration of pastoral/spiritual care into the life and service of the institution in which it resides, while establishing and maintaining professionalism within the interdisciplinary relationships).

This degree offers academic and clinical training to aspiring scholars and practitioners. It is designed to educate students according to the standards for associate certification with the Association of Professional Chaplains (APC). Professional certification is granted by APC and other such agencies. Students interested in board certification with APC may require additional academic credits to qualify and are encouraged to pursue the doctoral degree in religion and health offered by the School of Religion.

NOTE: The APC certifies chaplains from diverse religious traditions. Eligibility for chaplaincy certification from APC or other certification agencies generally requires an endorsement from the student's own religious tradition. Current or future endorsement, commissioning, ordination, or comparable professional standing to function in a ministry of pastoral care is granted through membership of an appropriate religious authority and according to the standard practice and policy of that authority. Students are strongly advised to contact their own religious denomination to determine requirements.

Loma Linda University Medical Center, under the auspices of the Department of Chaplain Services, is a Clinical Pastoral Education Center that is accredited by the Association for Clinical Pastoral Education, Inc. (ACPE). Settings providing clinical opportunities for training in chaplaincy include: Loma Linda University Medical Center (LLUMC), Loma Linda University Medical Center–Murrieta, and Loma Linda University Behavioral Medicine Center.

## Program objectives

Upon completion of the M.S. in Chaplaincy Program, students will demonstrate comprehensive knowledge of the following learning outcomes:

1. Theory of pastoral care: Articulate the theory of pastoral care and emphasize the ministry of presence.
2. Awareness: Demonstrate an awareness of the values and assumptions that impact interpersonal relationships.
3. Conduct/Boundaries: Set respectful boundaries in professional relationships.
4. Clinical skills: Demonstrate clinical skills related to the field of chaplaincy.

## Transfer credits

Students are permitted to transfer up to 14 units of approved graduate-level courses from other accredited institutions into the M.S. in Chaplaincy Program.

## Faculty

The faculty represents a balance between academic expertise and clinical experience in the field of pastoral care and chaplaincy; as well as a variety of disciplines, including: biblical studies, theology, marriage and family therapy, cultural psychology, health education, nursing, spirituality, and ethics.

## Admissions

In addition to Loma Linda University (p. 24) and School of Religion (p. 446) admissions requirements, the applicants to the M.S. in Chaplaincy Program are expected to:

1. Provide an undergraduate record from a regionally accredited institution with a grade point average of B (3.00) or better in the overall program and in the major field.
2. Submit a personal essay and a scholarly writing example. More details will be provided once application has been submitted.
3. Submit three letters of recommendation (two academic and one pastoral).
4. Interview with faculty members in relational studies and a representative from the LLUMC CPE Program.

## Program requirements

### Corequisites

Students entering without an undergraduate degree in theology/religion must take an additional five graduate-level theological courses. Students in this category, who are seeking Adventist Chaplaincy Ministry (ACM) endorsement, must select courses from the School of Religion Denominational Certificate Program.

### Course Requirements

In order to receive the Master of Science in Chaplaincy degree from Loma Linda University, the student will complete a minimum of 72 units of coursework as herein specified, with an overall grade point average of B or better, with no grade lower than a C and with no grade lower than a B- in a core course.\

### Core

RELG 504	Research Methods in Religious Studies
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RELG 696	Project	4
RELR 520	Clinical Training in Spiritual Care I	3
RELR 521	Clinical Training in Spiritual Care II	3
RELR 525	Health Care and the Dynamics of Christian Leadership	3
RELR 526	Pastoral and Professional Formation	3
RELR 527	Crisis Care and Counseling	3
RELR 540	Wholeness and Health	3
RELR 565	Pastoral Theology and Methodology	3
RELR 567	Pastoral Counseling	4
RELR 568	Care of the Dying and Bereaved	3
RELR 574	Preaching	3
RELR 584	Culture, Psychology, and Religion	3
RELR 587	Religion and the Social Sciences	3
RELT 508	Contemporary Christian Theology	3
RELT 520	Church History	3
RELT 557	Theology of Human Suffering	3

**Selectives****Biblical Studies:**

Choose from the following: 6-9

RELE 589	Biblical Ethics
RELT 500	Biblical Hermeneutics
RELT 504	Daniel and the Prophetic Tradition
RELT 527	The Bible and Ecology
RELT 558	Old Testament Thought
RELT 559	New Testament Thought
RELT 560	Jesus the Revealer: The Message of the Gospel of John
RELT 565	Vision of Healing: The Message of the Book of Revelation

**Ethics:**

Choose from the following: 3-6

RELE 524	Bioethics and Society
RELE 564	Ethics and Health Disparities
RELE 567	World Religions and Bioethics
RELE 577	Theological Ethics

**Personal and Spiritual Formation:**

Choose from the following: 3-6

RELR 535	Spirituality and Mental Health
RELR 588	Personal and Family Wholeness
RELT 540	World Religions and Human Health
RELT 555	The Adventist Experience

**Internship**

Students are required to register for 800 hours of clinical internship. Internship units do not count toward minimum didactic units required for the degree.

Register for either of the following courses (or a combination of both) for a total of 24 units while taking the required 800 hours of Clinical Pastoral Education (CPE). Whether you take the course for non-credit (RELG 795) or credit (RELR 524), neither counts toward the 72 units required for the degree:

RELG 795	Clinical Internship (12 units = 400 hours)
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RELR 524	Clinical Pastoral Education (6-12 units (This course may account for a maximum of 6 academic units. These academic units do not count toward the 72 units required for the degree. 6 academic units = 400 hours).)
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Total Units 72

**Noncourse requirements****Clinical internship**

Students must also satisfactorily complete an approved, 800-hour clinical internship. The program recommends that this requirement be met by the satisfactory completion of two quarters of clinical pastoral education (CPE) at an accredited CPE center.

Note: Acceptance into the CPE program is at the discretion of the CPE supervisor and must be arranged individually and in advance. Students are encouraged to apply at Loma Linda University's CPE Center as well as other centers that are accredited by ACPE. It is recommended that students take the following course work prior to enrolling in a CPE:

RELR 568 Care of the Dying and Bereaved (3)

RELR 527 Crisis Care and Counseling (3)

Students who wish to receive academic credits for their clinical internship may register for RELR 524 Clinical Pastoral Education. If taken as an elective, this course may account for a maximum of 6 academic units.

**Critical Essay**

At the end of their first year, students will write one critical essay dealing with the five program learning outcomes.

**Case Presentation**

Students are required to present a case to faculty members in the relational area prior to graduation. The case should follow the stated format and highlight clinical skills in chaplaincy, taking into consideration assessment, interventions, theories, spirituality, and pastoral formation.

**Dean's Exit Interview**

Graduate candidates are required to attend an exit interview with the Dean of the School of Religion during the spring quarter of their graduation year.

**Normal time to complete the program**

2 years (8 consecutive academic quarters)—based on full-time enrollment; part time enrollment is permitted and would extend the program to more than 2.5 years.

**Clinical Ministry – M.A., Certificate****Program director**

Siroj Sorajjakool

Closed to admissions for 2016-2017.

The Clinical Ministry Program leading to a Master of Arts degree encourages students to explore the theological, biblical, and historical roots of ministry within the institutional setting and to prepare for the practice of such ministry. The program is especially valuable as preparation for careers in chaplaincy and other fields of ministry. It is particularly designed for three types of students:

1. those at the beginning of their professional lives;

2. those pursuing this degree in order to enhance or shift their existing careers; and
3. those pursuing this degree as a steppingstone to further study.

This degree furthers education in caring for the whole person. The student will develop clinical skills applicable to contemporary ministry. The program includes education in two areas: academic and clinical. The School of Religion and other cooperating departments within the University provide needed academic preparation.

Settings providing clinical opportunities for training in institutional ministry include: Loma Linda University Medical Center (LLUMC), Loma Linda University Behavioral Medicine Center (BMC), and Campus Ministries.

Loma Linda University Medical Center, under the auspices of the Department of Chaplain Services, is an accredited Clinical Pastoral Education (CPE) Center. Students admitted to the Clinical Ministry Program may apply for this clinical placement. (Separate application procedures are required.)

## Program objectives

Upon completion of the Clinical Ministry Program, students will demonstrate:

1. Increased skills related to clinical ministry.
2. Ability to integrate theoretical, theological, biblical, and philosophical perspectives in the study of clinical ministry.
3. Critical thinking and the ability to identify spiritual issues in clinical ministry within the health-care context.
4. Development of personal understanding of ethical standards and commitments to wholeness that inform their work and personal lives through values development.

## Course requirements

In order to receive the Master of Arts degree in clinical ministry from Loma Linda University, the student will complete a specified minimum of 48 units of course work, with an overall grade average of B or higher, with no grade lower than a C; and with no grade lower than a B- in core courses.

## Faculty

The faculty represents a balance between academic expertise and clinical experience; as well as a variety of disciplines, including biblical studies, theology, theology and ministry, marriage and family therapy, cultural psychology, American church history, health education, nursing, spirituality, and ethics.

## Transfer credits

Students are permitted to transfer up to nine (9) units of approved graduate-level courses from other accredited institutions into the Clinical Ministry Program.

## Admissions

In addition to Loma Linda University (p. 24) and School of Religion (p. 446) admissions requirements, the applicants to the M.S. in Chaplaincy Program are expected to present/complete:

In addition to meeting admission requirements for the School of Religion, the applicant to the Clinical Ministry Program must:

1. Propose clear personal and professional goals and ways in which the program in clinical ministry may facilitate their realization.
2. Persuade the Admissions Committee, by previous accomplishments, that s/he is able and willing to reach these goals and to make a distinguished contribution to the field.

## Program requirements

### M.A.

#### Major

RELE 524	Bioethics and Society	4
RELG 504	Research Methods in Religious Studies	4
RELR 527	Crisis Care and Counseling	3
RELR 565	Pastoral Theology and Methodology	3
RELR 567	Pastoral Counseling	4
RELR 568	Care of the Dying and Bereaved	3
RELR 574	Preaching	3
RELR 584	Culture, Psychology, and Religion	3
RELR 587	Religion and the Social Sciences	3
RELT 557	Theology of Human Suffering	3
RELT 558	Old Testament Thought	3
RELT 559	New Testament Thought	3

#### Thesis, project, or publishable papers

RELG 697	Independent Research	2-5
RELG 696	Project	1-4
or RELG 698	Thesis	

#### Internship

Internship units do not count toward minimum didactic units required for the degree.

RELG 795	Clinical Internship (12 units)	12
RELR 692	Seminar in Religion and Health Care Leadership: Current Trends	4

Total Units 49

## Noncourse requirements

### Clinical internship

Students must also satisfactorily complete an approved, 400-hour clinical internship.

The program recommends that the requirements of RELG 795 Clinical Internship be met by the satisfactory completion of one quarter of clinical pastoral education (CPE) at an accredited CPE center. (Note: Acceptance into a quarter of CPE is at the discretion of the CPE supervisor and must be arranged individually and in advance.) It is expected that all students will complete all course work before entering the clinical internship. In certain cases, however, a student may petition the director of the program to take the clinical internship out of sequence. Even in such cases, it is recommended that the following courses be completed before entering the clinical internship:

RELR 565	Pastoral Theology and Methodology	3
RELR 567	Pastoral Counseling	4
RELR 568	Care of the Dying and Bereaved	3

Students who wish to receive academic credits for their clinical internship may register for RELR 524 Clinical Pastoral Education Clinical

Pastoral Education. If taken as a selective, this course may account for a maximum of 6 academic units.

After the 400-hour segment, a clinical evaluation form must be submitted to the program director.

### Comprehensive examination

Each student must pass a comprehensive examination. This examination will test the student's ability to integrate and apply knowledge from the overall program. This examination must be successfully completed before the student defends a thesis, project, or publishable papers.

### Thesis, project, or publishable papers

Independent research for either the thesis or the project is done while registered for RELG 697 Independent Research (1-8). After completing RELG 697 Independent Research, each student must choose from the following options: (a) prepare a thesis while registered for RELG 698 Thesis (1-4), (b) prepare a project or prepare two major papers of publishable quality while registered for RELG 696 Project (1-4).

The project option must be designed and implemented within the confines of the program and under the auspices and direction of the program director. The student must provide an oral defense of the thesis, project, or two publishable papers.

### Length of program

1.25 years (5 academic quarters) – based on full-time enrollment; part time permitted

### Certificate

The clinical ministry certificate option is available for students who prefer not to complete the full M.A. degree program.

#### Major

RELE 524	Bioethics and Society	3-4
RELR 527	Crisis Care and Counseling	3
RELR 565	Pastoral Theology and Methodology	3
RELR 567	Pastoral Counseling	4
RELR 568	Care of the Dying and Bereaved	3
RELR 584	Culture, Psychology, and Religion	3
RELT 557	Theology of Human Suffering	3

#### Internship

##### Elective 3

Internship units do not count toward minimum didactic units required for the certificate.

RELG 795	Clinical Internship	12
RELR 692	Seminar in Religion and Health Care Leadership: Current Trends	4

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Total Units 30

### Noncourse requirements

#### Fulfilling required units

The 27 required units are to be satisfactorily completed by taking all of the certificate courses indicated in the following table. Three of the courses must be taken for 4 units.

#### Clinical internship—CPE

The program recommends that the clinical internship requirement of 400 hours (RELG 795 Clinical Internship) be satisfied through one quarter of clinical pastoral education (CPE).

### Normal time to complete the program

1 year (3 academic quarters) – based on full-time enrollment; part time permitted

## Denominational Studies for Chaplains – Certificate

#### Program director

Jon Paulien

The fully online Denominational Studies for Chaplains Program is designed for practicing chaplains who lack academic course work in Adventist doctrine and who desire endorsement from the Adventist Chaplaincy Ministries (ACM) department of the General Conference of Seventh-day Adventists. This certificate will satisfy the denominational studies requirement.

The development of this certificate has been a collaborative effort between Loma Linda University and Loma Linda University Medical Center Chaplains Department, in consultation with ACM.

This certificate is a response to the stated need of ACM for denominational education that includes the following four areas:

1. Seventh-day Adventist history and heritage;
2. Seventh-day Adventist doctrines, beliefs, and practices;
3. Seventh-day Adventist perspectives on Daniel and Revelation and how they inform the issues of suffering and pain; and
4. Seventh-day Adventist health, wellness, and lifestyle issues.

### Teaching methodology

The education model designed for this academic certificate will be through distance learning online modalities that use Canvas as its learning management system (LMS).

This certificate is a two-year program in which all courses and learning occur via the LMS. The learning activities for each course facilitate opportunities for personal growth via the online, class-driven learning activities. Students can begin the program in any given quarter and are expected to follow the course requirements as they are offered, one per quarter in a continual sequence. The program includes an individual report, preparation and presentation of a portfolio, and an exit interview—all conducted via the LMS and facilitated by video conference communication technology.

### Student learning outcomes and performance indicators

After completing the requirements, graduates of the Denominational Studies for Chaplains Program will be able to articulate the following student learning outcomes:

1. Explain Adventist theological uniqueness and the biblical foundations of its doctrines.
2. Demonstrate knowledge and competent use of Scriptures.
3. Demonstrate an understanding of Christian theology and history, with specific attention to Seventh-day Adventist life and thought.
4. Integrate Adventist doctrines from a health-care chaplain's perspective, allowing graduates to minister as representatives of the Seventh-day Adventist Church.

- Synthesize individual Adventist versions of a philosophy of ministry within the health-care setting.

## Course requirements

In order to receive the certificate in denominational studies for chaplains from Loma Linda University, the student will complete a specified minimum of 28 units of course work, with an overall grade point average of B (3.00) or higher, with no grade lower than a B-. All 28 units of the certificate in denominational studies for chaplains are required. No electives are offered.

## Transfer credits

No transfer units are accepted for the Denominational Studies for Chaplains Program.

## Admissions

In addition to Loma Linda University (p. 24) and School of Religion (p. 446) admissions requirements, the applicants to the Denominational Studies for Chaplains Program are expected to present/complete:

- Received a college baccalaureate degree from an accredited institution.
- A minimum overall undergraduate grade point average of 3.00. A provisional acceptance for 8 units will be granted to those with a minimum overall grade point average of 2.5. In order to change their status to regular standing, students will be required to earn a 3.00 grade point average for these 8 units.
- Been a chaplain and received a recommendation from ACM.
- Two recommendations (one professional/ministerial and one from a former professor or academic advisor).
- Statement of research interest and sample paper.

## Program requirements

### Required

RELR 540	Wholeness and Health	3
RELR 541	History of Seventh-day Adventist Chaplaincy and Healthcare Policy Making	4
RELT 500	Biblical Hermeneutics	3
RELR 595	Independent Study in Chaplaincy	1
RELT 504	Daniel and the Prophetic Tradition	3
RELT 505	Seventh-day Adventist History	3
RELT 506	Seventh-day Adventist Beliefs	3
RELT 507	The Saga of Adventists and Healthcare: Cornflakes, Baby Fae, and the Healing of the Nations	3
RELT 565	Vision of Healing: The Message of the Book of Revelation	3
Total Units		26

### Normal time to complete the program

2 years (8 academic quarters) based on less than half-time enrollment

## Religion and Health – D.Sc.

### Program director

Jon Paulien

### Associate program director

Siroj Sorajjakool

The program leading to the Doctor of Science (D.Sc.) degree in religion and health prepares students in the following areas:

- Theological and biblical foundations for the religion and health dialogue
- Health-care policy and advocacy implications for religion and health
- Interaction of religion and health within a specific arena of health, chaplaincy, religion, or faith/health leadership
- Integration and leadership skill development
- Contribution to the field of religion and health through practice and research.

The curriculum, both academic and clinical, is specifically designed for individuals who wish to pursue work within the context of religion and health (faith/health leadership, chaplaincy leadership, integrative research). It prepares students to enter the field at the level of associate chaplains according to the Association of Professional Chaplains (APC) and Adventist Chaplaincy Ministries (ACM) if they choose to focus on this area. Other possibilities for the faith and health dialogue include, but are not limited to, bioethics, family counseling, family life education, lifestyle intervention, and leadership.

Settings providing practicum opportunities include, but are not limited to, Loma Linda University Health (LLUH) hospitals; institutes (Behavioral Health Institute, Global Health Institute, Institute for Health Policy and Leadership, Institute for Community Partnership, Lifestyle Medicine Institute); centers (Center for Bioethics, Center for Spiritual Life and Wholeness, Center for Health Promotion); LLU schools that offer health concentrations; LLU Campus Ministries; professor-driven research/service opportunities; and entities outside the LLUH system that are approved.

Loma Linda University Medical Center, under the auspices of the Department of Chaplain Services, is an accredited clinical pastoral education (CPE) center. Students who seek chaplaincy as a career may fulfill the practicum requirement with CPE and may apply for this clinical placement. (Separate application procedures are required).

## Program objectives

Upon completion of the D.Sc. degree in religion and health, the students will:

- Identify how theological and biblical perspectives provide a unique foundation for discussing issues in religion and health.
- Understand the implications of health-care policy and advocacy in establishing new behavior, affecting society, and establishing long-term change in relation to religion and health.
- Demonstrate how theories around whole person care and wholeness contribute to drawing conclusions and related outcomes in the faith-health dialogue in relation to clinical care and leadership.
- Summarize the ways religion and health interact within a specific area of health (through the concentration).
- Demonstrate how to impact the field of health and/or religion from a faith-health perspective.
- Demonstrate the capacity to create research questions and agendas in the integration of religion and health.

## Faculty

The faculty represents a balance between academic expertise and clinical experience in the fields of religion and health, counseling, health education, nursing, spirituality, family therapy, pastoral care, chaplaincy, biblical studies, theology, marriage and family therapy, cultural psychology, and ethics.

## Admissions

In addition to Loma Linda University (p. 24) admission requirements, the applicant is expected to present the following requirements:

1. Graduate record from a regionally accredited institution with a grade point average of 3.30 or better
2. MS in Chaplaincy, the MA in religion/theology, or master's degree in a health related field.
3. Health Sciences Reasoning Test (HSRT) or the GRE test
4. Three letters of recommendation (two academic and one pastoral)
5. Interview that includes faculty members in the relational studies area and a representative from the LLUMC CPE program (if the student seeks chaplaincy as a career)
6. Statement of research interest and sample paper

## Program requirements

In order to receive the Doctor of Science (in Religion and Health) degree from Loma Linda University, the student will complete a minimum of 60 units of course work beyond the MS in Chaplaincy (or 84 units beyond the MA in religion/theology or master's degree in a health related field), with an overall grade point average of B or better.

### Co-requisites

Those entering with the 72 unit MS in Chaplaincy degree offered at LLU or an MDiv degree meet the prerequisites. For those entering with a MA in religion/theology or a master's degree in a health-related field, the student must complete an additional 24 units of religion/theology (as co-requisite to the program), 15 units of which must be in theology or Biblical studies. The student may complete the co-requisite units while engaged in the doctoral program. Students entering with specialized training beyond the MA level may apply for advanced standing.

### Curriculum

#### Core

RELR 500	Religion and Global Health	4
RELR 508	Religion, Health-Care Policy, and Advocacy	4
RELT 509	Biblical Perspectives in Religion and Health	4
RELR 692	Seminar in Religion and Health Care Leadership: Current Trends	4

#### Research courses

RELR 591	Qualitative Research in Religious Studies	3
RELR 590	Quantitative Research in Religious Studies	3

#### Concentration

(See available concentrations listed below) 19-24

#### Electives

Choose in consultation with advisor 4-9

#### Dissertation

RELG 596	Dissertation Proposal	1
RELR 592	Doctoral Portfolio in Religion and Health	2

#### Clinical internship

RELG 699	Dissertation Research	1-6
Practicum units are in addition to the minimum didactic units required for the degree.		
RELG 796	Religion and Health Practicum (400-600 hours) <sup>1</sup>	8
Total Units		54-59

- <sup>1</sup> The program recommends that this requirement be met by the satisfactory completion of at least one quarter of practicum work at an approved site. If the student seeks chaplaincy as a career, he/she may engage in at least one quarter of clinical pastoral education (CPE) at an accredited CPE center. (Note: Acceptance into the CPE program is at the discretion of the CPE supervisor and must be arranged individually and in advance.) It is recommended that students complete all course work prior to their practicum internship. 1-2 units of CPE encouraged for those seeking a chaplaincy career (in addition to the CPE already obtained before entering the program)

## Concentrations

### Specific health concentrations

Courses in the concentrations listed below are subject to change as these are dependent on current course/program offerings in the School of Behavioral Health and the School of Public Health.

In lieu of one of the concentrations listed below, students will be able to create a general health concentration in which courses are selected in a specific area of study. The courses selected must be made in consultation with the student's program advisor and an advisor in the school(s) from which the selectives are chosen.

### Religion concentration

Students with a prior background in health may choose this option. Courses are to be selected in consultation with their program advisor.

### School of Behavioral Health

#### Drug and Alcohol Counseling

##### Required

COUN 524	Psychopharmacology and Medical Issues	3
or MFAM 524	Psychopharmacology and Medical Issues	
COUN 568	Groups: Process and Practice	3
or MFAM 568	Groups: Process, and Practice	
COUN 638	Family Therapy and Chemical Abuse	3
or MFAM 638	Family Therapy and Chemical Abuse	
MFAM 515	Crisis Intervention and Client-Centered Advocacy	3
MFAM 645	Advanced Substance Abuse-Treatment Strategies	3
MFAM 635	Case Presentation Seminar and Legal Issues	3
MFAM 636	Case Presentation Seminar and Client-Centered Advocacy	3
MFAM 637	Case Presentation Seminar and Global Practices	3
Total Units		24

### Family Counseling

##### Required

MFAM 515	Crisis Intervention and Client-Centered Advocacy	3
MFAM 535	Case Presentation and Professional Studies	3
MFAM 551	Family Therapy: Foundational Theories and Practice	3
MFAM 553	Family Systems Theory	3



<b>Electives</b> <sup>1</sup>		
MFAM ___	Marital and family therapy electives	12
Total Units		24

<sup>1</sup> Courses to be chosen in consultation with an advisor in the Department of Marital and Family Counseling

### Family Life Education

#### Required

FMST 515	Professional Issues in Family Life Education	3
FMST 524	Family Resource Management	2
FMST 528	Parenting	2
FMST 529	Family Life Education	3
MFAM 547	Social Ecology of Individual and Family Development	3
MFAM 553	Family Systems Theory	3
MFAM 674	Human Sexual Behavior	3
Total Units		19

### School of Public Health

#### Emergency Preparedness and Response

##### Required

HGIS 522	Principles of Geographic Information Systems and Science	3
EMPR 524	Local and State Emergency Preparedness and Response	3
EMPR 525	National and International Emergency Preparedness and Response	3
EMPR 526	Public Health Issues in Emergency Preparedness and Response	3
EMPR 540	Seminars in Emergency Preparedness and Response	3
HGIS 524	GIS Software Applications and Methods	3
HGIS 527	Geospatial Technologies for Emergency Preparedness and Management	3
Total Units		21

### Lifestyle Intervention

#### Required

HPRO 500	Stress Management	2
HPRO 509	Principles of Health Behavior	3
HPRO 526	Lifestyle Diseases and Risk Reduction	3
HPRO 536	Program Planning and Evaluation	2
HPRO 565	Tobacco Use: Prevention and Interventions	3
NUTR 509	Public Health Nutrition and Biology	3
NUTR 529	Health Aspects of Vegetarian Eating	3
PHCJ 501	Introduction to On-line Learning	1
PHCJ 605	Overview of Public Health	1
	Elective	3
Total Units		24

### Maternal and Child Health

#### Required

GLBH 550	Women in Development	3
HPRO 509	Principles of Health Behavior	3
HPRO 523	Maternal/Child Health: Policy and Programs	3

HPRO 536	Program Planning and Evaluation	2
HPRO 553	Addiction Theory and Program Development	3
HPRO 556	High-Risk Infants and Children: Policy and Programs	3
HPRO 567	Reproductive Health	3
HPRO 614	Seminar in Maternal and Child Health Practice	3
NUTR 534	Maternal and Child Nutrition	3
Total Units		26

### Portfolio and critical essays

Students will be completing a Doctoral Portfolio in Religion and Health, along with their coursework, which will require 6 critical essays that address all six of the program outcomes. One is required at the completion of the first quarter in the program (RELR 592 Doctoral Portfolio in Religion and Health). The remainder of the Portfolio is due at the completion of the course work and must be completed prior to exams.

### Dissertation

Students are required to register for RELG 699 Dissertation Research. To fulfill the requirement for this course, students will select one of the options for dissertations as outlined by LLU.

The dissertation is scheduled after successfully defending the proposal.

### Normal time to complete the program

4 years (16 quarters) based on less than full-time enrollment

## Religion and Society – M.A.

#### Program director

David R. Larson

Drawing upon the entire faculty of the School of Religion, plus professors in other LLU schools and nearby universities on a case-by-case basis, this degree integrates with different specialties the serious study of religion—one of the most powerful forces for both good and evil today. Taking courses and seminars in religion, as well as other disciplines, each student develops, with the assistance of a mentor, an individualized program that meets his or her own distinctive interests and goals. This program is not designed to prepare persons to become ordained Christian ministers; rather, it hopes to enrich knowledge about religion and enhance skills in dealing with such.

### Mentors

As soon as possible, but in every case before the student has completed half of the program, the program's administrative committee will link the student to a mentor who will provide support and guidance. Until then, the program director will mentor the student.

### Learning outcomes

Upon the successful completion of this program, each student will be able to:

1. Analyze the prominent features of the most influential religions in the world today.
2. Assess how effective Christianity was in its interactions with society in one of its major historical periods.

- Describe the ways human beings have organized their societies over the centuries.
- Evaluate the effectiveness of one past or present major human society in meeting human needs and protecting its environment.
- Appraise the variety of ways religions and societies typically interact.
- Critique interpretations of how religion and society interacted in one major episode that made a lasting difference.

## Periodic review

In addition, each student's achievements will be assessed every twelve units to determine the advisability of his or her continuing in the program.

## Prerequisites

There are no prerequisites for this program; however, those who enter having taken few or no courses in religion will have to structure their program considering the requirements. The opposite will be true for those who enter the program after having extensively studied religion but not the other subject(s) they desire to explore.

## Core courses

Four of this program's twelve courses are required: RELT 501, 502, 503; and RELG 696. The religion in science cluster—RELT 501 Religion and Society, RELT 502 Religion and Society, and RELT 503 Religion and Society—which may be taken in any sequence, provides intensive introductions to the field as a whole. One course is offered each quarter during the academic school year, and a course may be offered in the summer as well. The fourth required course is the Final Project (RELG 696 Project). These four 4-unit courses, totaling 16 units, constitute one-third of the program. The remaining eight courses, totaling 32 units and two-thirds of the program, are selected by the student and approved by the administrative committee.

## Transfer credits

Students are permitted to transfer up to 8 units of approved graduate-level courses from other accredited institutions into the Religion and Society Program.

## Admissions

In addition to Loma Linda University (p. 24) and School of Religion (p. 446) admissions requirements, the applicants to the M.A. in Religion and Society Program are expected to present/complete:

- A bachelors degree from an accredited institution.
- An overall undergraduate Grade Point Average (G.P.A.) of at least 3.25.
- Acceptable scores in an approved standardized test such as the Graduate Record Exam (GRE), Medical School Admissions Test (MCAT) or Law School Admissions Test (LSAT).
- A brief essay (1,000 words) that specifies how this degree would benefit the applicant personally and professionally.
- An interview.
- Two Letters of Recommendation from previous teachers.

In addition to these considerations, acceptance into this program depends upon whether, at the time the student wishes to study, the School of Religion's resources and his or her interests and goals overlap enough to make it a mutually beneficial experience

## Provisional Admission

A student who seems promising even though he or she does not meet one or more of the admission requirements might be given a Provisional Acceptance for up to 12 units after which the administrative committee will determine whether or not he or she will be permitted to continue.

## Program requirements

In order to receive the Master of Arts in Religion and Society, the student will complete a minimum of 48 units of course work as herein specified, with an overall grade point average of B+ or better, and no course lower than a B in a core course.

### Required

RELT 501	Religion and Society	3
RELT 502	Religion and Society	3
RELT 503	Religion and Society	3
RELG 696	Project	4

### Individual area of emphasis

Minimum of 32 units that focus on a single topic, case, theme, era, or text:

Selected from the School of Religion	19
Selected from the School of Religion or another school on campus	16
<b>Total Units</b>	<b>48</b>

## Areas of Emphasis

These are approved clusters of courses that focus on a single topic, case, theme, era, problem, debate or text. At least 19 of these units must be taken from the School of Religion. The other 16 units may be taken either at the School of Religion or elsewhere on campus.

### Illustrative areas of emphasis

These are representative of the kinds of individualized programs that students and their mentors may formulate.

- Public Policy
- Health
- Ecology
- Behavioral Sciences
- Natural Sciences
- Nursing
- Scripture
- Theology

Inquires about other possibilities are encouraged.

### Individualized program proposal

Before completing half of the program (24 units), with the mentor, the student will submit for approval to the administrative committee an Individualized Program. This will detail courses and other experience that will fulfill the degree's requirements as well as establish the acceptable area of emphasis and make original contribution.

## Noncourse requirements

### Student portfolio

This noncourse requirement assesses the student's progress and contains all the items from the entire program which the student submitted and received back after being

**Integration papers**

At the conclusion of each course, students write a brief (3 – 5 pages) Integration Paper that will summarize and appraise how it interacted with at least two of the University Student Learning Outcomes and at least two of the Program Learning Outcomes. At the conclusion of their studies, students write a longer (10 – 15 pages) Integration Paper that does the same thing for the program as a whole. The integration papers will be part of the student portfolio.

**Comprehensive examination**

Successful performance on this test establishes that the student is qualified to complete their Final Project. It is passed to the administrative committee's satisfaction before the Final Project is approved.

**Final project**

Within the contours of what is appropriate for Master of Arts degrees, the final project is to make an original contribution. It can be a major paper reporting on significant literary, historical, social science, laboratory or field research; however, it can also be a video, program proposal, pilot project or work of art and drama. The project's acceptability is determined by the administrative committee.

**Normal time to complete the program**

1.66 years (6 academic quarters) based on full-time enrollment; part time permitted.

# FACULTY OF GRADUATE STUDIES

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## Dean's welcome



of knowledge, understand your world, and apply Christian principles to your life and profession.

Our faculty and staff are here to assist you as you prepare for a career of creative service. Feel free to contact us by e-mail at <graduatestudies@llu.edu> or by calling toll free 1/800/422-4LLU.

Anthony J. Zuccarelli  
Dean, Faculty of Graduate Studies

We are very pleased that you have chosen to continue your education at Loma Linda University in a graduate program coordinated by the Faculty of Graduate Studies. The Faculty of Graduate Studies is an organization of scholars, scientists, and educators whose mission is to enhance the quality of research, scholarship, and discovery throughout the University. It cooperates with the eight schools in providing graduate programs that strive to meet the highest academic and intellectual standards.

Loma Linda University is a health sciences campus dedicated to creating learning environments that enable students to develop personal wholeness; to train for careers that serve local, national, and international communities; and to accept every person as having equal worth in the sight of God. Its mission is embodied in the Good Samaritan sculptures, a tableau that occupies a central position on the campus.

The Faculty of Graduate Studies encourages students to engage in original research and creative study that will expand opportunities for wholeness, service, and mutual respect. You will find vigorous academic programs among the degrees sponsored by the Faculty, studies that will stretch your mind and that will encourage you to expand the boundaries

## Foundations of graduate study

Recognizing the need to provide advanced education, the College of Medical Evangelists (CME) organized its School of Graduate Studies in 1954. The new school conferred a Ph.D. degree in 1958, the first Ph.D. to be awarded by a Seventh-day Adventist institution of higher education.

In 1961 when CME became Loma Linda University, the University assumed oversight of the graduate education conducted by La Sierra College in Riverside, California. By 1963, the School of Graduate Studies had been renamed the Graduate School—with a home in a new building, named Frederick Griggs Hall in honor of a former department chair. The two campuses comprising Loma Linda University—La Sierra and Loma Linda—were separated in 1990.

In 2005, the Graduate School was restructured as the Faculty of Graduate Studies. It continues to provide oversight of graduate programs, supported by other schools of the University; promote and encourage independent judgment, mastery of research techniques, and contribution to scholarly communication; and relate intellectual achievements to the service of humankind.

## Philosophy

In the Faculty of Graduate Studies of Loma Linda University, the essential concern of both faculty and students is the quest for meaning. Because this quest is served by knowledge, graduate students are obliged to achieve both broad and detailed mastery of their field of study. They also participate with the faculty in the process by which knowledge is augmented.

## Objectives

The Faculty of Graduate Studies attempts to create an environment favorable to the pursuit of knowledge and meaning by:

1. Making available to graduate students who wish to study in a Seventh-day Adventist Christian setting the education necessary for scholarly careers in the sciences and the health professions.
2. Encouraging development of independent judgment, mastery of research techniques, and contribution to scholarly communication.
3. Relating intellectual achievement to the service of humankind.

## General regulations

Students of the University are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation. Section III gives the general setting for the programs of each school. The subject and unit requirements for admission to individual professional programs are also outlined in this section. It is important to review specific program requirements in the context of the general requirements applicable to all programs (Section II).

## Application and admissions

The program admissions committees of the University intend that an applicant to any of the schools is qualified for the proposed curriculum and is capable of profiting from the educational experience offered by this University. The admissions committees of the schools accomplish this by examining evidence of scholastic competence, moral and ethical standards, and significant qualities of character and personality. Applicants are considered for admission only on the recommendation of the program in which study is desired.

## Scholarship

Applicants are expected to present an undergraduate record with a grade point average of B (3.0) or better in the overall program and in the major field. Some students with an overall grade point average between 2.5 and 3.0 may be admitted provisionally to graduate standing, provided the grades during the junior and senior years are superior or other evidence of capability is available. International applicants are not eligible for provisional admission.

## From master's to Ph.D. degree

### Bypassing master's degree

A graduate student at this University may proceed first to a master's degree program. If at the time of application the student wishes to qualify for the Doctor of Philosophy degree program, this intention should be declared even if the first objective is to earn a master's degree.

If after admission to the master's degree program a student wishes to go on to the doctoral degree program, an application form should be submitted, along with letters of reference, to the dean(s) of the respective school(s). If the award of the master's degree is sought, the student will be expected to complete that degree before embarking on doctoral activity for credit. A student who bypasses the master's degree may be permitted, on the recommendation of the guidance committee and with the consent of the dean, to transfer courses and research that have been completed in the appropriate field, and that are of equivalent quality and scope, to his/her doctoral program.

## Student life

The information on student life contained in this CATALOG is brief. The *Student Handbook*—which more comprehensively addresses University and school expectations, regulations, and policies—is available to each registered student. Students need to familiarize themselves with the contents of the *Student Handbook*. Additional information regarding policies specific to a particular school or program within the University is available from the respective school.

## Academic information

Students are responsible for informing themselves of the policies and regulations pertinent to registration, matriculation, and graduation; and for satisfactorily meeting these requirements.

## Financial information

Registration is not complete until tuition and fees on the required installment are paid; therefore, the student should be prepared to make these payments during scheduled registration for each academic year. There may be adjustments in tuition and fees as economic conditions warrant.

## General financial practices

The student is expected to arrange for financial resources to cover all expenses before the beginning of each school year. Previous accounts with other schools or this University must have been settled.

## On- and off-campus student housing

Students may go to <llu.edu/central/housing> for housing information and a housing application form.

## Additional requirements

For additional policies governing Loma Linda University students, see Section II of this CATALOG, as well as the University *Student Handbook*. Students are responsible for informing themselves of and satisfactorily meeting all regulations pertinent to registration, matriculation, and graduation.

- Psychology *with* Bioethics (Ph.D./M.A., Psy.D./M.A (p. 461).)
- Social Policy and Social Research *with* Bioethics (Ph.D./M.A. (p. 470))
- Social Work *with* Social Policy and Social Research (M.S.W./Ph.D. (p. 471))

## Degrees overseen by the Faculty of Graduate Studies

The Faculty of Graduate Studies oversees the following doctoral and master's degrees, as well as combined degrees programs.

### Master's degrees

- Anatomy – M.S. (p. 301)
- Biochemistry – M.S. (p. 270)
- Biology – M.S. (p. 283)
- Bioethics – M.A. (p. 447)
- Clinical Ministry – M.A. (p. 450)
- Endodontics – M.S. (p. 247)
- Geology – M.S. (p. 295)
- Implant Dentistry – M.S. (p. 249)
- Microbiology and Molecular Genetics – M.S. (p. 273)
- Nutrition – M.S. (p. 431)
- Oral and Maxillofacial Surgery – M.S. (p. 251)
- Orthodontics and Dentofacial Orthopedics – M.S. (p. 252)
- Pediatric Dentistry – M.S. (p. 253)
- Periodontics – M.S. (p. 255)
- Pharmacology – M.S. (p. 276)
- Physiology – M.S. (p. 279)
- Prosthodontics – M.S. (p. 256)
- Religion and Society – M.A. (p. 455)

### Doctoral degrees

- Anatomy – Ph.D. (p. 301)
- Biochemistry – Ph.D. (p. 270)
- Biology – Ph.D. (p. 283)
- Earth Science – Ph.D. (p. 287)
- Epidemiology – Ph.D. (p. 437)
- Microbiology and Molecular Genetics – Ph.D. (p. 273)
- Medical Scientist Training Program – M.D./Ph.D. (p. 311)
- Nursing – Ph.D. (p. 382)
- Pharmacology – Ph.D. (p. 276)
- Physical Therapy – D.Sc (p. 121). (<http://llucatalog.llu.edu/allied-health-professions/physical-therapy/dsc>), Ph.D. (p. 125)
- Physiology – Ph.D. (p. 279)
- Psychology (clinical psychology) – Ph.D. (p. 181)
- Rehabilitation Science – Ph.D. (p. 61)
- Religion and Health – D.Sc. (p. 453)
- Social Policy and Social Research – Ph.D. (p. 193)
- Systems, Families and Couples – Ph.D. (p. 178)

### Combined degrees programs

- Biology or Geology *with* Medicine or Dentistry (M.S./M.D (p. 465)., M.S./D.D.S. (p. 463))

# THE COMBINED DEGREES PROGRAMS OF THE UNIVERSITY

A number of combined degrees programs are offered—each intended to provide additional preparation in the biomedical sciences or in clinical, professional, or basic areas related to the student's field of interest. The combined degrees programs provide opportunities for especially well-qualified and motivated students to pursue professional and graduate education; and to prepare for careers in clinical specialization, teaching, or investigation of problems of health and disease in humans.

For admission to a combined degrees program, students must have a baccalaureate degree and must already be admitted to the schools offering their chosen combined degrees program.

Students may be required to interrupt their professional study for two or more years (as needed) for courses and research for the graduate degree sought.

The student's concurrent status is regarded as continuous until the program is completed or until discontinuance is recommended. The usual degree requirements apply.

Interested and qualified students may choose from the combined degrees programs offered by the University.

## Programs

For convenience in locating a combined degrees program, some programs are listed twice—the second time with the program names reversed—e.g., Criminal Justice with Social Work and Social Work with Criminal Justice. Combined degrees programs that must be entered in a specified order are listed only once. For example, a master's degree student in bioethics cannot choose to add pharmacy (Pharm.D.), but a pharmacy student can choose to add the M.S. degree in bioethics. Such programs list the primary degree program first.

Bioethics—SR *with* Psychology—BH M.A./Psy.D. or M.A./Ph (p. 461).D.

Clinical Ministry—SR *with* Marital and Family Therapy—BH M.A./M.S. (p. 462)

Criminal Justice—BH *with* Social Work—BH M.S./M.S.W. (p. 472)

Dentistry—SD (Autumn Quarter) *with* Anatomy—SM D.D.S./Ph.D., D.D.S./M.S. (p. 463)

Dentistry—SD *with* Bioethics—SR D.D.S./M.A (p. 464)

Dentistry—SD *with* Biology or Geology—SM D.D.S./M.S. (p. 463)

Dentistry—SD *with* Biomedical Sciences—SM D.D.S./M.S (p. 463) or D.D.S./Ph.D. (p. 463)

Gerontology—BH *with* Social Work—BH M.S./M.S.W. (p. 473)

Marital and Family Therapy—BH *with* Clinical Ministry—SR M.A./M.S. (p. 462)

Medical Scientist—SM M.D./Ph.D. (p. 465)

Medicine—SM *with* Bioethics—SR M.D./M.A (p. 464)

Medicine—SM *with* Biology or Geology—SM M.D./M.S. (p. 465)

Medicine—SM *with* Master of Science—SM or Doctor of Philosophy—SM M.D./M.S. or M.D./Ph.D. (p. 465)

Nursing—SN *with* Bioethics—SR Ph.D./M.A. (p. 466)

Oral and Maxillofacial Surgery—SD *with* Medicine—SM Post-D.D.S. specialty certificate/M.D. (p. 467)

Pharmacy—SP *with* Bioethics—SR Pharm.D./M.A. (p. 468)

Pharmacy—SP *with* Health Informatics—AH Pharm.D./M.S. (p. 469)

Psychology—BH *with* Bioethics—SR Psy.D/M.A.. or Ph.D./M.A. (p. 461)

Social Policy and Social Research—BH *with* Bioethics—SR Ph.D./M.A (p. 470).

Social Policy and Social Research—BH *with* Social Work—BH M.S.W./Ph.D. (p. 471)

Social Work—BH *with* Criminal Justice—BH M.S.W./M.S. (p. 472)

Social Work—BH *with* Gerontology—BH M.S.W./M.S. (p. 473)

Social Work—BH *with* Social Policy and Social Research—BH M.S.W./Ph.D. (p. 471)

## Bioethics—M.A. with Psychology — Psy.D. or Ph.D.

### Program director, Bioethics

Zdravko Plantak

### Interim chair, Department of Psychology

David Vermeersch

### Faculty

The faculty for the combined degrees Bioethics *with* Psychology Program is drawn from the School of Religion and from the Department of Psychology in the School of Behavioral Health.

## The program

This program combines study for the M.A. degree in bioethics (offered by the School of Religion) with either the Psy.D. or Ph.D. degree in psychology (offered by the Department of Psychology of the School of Behavioral Health). The purpose of the combined degrees program is to facilitate more efficient completion of graduate programs in ethics and psychology for the student interested in both areas. Students who complete the program should be prepared to make significant interdisciplinary contributions to the fields of psychology and of ethics. In order to enter this combined degrees program, students must gain separate acceptance into the M.A. degree in ethics curriculum and to one of the doctoral degrees in psychology. Admission information is available from the School of Behavioral Health.

## Course requirements

Students in this combined degrees program will complete all the requirements for both degrees with greater efficiency by taking a number of courses that fulfill requirements for both degrees. Approval for selective courses should be sought from the student's advisors for both degrees.

## M.A. curriculum

A total of 48 quarter units is required for the M.A. degree. The following courses constitute the core requirements for students completing the M.A. degree in bioethics when taken with psychology as part of the combined degrees program:

### Core requirements

Core requirements		
RELE 524	Bioethics and Society	4
RELE 548	Christian Social Ethics	3
RELE 554	Clinical Ethics Practicum I	4
RELE 555	Clinical Ethics Practicum II	4
RELE 577	Theological Ethics	3
RELE 588	Explorers of the Moral Life	3
RELG 504	Research Methods in Religious Studies	4
RELR 584	Culture, Psychology, and Religion	3
PSYC 505	Research Methods in Psychological Science	4

### Selectives

In addition to the preceding 32 units, students completing the M.A. degree program will choose 14 units of the following:

RELR 587	Religion and the Social Sciences	
PSYC 524	History, Systems, and Philosophy of Psychology	
PSYC 526	Ethics and Legal Issues in Clinical Psychology	
PSYC 551	Psychobiological Foundations	
PSYC 564	Foundations of Social and Cultural Psychology	
PSYC 566	Cultural Psychology	
PSYC 567	Human Diversity	
PSYC 575	Foundations of Human Development	

Total Units 48

## Psychology—Ph.D. or Psy.D. curriculum

Students completing one of the doctoral curricula in psychology will complete all of the course requirements as listed in the School of Behavioral Health, 2 units of minor concentration, which will be fulfilled by 12 of the selective units listed above. (See Psychology Program for full information.)

## Clinical Ministry – M.A. with Marital and Family Therapy – M.S.

### Program director, Clinical Ministry

Siroj Sorajjakool

### Program director, Marital and Family Therapy

Mary E. Moline

### Faculty

The faculty for the combined degrees Clinical Ministry *with* Marital and Family Therapy program is drawn from the School of Religion and from the Department of Counseling and Family Sciences in the School of Behavioral Health.

## The program

The combined Master of Arts degree in clinical ministry and Master of Science degree in marital and family therapy (MFAM) have many common subject areas, such as the spiritual and clinical emphasis on caring for the whole person. The joining of the two degree curricula

provides the student with the added Christian clinical counseling skills needed to minister to many spiritual and mental health problems.

The marital and family therapy degree also prepares the student for a clinical license. Licensure allows the student in the M.A./M.S. combined degrees program more options for practice, including private practice. The student's ability to provide more services to the community—in addition to the traditional areas of practice, such as hospitals, churches, and schools—is increased.

## Objectives

The combined degrees Clinical Ministry with Marital and Family Therapy program has the following objectives:

1. Students will gain clinical skills related to the field of spiritual care and marriage and family therapy that will enable them to become competent practitioners.
2. Students will learn to integrate theoretical, theological, biblical, and philosophical foundations pertaining to the study of spirituality and marriage and family therapy.
3. Students will be able to identify spiritual issues within the context of marital relations and health care and offer spiritual interventions.
4. Students will be knowledgeable of the legal and ethical standards relevant to the fields of chaplaincy and marital and family therapy and apply their knowledge to their clinical practice.

The family clinical ministry track provides the basis for doctoral work in mental health and religious studies. Outstanding students are encouraged to explore possibilities for further studies.

## Admission

Applicants will need to apply to both programs separately, be accepted to both programs separately, and follow their admission requirements in order to qualify for the combined degree. (See the CATALOG for specific instructions). Students can start the combined degrees program either by taking marital and family therapy courses or take clinical ministries courses during their first year.

## Clinical placements

Students who take case presentation in MFAM will be placed in secular sites. Students taking course work in clinical ministries but who are continuing their case presentation in MFAM will be placed in a Christian-oriented site, such as the Christian Counseling Center.

## Course requirements

In order to complete the combined degrees Master of Arts in clinical ministry with Master of Science in marital and family therapy, the student will complete a minimum of 126 units of course work as specified—with an overall grade average of B or better, with no grade lower than a C and with no grade in a core course lower than a B-. The required curriculum is as follows:

### Curriculum

#### First Year

#### Postsummer Session (intensive)

MFAM 535 Case Presentation and Professional Studies 3

#### Autumn Quarter

MFAM 515 Crisis Intervention and Client-Centered Advocacy 3



MFAM 551	Family Therapy: Foundational Theories and Practice
MFAM 556	Psychopathology and Diagnostic Procedures
MFAM 614	Law and Ethics
MFAM 547	Social Ecology of Individual and Family Development

**Winter Quarter**

MFAM 528	Culture, Socioeconomic Status in Therapy
MFAM 536	Case Presentation Seminar and Documentation
MFAM 553	Family Systems Theory
MFAM 644	Child Abuse and Family Violence
MFAM 731 <sup>1</sup>	Clinical Training

**Spring Quarter**

MFAM 501	Research Tools and Methodology: Quantitative
MFAM 537	Case Presentation Seminar
MFAM 564	Family Therapy: Advanced Foundational Theories and Practice
MFAM 584	Advanced Child and Adolescent Problems

**Second Year**

**Summer Quarter**

MFAM 568	Groups: Process, and Practice
MFAM ____	Modality elective
MFAM 732 <sup>1</sup>	Clinical Training

**Autumn Quarter**

MFAM 502	Research Tools and Methodology: Qualitative
MFAM 552	Couples Therapy: Theory and Practice
MFAM 567	Treating the Severely and Persistently Mentally Ill and the Recovery Process
RELR 567	Pastoral Counseling

**Winter Quarter**

MFAM 524	Psychopharmacology and Medical Issues
MFAM 624	Individual and Systems Assessment
RELR 568	Care of the Dying and Bereaved
RELR 584	Culture, Psychology, and Religion

**Spring Quarter**

COUN 675	Dynamics of Aging
MFAM 604	Social Context in Clinical Practice: Gender, Class, and Race
MFAM 674	Human Sexual Behavior
RELT 559 or RELR 587	New Testament Thought

**Third Year**

**Summer Quarter**

RELE 524	Bioethics and Society
RELT 558	Old Testament Thought

**Autumn Quarter**

MFAM 635	Case Presentation Seminar and Legal Issues
RELR 565	Pastoral Theology and Methodology
RELR 564	Religion, Marriage, and the Family

**Winter Quarter**

MFAM 636	Case Presentation Seminar and Client-Centered Advocacy
MFAM 638	Family Therapy and Chemical Abuse

3	RELR 574	Preaching	3
<b>Spring Quarter</b>			
3	MFAM 637	Case Presentation Seminar and Global Practices	3
3	RELT 557	Theology of Human Suffering	3
			127
Total Units:			

<sup>1</sup> Clinical training is a nonacademic activity and requires a fee.

## Dentistry – D.D.S. with Biomedical Sciences – Ph.D.

The Ph.D./D.D.S. is a combined degrees program leading to the Doctor of Dental Surgery degree and the Doctor of Philosophy degree. This biomedical sciences program provides opportunity for well-qualified and motivated students to pursue both a professional and a graduate education; and to prepare for careers in clinical specialization, teaching, or investigation in the areas of health and human disease. The student who has a baccalaureate degree and obtains the approval of the Biomedical Advisory Committee may enter the combined degrees program and work concurrently toward both degrees. A minimum of six years is required to complete this combined degrees program, offered cooperatively by the School of Dentistry and the Faculty of Graduate Studies.

## Dentistry – D.D.S. with Anatomy – M.S., Ph.D.

Combined degrees programs allow qualified students to work on combined D.D.S./M.S. or Ph.D. (dentistry with anatomy) degrees. Details are provided in the Dentistry Program descriptions earlier in Section III (p. 202).

## Dentistry – D.D.S. with Biology or Geology – M.S.

For students selecting a combined degrees program with a Master of Science degree in biology or geology, up to 12 units of credit for basic science courses and up to 6 units of credit for research and/or graduate courses completed as part of the electives of the professional curriculum may be applied toward the master's degree program.

For students selecting a combined degrees program with a Doctor of Philosophy degree, up to 30 units of credit for basic science courses and up to 30 units of research and/or graduate courses—but not more than 36 units completed as part of the electives of the professional curriculum—may be applied to the Doctor of Philosophy degree program.

The animal physiology and the statistics requirements are met as part of the professional curriculum.

## Dentistry – D.D.S. with Biomedical Sciences – M.S.

The D.D.S./M.S. is a combined degrees program leading to the Doctor of Dental Surgery and the Master of Science degrees. It is open to qualified students of dentistry. A student who is interested in establishing a broader professional base in science or who desires a career in teaching or research may take an interim leave from the School of Dentistry to fulfill the professional degree requirements subsequent to or concurrent

with completing course work and research for the Master of Science degree.

## Dentistry – D.D.S. with Bioethics – M.A.

### Program director, Bioethics, School of Religion

Zdravko Plantak

### Program coordinators, School of Dentistry

Robert Handysides

Graham Stacey

### Faculty

The faculty for the combined degrees program in Bioethics *with* Dentistry is drawn from Loma Linda University's School of Religion and School of Dentistry.

## Admissions

Students are selected through a competitive process led by the School of Dentistry in conjunction with the Bioethics Program. The School of Dentistry academic dean and dean of students recommend students, triggering a streamlined admissions process to the M.A. degree in bioethics curriculum. DAT scores are accepted in lieu of the GRE for dental students.

## The program

The combined degrees Bioethics *with* Dentistry Program is designed to fit the schedule of D.D.S. degree students. Ethics in dentistry is well-established at Loma Linda University. Loma Linda University's School of Dentistry is one of a select few dental schools in the nation known for expertise in ethical issues.

An M.A. degree in bioethics taken as a stand-alone degree requires 48 units. However, the M.A./D.D.S. combined degrees reduce the total units required by 12 units in the following manner:

1. The 8 units earned from the following four 2-unit courses in the dental curriculum can be counted for credit toward the M.A. degree in bioethics: a) RELR 717 Diversity and the Christian Health Professional, b) DNES 794 Public Health Dentistry, c) RELR 715 Christian Dentist in Community, and d) DNES 851 The Dentist and the Law. In order for these 8 units to be counted toward the M.A. degree, the student must submit a supplemental eight-page paper that integrates the content of these four courses and relates the content to bioethics. These four courses have sufficiently similar content to bioethics that they warrant being applied to both the D.D.S. and the M.A. degree in bioethics, once the supplemental paper is approved.
2. Four (4) units come from the deletion of RELR 734 Christian Ethics for Dentists from the combined degrees student's curriculum because its content is substantively duplicated in the Bioethics Program; and the deletion of a 2-unit religion selective from the dental curriculum, which will now be taken in the bioethics selectives.

## M.A. degree requirements

The following courses from the D.D.S. curriculum will be counted double for the M.A. degree in bioethics once the supplemental papers, noted above, are approved.

DNES 794 Public Health Dentistry

2

DNES 851	The Dentist and the Law	2
RELR 715	Christian Dentist in Community	2
RELR 717	Diversity and the Christian Health Professional	2
Total Units		8

### A model curriculum of bioethics course work taken throughout the four years of the dentistry program

#### First Year

##### Winter Quarter

RELE 588 Explorers of the Moral Life 3

#### Second Year

##### Spring Quarter

RELE 566 Heroes of Health Care 3

#### Third Year

##### Summer Quarter

RELE 524 Bioethics and Society 4

##### Autumn Quarter

RELE 564 Ethics and Health Disparities 3

##### Winter Quarter

RELE 554 Clinical Ethics Practicum I 4

##### Spring Quarter

RELE 567 World Religions and Bioethics 3

#### Fourth Year

##### Summer Quarter

RELE 568 Bioethics and the Law 3

RELE 589 Biblical Ethics 3

##### Winter Quarter

RELE 598 Master's Seminar I 3

##### Spring Quarter

RELE 599 Master's Seminar II 2

RELE 565 The Good, the Bad, and the Ugly: Moral Aspects of Art and Illness 3

Total Units: 34

## Medicine – M.D. with Bioethics – M.A.

### Program director, Bioethics, School of Religion

Zdravko Plantak

### Program coordinator, School of Medicine

Henry H. Lamberton

### Faculty

The faculty for the combined degrees Bioethics *with* Medicine Program is drawn from Loma Linda University's School of Religion and School of Medicine.

## Admissions

Students are selected through a competitive process led by the School of Medicine in conjunction with the Bioethics Program. Selection is based upon the standard admission criteria for the M.A. degree in bioethics minus the GRE because the MCAT includes a critical-thinking component.

## The Program

An M.A. degree in bioethics taken as a stand-alone degree requires 48 units in bioethics courses. However, the M.A./M.D. combined degrees student is able to reduce the total units required by sharing 18 units between the two programs in the following manner.

- 12 units from three courses in the medical curriculum count as credit toward the M.A. degree in bioethics: a) MDCJ 538 Medical Neuroscience, b) PSYT 526 Psychopathology, and c) PRVM 517 Lifestyle and Preventive Medicine. Acceptance of these courses for M.A. degree credit requires an integrative, supplemental eight-page paper that relates the courses' content to bioethics. The rationale: These three courses in medicine have sufficiently relevant content to bioethics that they academically warrant being applied to the M.A. degree in bioethics requirements.
- 4 units come from three School of Religion courses: a) RELE 704 Medicine and Ethics, b) RELE 714 Advanced Medical Ethics, and c) the deletion of one RELT course from the medical student's combined degrees curriculum because its content is substantively duplicated in the Bioethics Program. (Students are informed of the combined degrees option at the beginning of their freshman year and are encouraged not to take RELE 704 Medicine and Ethics during Autumn Quarter if they are contemplating the combined degrees program. The School of Medicine's determination about student acceptability for the combined degrees program can be made immediately after Autumn Quarter grades are posted.)

## M.A. degree requirements

The following courses from the M.D. curriculum will be double counted for the M.A. degree in bioethics once the supplemental papers, noted above, are approved.

MDCJ 538	Medical Neuroscience	3.5
PRVM 517	Lifestyle and Preventive Medicine	4
PSYT 526	Psychopathology	4.5
RELE 704	Medicine and Ethics	2
RELE 714	Advanced Medical Ethics	2
Total Units		16

### A model curriculum of bioethics course work taken throughout the four years of medical school

#### First Year

##### Winter Quarter

RELE 588	Explorers of the Moral Life	3
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##### Second Year

##### Summer Quarter

RELE 524	Bioethics and Society	4
RELE 568	Bioethics and the Law	3

##### Autumn Quarter

RELE 589	Biblical Ethics	3
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##### Winter Quarter

RELE 554	Clinical Ethics Practicum I	4
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#### Fourth Year

##### Winter Quarter

RELE 598	Master's Seminar I	3
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#### Spring Quarter

RELE 566	Heroes of Health Care	3
RELE 555	Clinical Ethics Practicum II	4
RELE 565	The Good, the Bad, and the Ugly: Moral Aspects of Art and Illness	3
RELE 599	Master's Seminar II	2
Total Units:		32

## Medicine – M.D. with Biology or Geology – M.S.

For students selecting a combined degrees program with a Master of Science degree in biology or geology, up to 12 units of credit for basic science courses and up to 6 units of credit for research and/or graduate courses completed as part of the electives of the professional curriculum may be applied toward the master's degree program.

For students selecting a combined degrees program with a Doctor of Philosophy degree, up to 30 units of credit for basic science courses and up to 30 units of research and/or graduate courses—but not more than 36 units completed as part of the electives of the professional curriculum—may be applied to the Doctor of Philosophy degree program.

Animal physiology and statistics requirements are met as part of the professional curriculum.

## Medicine – M.D. with Master of Science (M.S.) or Doctor of Philosophy (Ph.D.)

The M.D./M.S. and M.D./Ph.D. combined-degrees programs include many of the features of the Medical Scientist Program. Students in the combined-degrees program complete the first two years of the standard medical curriculum. This is followed by three or more years of graduate course work and research to qualify for a Ph.D. degree, or at least one year for an M.S. degree, before commencing the last two years of the medical school curriculum—the clinical training—for the Doctor of Medicine degree. Majors in anatomy, biochemistry, microbiology and molecular genetics, physiology, or pharmacology are offered.

For the M.D./Ph.D. and M.D./M.S. combined-degrees programs, the prerequisites and Graduate Record Examination requirements are similar to those described for the Medical Scientist Program. Biochemistry is required.

## Medicine – M.D. with Medical Scientist – Ph.D.

The program is designed to attract students who are energized by doing research and want to contribute substantially to this enterprise.

Students enter this combined degrees program through the Integrated Biomedical Graduate Studies (IGBS) graduate programs (anatomy, biochemistry, microbiology and molecular genetics, pharmacology, and physiology). In the first year, students participate in a scientifically integrated program that includes biochemistry, molecular biology, physiology, pharmacology, and anatomy. While in the first year, students also rotate through the laboratories of selected faculty members.

In the second year, students increase their involvement in individual laboratory projects while continuing to complete graduate course requirements. Students in selected areas may also be asked to serve as teaching assistants for graduate or medical classes. Students pursuing the combined degrees may also be involved with joint basic science and clinical meetings and conferences with the aim of understanding the interrelationships between laboratory-based and clinical research.

Upon demonstration of laboratory success, as indicated by completion of a first-author manuscript, the student will continue on to the traditional first two years of the medical school curriculum. It is anticipated that the amount of time required to demonstrate laboratory success will be two-to-three years. Successful students who have acquired essential laboratory skills should continue their affiliation with the host laboratory and continue research progress as time permits while in the medical school curriculum.

Upon successful completion of the first two years of the medical curriculum and Step 1 of the USMLE, students will begin a series of rotations between the clinical sciences and the research laboratory. During these later years, students will complete all the standard clinical rotations and continue progress on laboratory projects. It is the intent of this program that students will acquire the requisite skills needed for a successful career at the interface of laboratory-based and clinical research.

### Program admission

Admission into the Medical Scientist Program is competitive and requires evidence that the student is likely to develop into a successful medical scientist. The student must submit separate applications to the School of Medicine for both the M.D. and the Ph.D. degree programs, and meet the stated admissions requirements for each of these programs. The application package for the Ph.D. degree program requires scores for the general test of the Graduate Record Examination. Both programs must accept a student before he or she is admitted to the Medical Scientist Program. Students entering the M.D./Ph.D. combined degrees program who determine that a research career is inappropriate may elect to complete the M.D. degree program independently. Students entering the Ph.D. degree program who desire a career in academic medicine may choose to apply for admission to the M.D./Ph.D. combined degrees program at a point after their entry into the Ph.D. degree program; however, the standard medical school application process will be required at that point.

For information regarding tuition waivers and scholarships, contact the director of the Medical Scientist Program.

## Nursing – Ph.D. with Bioethics – M.A.

**Program director, Bioethics, School of Religion**  
Zdravko Plantak

**Program coordinator, School of Nursing**  
Susan Lloyd

### Faculty

The faculty for the combined degrees Bioethics *with* Nursing Program is primarily drawn from Loma Linda University's School of Religion and School of Nursing.

## Admissions

Students are selected through a competitive process led by the School of Nursing in conjunction with the Bioethics Program. The associate dean for the Graduate Program in the School of Nursing will recommend students. The dean's office recommendation will trigger a streamlined admissions process into the M.A. degree in bioethics curriculum.

## The program

The M.A./Ph.D. combined degrees Bioethics *with* Nursing program is designed to facilitate greater integration and more efficient completion of two graduate degrees for students with strong interest in both nursing and ethics.

Students who complete this program will be prepared to make significant interdisciplinary contributions to both fields. Students are required to gain separate acceptance into the M.A. degree in bioethics curriculum and the Ph.D. degree curriculum in nursing.

An M.A. degree in bioethics taken as a stand-alone degree requires 48 units in bioethics courses. However, the M.A./Ph.D. combined degrees reduce the total units required by 23 units in the following manner:

1. Twelve (12) units come from three courses in the nursing curriculum denoted as "concentration" courses that are taken in the M.A. degree in bioethics offerings. These three courses focus on the field in which the dissertation will be written.
2. Four (4) units come from the selected analytic topic course (e.g., NGRD 686 Applied Psychometrics for Health Care) in the nursing curriculum and counts toward the M.A. degree in bioethics.
3. Four (4) units come from a course in the nursing curriculum that is counted for M.A. degree in bioethics credit: NGRD 681 Philosophical Foundations of Nursing Science (4 units). This course has sufficiently similar content to M.A. degree in bioethics courses that it warrants being applied to both the Ph.D. degree curriculum in the Nursing Program and the M.A. degree in the Bioethics Program.
4. A 3-unit RELE \_\_\_ elective course required in the nursing curriculum may be chosen from any one of the M.A. degree in bioethics courses to double count.

### A model curriculum of bioethics course work taken throughout the five years of nursing school

#### M.A. curriculum

##### First Year

		Units
Autumn Quarter		
RELE 589	Biblical Ethics	3

##### Winter Quarter

RELE 588 <sup>2</sup>	Explorers of the Moral Life	3
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##### Summer Quarter

RELE 524 <sup>1</sup>	Bioethics and Society	4
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##### Second Year

		Units
Autumn Quarter		
RELE 564	Ethics and Health Disparities	3

##### Spring Quarter

RELE 565	The Good, the Bad, and the Ugly: Moral Aspects of Art and Illness	3
RELE 567	World Religions and Bioethics	3

##### Third Year

##### Winter Quarter

RELE 554	Clinical Ethics Practicum I	4
<b>Spring Quarter</b>		
RELE 555	Clinical Ethics Practicum II	4
<b>Summer Quarter</b>		
RELE 568	Bioethics and the Law	3
<b>Fourth and Fifth Years</b>		
<b>Winter Quarter</b>		
RELE 566	Heroes of Health Care	3
RELE 598	Master's Seminar I	3
<b>Spring Quarter</b>		
RELE 599	Master's Seminar II	2
RELE 5__ Electives		7
<hr/> Total Units:		45

- <sup>1</sup> May be taken Summer or Autumn Quarter
- <sup>2</sup> May be taken Winter or Spring Quarter

**Ph.D. curriculum**

**First Year**

**Summer Quarter 1**

NGRD 681	Philosophical Foundations of Nursing Science	4
NGRD 682	Methods of Disciplined Inquiry	2
NGRD 688	Nursing Science Seminar	1
STAT 531	Parametric and Nonparametric Bivariate Statistics	4

**Autumn Quarter**

NGRD 687	LLU Scholars Seminar	1
NGRD 683 <sup>4</sup>	Mentored Research	4

**Second Year**

**Summer Quarter 1**

NGRD 680	Strategies for Theory Development in Nursing	4
NGRD 684	Advanced Quantitative Research Methods	4
STAT 532	Applied Bivariate Statistical Analysis	4

**Autumn Quarter**

NGRD 687	LLU Scholars Seminar	1
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**Third Year**

**Summer Quarter 1**

NGRD 685	Advanced Qualitative Research Methods	4
NGRD 688	Nursing Science Seminar	1
RELR_	Relational religion course	3
STAT 533	Applied Multivariable Statistical Analysis	4

**Autumn Quarter**

NGRD 687	LLU Scholars Seminar	1
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**Fourth Year**

**Summer Quarter**

NGRD 688	Nursing Science Seminar	1
NGRD 686	Applied Psychometrics for Health Care	4
NGRD 687	LLU Scholars Seminar	1
NGRD 697 <sup>4</sup>	Dissertation Research	20
RELE_	Ethics elective <sup>2</sup>	3
RELT_	Theological elective	3
Focus courses (Foundational to dissertation) <sup>2</sup>		12

4	General elective <sup>2</sup>	4
<hr/> Total Units:		90
	<sup>1</sup> Autumn, Winter, Spring Quarter	
	<sup>2</sup> units double counted with M.A. degree in bioethics	
	<sup>3</sup> or another analytic topic relevant to dissertation data analysis	
	<sup>4</sup> Multiple registrations required to fulfill total unit requirement	

## Oral and Maxillofacial Surgery – Certificate with Medicine – M.D.

The M.D./OMS program is designed to provide an opportunity for qualified dentists to obtain the Doctor of Medicine degree in a customized three-year period. Clinical surgical health-care delivery is emphasized. The content of the program conforms to the Standards of the Commission on Dental Accreditation (CODA) and is designed to prepare the surgeon for certification by the American Board of Oral and Maxillofacial Surgery. Oral and maxillofacial surgery residents begin their residency program on the OMS service. They subsequently enter the second-year class at Loma Linda University School of Medicine (with advanced standing). The residents then complete the second, third, and fourth years of medical school. The fourth year of the OMS residency consists of a full postgraduate year of general surgery. The resident completes the final two years of the OMS training on the OMS service. During the final year, s/he functions as chief resident.

### Application process

- 1 Application for admission should be submitted to the School of Dentistry by October 15 of the year prior to the summer of intended enrollment. The School of Dentistry participates in the Post Doctoral Application Service (PASS). Applicants are recommended to the School of Medicine for consideration in the six-year OMS program.

### Tuition

- 4 Students in the OMS program with the School of Medicine are charged tuition and fees for the first two and one-half years of the program; tuition for the remaining years is waived.

**First Year, Summer Quarter**

OMFS 607	Principles of Medical History, Physical Examination, and Clinical Medicine	2
OMFS 618	Introduction to General Anesthesia	1
RELE 5__	Graduate-level Ethics	3

**First Year - Medicine Second-year Courses**

MDCJ 519	Doctoring	17
MDCJ 530	Pathophysiology and Applied Physical Diagnosis	11
PATH 517	Human Systemic Pathology	9.5
PHRM 515	Medical Pharmacology	6
PSYT 526	Psychopathology	4.5
RELR 701	Orientation to Religion and Medicine	2

**Second Year - Medicine Third-Year Courses**

FMDN 701	Family Medicine Clerkship (4 weeks)	6
GYOB 701	Gynecology and Obstetrics Clerkship (6 weeks)	9
MEDN 701	Medicine Clerkship (10 weeks)	15
NEUR 701	Neurology Clerkship (4 weeks)	6
PEDS 701	Pediatrics Clerkship (8 weeks)	12

PRVM 791	Applied Preventive Medicine	2
PSYT 701	Psychiatry Clerkship (6 weeks)	9
RADS 791	Integrated Clinical Radiology	2
RELE 714	Advanced Medical Ethics	2
SURG 701	Surgery Clerkship (10 weeks)	15

**Third Year - Medicine Fourth-year Clinical Clerkships**

July through December		
EMDN 821	Emergency Medicine Clerkship (2 weeks)	3
MDCJ 891	Whole Person Care (4 weeks)	6
SURG 821	Surgery Subinternship (ENT/4 weeks)	6
SURG 822	Surgery Intensive Care (4 weeks)	6

**Third Year**

January through June		
OMFS 604	Selected Topics in Oral and Maxillofacial Surgery	2
OMFS 605	Integrated Orthodontic and Surgical Correction of Dentofacial Deformities	2
OMFS 608	Surgical Oral and Maxillofacial Pathology Conference	1
OMFS 609	Literature Review in Oral and Maxillofacial Surgery	1
OMFS 614	Clinical Experience in Oral and Maxillofacial Surgery Practice <sup>1</sup>	14
OMFS 615	Current Trends in Medicine and Surgery <sup>1</sup>	2
OMFS 617	Critical Decision Making in Oral and Maxillofacial Surgery	2

**Fourth Year**

Students do not enroll through LLU during this year  
One-Year General Surgery Internship

**Fifth Year**

GRDN 601	Practice Management	2
GRDN 632	Basic Microsurgery Techniques	2
IMPD 547	Implant Dentistry Grand Rounds	4
IMPD 611	Introduction to Implant Dentistry	2
IMPD 612	Advanced Implant Dentistry	2
OMFS 604	Selected Topics in Oral and Maxillofacial Surgery	4
OMFS 605	Integrated Orthodontic and Surgical Correction of Dentofacial Deformities	4
OMFS 606	Applied Surgical Anatomy	1
OMFS 608	Surgical Oral and Maxillofacial Pathology Conference	2
OMFS 609	Literature Review in Oral and Maxillofacial Surgery	2
OMFS 614	Clinical Experience in Oral and Maxillofacial Surgery Practice	28
OMFS 616	Application of Surgical Principles to Orthognathic Surgery	1
OMFS 617	Critical Decision Making in Oral and Maxillofacial Surgery	4

**Sixth Year**

OMFS 604	Selected Topics in Oral and Maxillofacial Surgery	4
OMFS 605	Integrated Orthodontic and Surgical Correction of Dentofacial Deformities	4
OMFS 608	Surgical Oral and Maxillofacial Pathology Conference	2
OMFS 609	Literature Review in Oral and Maxillofacial Surgery	2

OMFS 614	Clinical Experience in Oral and Maxillofacial Surgery Practice	28
OMFS 615	Current Trends in Medicine and Surgery	2
OMFS 617	Critical Decision Making in Oral and Maxillofacial Surgery	4
OMFS 696	Scholarly Activity in Oral and Maxillofacial Surgery	1

Total Units	284
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<sup>1</sup> Also fulfills requirements for M.D. fourth-year clinical electives.

## Pharmacy – Pharm.D. with Bioethics – M.A.

### Program director, Bioethics, School of Religion

Zdravko Plantak

### Program director, School of Pharmacy

Rashid Mosavin

### Faculty

The faculty of the M.A./Pharm.D. combined degrees program is primarily drawn from Loma Linda University's School of Pharmacy and School of Religion.

## Admissions

Students are selected through a competitive process led by the School of Pharmacy in conjunction with the Bioethics Program. The School of Pharmacy academic dean recommends students, triggering a streamlined admissions process of the M.A. degree in bioethics. HSRT scores are accepted in lieu of the GRE for pharmacy students.

## The program

The M.A./Pharm.D. combined degrees program is designed to fit the schedule of Pharm.D. students. Loma Linda University has been a leader in bioethics education for health-care professionals for nearly half a century. The University's School of Pharmacy places a high premium on moral values and is a pioneer as one of the very few pharmacy schools in the nation to offer a Pharm.D./M.A. combined degrees program.

An M.A. degree in bioethics taken as a stand-alone degree requires 48 units in bioethics courses. But the M.A./Pharm.D. combined degrees student is able to double count 25 units of the needed 48 units as follows:

1. Eight (8) units come from three courses in the pharmacy curriculum that are counted for M.A. degree in bioethics credit: a) RXSA 545 Public Health and Lifestyles, b) RXSA 547 Pharmacy Law, and c) RXSA 751 Social-Behavioral Aspects of Pharmacy Practice. Acceptance of these courses for M.A. degree credit requires an integrative, supplemental eight-page paper that relates the courses' content to bioethics.
2. Eight (8) units come from the substitution of three School of Religion courses in the Pharm.D. curriculum with courses in the Bioethics Program because their content is duplicated.
3. Nine (9) units of additional credit come from three electives in bioethics taken by Pharm.D. students.

## M.A. degree requirements

### School of Pharmacy courses that apply to the M.A. degree in bioethics

RXSA 545	Public Health and Lifestyles	3
RXSA 547	Pharmacy Law	2
RXSA 751	Social-Behavioral Aspects of Pharmacy Practice	3
Total Units		8

### A model curriculum of bioethics course work taken throughout the four years of the pharmacy curriculum

#### First Year

##### Spring Quarter

RELE 567	World Religions and Bioethics	3
RELE 565	The Good, the Bad, and the Ugly: Moral Aspects of Art and Illness	3

#### Second Year

##### Summer Quarter

RELE 524	Bioethics and Society	4
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##### Autumn Quarter

RELE 542	Bioethics Integration I	1
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##### Winter Quarter

RELE 543	Bioethics Integration II	1
RELE 588	Explorers of the Moral Life	3

##### Spring Quarter

RELE 555	Clinical Ethics Practicum II	4
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#### Third Year

##### Summer Quarter

RELE 568	Bioethics and the Law	3
RELE 589	Biblical Ethics	3

##### Autumn Quarter

RELE 544	Bioethics Integration III	1
RELE 5__	Elective	3

##### Winter Quarter

RELE 598	Master's Seminar I	3
RELE 5__	Elective	3

##### Spring Quarter

RELE 566	Heroes of Health Care	3
RELE 599	Master's Seminar II	2
Total Units:		40

- Minimum G.P.A. of 3.5 or ranked in the top 10% of the class
- Evidence of past course work in informatics

#### First Year

##### Autumn Quarter

		Units
RELT 706	Adventist Beliefs and Life	2
RXPC 561	Pharmaceutical Care I	4
RXPC 571	Pharmacist Guided Self-Care I	3
RXPS 511	Pharmaceutics I	2
RXPS 524	Physiology I	4
RXPS 581	Biochemistry I	3
RXRX 507	Professional Development	1

##### Winter Quarter

RXEE 591	Introduction to Community Pharmacy Practice I	2
RXPS 512	Pharmaceutics II	4
RXPS 515	Pharmaceutics Laboratory I	0.5
RXPS 525	Physiology II	3
RXPS 582	Biochemistry II	3
RXRX 507	Professional Development	1
RXSA 545	Public Health and Lifestyles	3

##### Spring Quarter

RELE 705	Ethics in Pharmacy Practice	3
RELT 740	World Religions and Human Health	3
RXEE 592	Introduction to Community Pharmacy Practice II	2
RXPC 572	Pharmacist Guided Self-Care II	3
RXPS 513	Pharmaceutics III	3
RXPS 516	Pharmaceutics Laboratory II	0.5
RXRX 507	Professional Development	1
RXSA 547	Pharmacy Law	2
RXTH 570	IPDM I: Introduction to Disease Management	2.5

#### Second Year

##### Autumn Quarter

HLIF 510	Health-Care Information Systems	4
HLIF 515	The U.S. Health-Care System	3
RXDI 664	Drug Information and Literature Evaluation	3
RXEE 690 <sup>1</sup>	Introduction to Hospital Pharmacy Practice	2
RXPS 610	Pharmacokinetics	4
RXPS 651	Principles of Medicinal Chemistry I	3
RXRX 604	Professional Development	1
RXSA 640 <sup>4</sup>	Epidemiology and Biostatistics	3
RXTH 671	IPDM II: Fluids and Electrolytes	2

##### Winter Quarter

HLIF 520	Data Management: Modeling and Development	3
HLIF 525	Management of Healthcare Data and Information	2
HLIF 548	Human Computer Interactions	2
RXPS 652	Principles of Medicinal Chemistry II	4
RXRX 604	Professional Development	1
RXSA 751	Social-Behavioral Aspects of Pharmacy Practice	3
RXTH 683	IPDM IV: Endocrine	3.5
RXTH 684	IPDM III: Cardiovascular I	3.5

##### Spring Quarter

AHCJ 555	Writing for Health-Care Professionals	3
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## Pharmacy – Pharm.D. with Health Informatics – M.S.

The School of Pharmacy will interview pharmacy students who express interest in the M.S. degree in Health Informatics Program. An online admission application for the program is required to facilitate enrollment, but the School of Pharmacy grants formal approval.

The deadline for submitting the application is June 1 of each year; decisions will be made by July 1 of each year. Selection will be based on the following criteria:

- For pharmacy students starting in the second year–
  - Minimum G.P.A. of 3.5 or ranked in the top 10% of the class
- For pharmacy students starting in the first year–

REL R 709	Christian Perspectives on Death and Dying	2
RXPS 653	Principles of Medicinal Chemistry III	3
RXR X 604	Professional Development	1
RXSA 646	Principles of Management	3
RXTH 674	IPDM VI: Renal and Respiratory Diseases	3.5
RXTH 685	IPDM V: Cardiovascular II	3.5
<b>Summer Quarter</b>		
HLIF 545	System Design, Implementation, and Management	3
HLIF 560	Policy Development for Privacy and Security in Health-Care Systems	3
<b>Third Year</b>		
<b>Autumn Quarter</b>		
HLIF 530	Data Analytics and Decision Support	3
HLIF 532	Financial Management in Health Care	2
HLIF 555	Health-care Vendor and Project Management	2
RELE 706	Advanced Ethics in Pharmacy Practice	2
RXEE 790 <sup>2</sup>	Introduction to Clinical Pharmacy Practice	2
RXPC 761	Pharmacy Practice I	2
RXR X 704	Professional Development	1
RXTH 770	IPDM VII: Infectious Diseases I	3.5
RXTH 771	IPDM X: Neurology	3.5
<b>Winter Quarter</b>		
HLIF 540	Leadership Perspectives and Practice	3
HLIF 565	Technical Structures in Health Informatics	3
RXPC 760	Clinical Pharmacokinetics	2
RXPC 762	Pharmacy Practice II	2
RXR X 704	Professional Development	1
RXTH 772	IPDM IX: Infectious Diseases II	3.5
RXTH 773	IPDM VIII: Psychiatry	3.5
<b>Spring Quarter</b>		
HLIF 570	Professional Portfolio	1
HLIF 575 or 584	Capstone: Project and Special Topics in Health Informatics	2
RXPC 763	Pharmacy Practice III	2
RXR X 704	Professional Development	1
RXSA 743	Health Systems, Reimbursement, and Pharmacoeconomics	3
RXTH 704	IPDM XIII: Special Populations	3
RXTH 774	IPDM XII: Miscellaneous Conditions and GI Disorders	2.5
RXTH 775	IPDM XI: Oncology	2.5
<b>Fourth Year</b>		
<b>Autumn Quarter</b>		
RXEE 821	Advanced Pharmacy Practice Experience I	6
RXEE 822	Advanced Pharmacy Practice Experience II	6
<b>Winter Quarter</b>		
RXEE 823	Advanced Pharmacy Practice Experience III	6
RXEE 824	Advanced Pharmacy Practice Experience IV	6
<b>Spring Quarter</b>		
RXEE 825	Advanced Pharmacy Practice Experience V	6
RXEE 826	Advanced Pharmacy Practice Experience VI	6
Total Units:		219.5

- <sup>1</sup> To be taken either Autumn, Winter, or Spring quarter of the second year
- <sup>2</sup> To be taken either Autumn, Winter, or Spring quarter of the third year
- <sup>3</sup> To be completed by the end of the third year (no more than 4 units of independent study can be applied to this requirement). Choose from the electives listed below. Elective courses are subject to change.
- <sup>4</sup> Fulfills AHRM 514 Biostatistics for M.S. degree in health informatics

### Electives

RXPS 710	Dietary Supplements	2
RXPS 782	Special Topics in Pharmaceutical Sciences	1-4
RXPS 630	Biochemical Aspects of the Obesity and Metabolic Syndrome	2
RXPS 783	Special Topics in Pharmaceutical Sciences	1-4
RXPS 784	Special Topics in Pharmaceutical Sciences	1-4
RXR X 506	Introduction to Pharmacy Leadership	1
RXR X 798	Independent Study with Faculty	1-4
RXSA 757	Clinical Research and Methodology (CRM)	2
RXSA 748	Advanced Topics in Pharmacy Law	1
RXSA 600	Philippines Medical Mission Preparation	1
RXTH 603	Interprofessional Dental Clinic	2
RXTH 606	Antimicrobial Stewardship	1
RXTH 609	Advanced Literature Evaluation	1
RXTH 604	Medical Missions	3
RXTH 611	Introduction to Nuclear Pharmacy	2
RXTH 614	Parenteral and Enteral Nutrition	1.5
RXTH 701	Pediatrics	3
RXTH 702	Advanced Topics in Neurology and Therapeutics	2
RXTH 703	Advanced Topics in Critical Care	2
RXTH 757	Advanced Cardiovascular Life Support	3
RXPS 616	Neuropsychopharmacology	3
RXPS 719	Nutrition and Metabolic Syndrome	2
RXTH 782	Special Topics in Pharmacy Practice	1-4
RXTH 783	Special Topics in Pharmacy Practice	1-4
RXTH 784	Special Topics in Pharmacy Practice	1-4

### Normal time to complete the program

4 years (13 academic quarters) – full-time enrollment required

## Social Policy and Social Research – Ph.D. with Bioethics – M.A.

### Program director, Bioethics

Zdravko Plantak

### Program director, Social Policy and Social Research, Department of Social Work and Social Ecology

Larry Ortiz

### Faculty

The faculty for the combined degrees Bioethics *with* Social Policy and Social Research Program is drawn from the School of Religion and from the Department of Social Work and Social Ecology in the School of Behavioral Health.



## Purpose of the program

The purpose of the M.A./Ph.D. combined degrees Bioethics *with* Social Policy and Social Research Program is to facilitate an integrated and more efficient completion of two graduate degrees for students with strong interests in both bioethics and social policy. Students who complete this combined degrees program will be prepared to make significant interdisciplinary contributions to the field of social policy and ethics. Individuals working in the area of social policy must be able to undertake and publish research on social problems. This requires the ability to apply ethical theory to real-world policy scenarios. Graduates will be able to provide leadership to the social policy arena by conducting interdisciplinary research on various issues and agendas that have significant moral implications.

## Admissions

To enter the proposed program, students must gain separate acceptance to both graduate programs. The Social Policy and Social Research Program director recommends students. These recommendations trigger a streamlined admissions process for the M.A. degree in bioethics.

## Course work requirements

If an M.A. degree in bioethics is taken as a stand-alone degree, the requirement is 48 units. However, the M.A./Ph.D. combined degrees student is able to double count 20 of the needed 48 units as follows:

- 16 units from four courses in the social policy curriculum count toward the M.A. degree in bioethics requirements because of their similarity to ethics-type courses. Those courses are SPOL 613 Social Science Concepts I, SPOL 614 Social Science Concepts II, SPOL 615 Economic Theory and Social Policy, and SPOL 655 Research Methods II. These four courses have sufficiently similar content to bioethics that they warrant being applied to both the bioethics M.A. degree curriculum and the Ph.D. degree in social policy curriculum.
- 3 units come from one bioethics course in the social policy curriculum that is already required: RELE 588 Explorers of the Moral Life

To the extent possible, research projects in both programs focus on the interface of ethics and social policy.

### Ethics core

RELE 524	Bioethics and Society	4
RELE 565	The Good, the Bad, and the Ugly: Moral Aspects of Art and Illness	3
RELE 566	Heroes of Health Care	3
RELE 567	World Religions and Bioethics	3
RELE 568	Bioethics and the Law	3
RELE 589	Biblical Ethics	3
RELE 598	Master's Seminar I	3
RELE 599	Master's Seminar II	2
Electives		
RELE 5__		7

### Social science theory and policy

SPOL 600	Colloquium	0
SPOL 610	Diversity Theory in Practice and Research	3
SPOL 613	Social Science Concepts I <sup>1</sup>	4
SPOL 614	Social Science Concepts II <sup>1</sup>	4
SPOL 615	Economic Theory and Social Policy <sup>1</sup>	4

SPOL 656	Organizational Theory and Policy	3
SPOL 658	Methods of Policy Analysis and Research	4
<b>Religion</b>		
RELE 588	Explorers of the Moral Life <sup>1</sup>	3
RELR 525	Health Care and the Dynamics of Christian Leadership	3
RELT 557	Theology of Human Suffering	3
<b>Research methods, statistics, and information technology</b>		
SPOL 588	Special Topics in Social Policy and Social Research (Statistical Analysis Practicum) <sup>2</sup>	4
SPOL 654	Research Methods I	4
SPOL 655	Research Methods II <sup>1</sup>	4
Select one of the following sequences:		12
Sequence 1:		
PSYC 501	Advanced Statistics I	
PSYC 502	Advanced Statistics II	
PSYC 503	Advanced Multivariate Statistics	
Sequence 2:		
MFTH 601	Statistics I	
MFTH 604	Advanced Qualitative Methods	
MFTH 605	Advanced Quantitative Methods	
STAT__	Statistics (advanced course in statistics or methods)	4
<b>Applied/structured research and specialized electives</b>		22
Applied/Structured research (6-10 units)		
SPOL 671	Applied/Structured Research I	
SPOL 672	Applied/Structured Research II	
SPOL 673	Applied/Structured Research III	
Electives (10-16 units)		
<b>Dissertation research</b>		
SPOL 681	Dissertation Proposal I	2
SPOL 682	Dissertation Proposal II	2
SPOL 683	Dissertation Proposal III	2
SPOL 697	Research	18
Total Units		136

<sup>1</sup> Courses apply to both the M.A. and Ph.D. degree programs.

<sup>2</sup> Under the guidance of faculty, students collectively conceptualize and analyze a research question from a data set. A scholarly product is required outcome.

## Social Policy and Social Research – Ph.D. with Social Work – M.S.W.

### Program coordinators

Larry Ortiz

Kimberly Freeman

## Purpose of the program

The combined degrees M.S.W./Ph.D. program at Loma Linda University provides students with the opportunity to learn the professional skills of social work simultaneously with advanced theory and research study. The combined degrees program makes it possible for a more efficient completion of two graduate degrees for students with strong interests in social policy, social research, and social work practice. Students who

complete this combined degrees program will be prepared to make significant contributions to the field of social policy and social work education. Graduates will be able to provide leadership to social work practice and social policy areas. Participants in the combined degrees program will utilize the important resource networks within the University and those affiliated organizations working on solutions to significant social problems.

## Course requirements

Students admitted to the M.S.W. degree program may subsequently apply to the Ph.D. degree program and be admitted to the combined degrees program. Students should refer to the M.S.W. and Ph.D. degree program descriptions for information about the admission requirements of each program. Students admitted to the combined degrees program must meet all of the requirements of each of the participating programs. Students should refer to the M.S.W. and Ph.D. degree curricula for a detailed listing of requirements. Students can also obtain an outline of the combined degrees program from the program coordinator for the Ph.D. degree in social policy and social research.

## Social Work – M.S.W. with Criminal Justice – M.S.

**Program directors**  
Kimberly Freeman

Loma Linda University's motto, "To make man whole," provides a powerful and much-needed context in integrated practice. Both social work and criminal justice, within a behavioral health framework, address the models of recovery, healing, and restoration. The combined degrees program includes a single concentration in forensic mental health.

A multidisciplinary approach considers the biological, psychological, social, and spiritual well-being of victims, offenders, and communities; and provides a deeper understanding of crime and the struggle of the modern criminal justice system in a behavioral health context. The combined degrees program offers a unique opportunity for individuals interested in working in mental health court, detention centers, forensic inpatient programs, and forensic outpatient mental health systems.

## Mission

The mission, program goals, and objective build on elements from the M.S.W and M.S. degrees in criminal justice. Please refer to each of these programs for this content.

## General overview

The combined degrees M.S.W./M.S. curriculum in criminal justice is a 7-quarter, full-time program that begins with the social work core course work required for all students. Course work during the first year of study includes: generalist foundation social work practice, social welfare policy, religion, and social research methods. During their second year, students complete a specialization in forensic mental health. An integrated practicum and specialized seminar class in criminal justice typically begin in the Summer Quarter of the second year.

## Specialization description

**Forensic mental health**—Forensic mental health is a specialized branch of professional practice in which the clinical and criminal justice worlds overlap. Students choosing this area focus on the needs of individuals in the criminal or juvenile justice systems who have serious emotional

disorders and/or severe mental illness, and may also present with co-occurring substance abuse. Students gain knowledge and skills in treatment programming within a forensic mental health framework. In addition, this context prepares students to assess and provide expert testimony regarding continued institutionalization versus readiness for outpatient psychosocial rehabilitation, including the development and implementation of assertive community treatment plans.

The specialization emphasizes a thoughtful reflection about integrated issues in both social work and criminal justice that will provide students with a deeper understanding of the logic influencing policy, administration, and practice issues affecting the field.

## Liberal arts preparation

The M.S.W. and criminal justice curricula are built on a liberal arts perspective. Individual applicants whose undergraduate degree does not reflect this perspective may be asked to enroll in additional courses, which must be completed before advancement to candidacy (prior to beginning the advanced curriculum).

Unit values represent the quarter system of measurement. Content from multiple courses may be used to meet most requirements.

## Program options

Alternate program options have been designed to address the varying needs of students. As such, the program offers a full-time, two-year option; a three-year, part-time option; and a four-year, part-time option.

## Admissions

### Admission requirements

Students wishing to take the dual degree must be admitted to both the M.S.W. (p. 197) and the M.S. in Criminal Justice (p. 190) programs separately. Applicants should refer to the admissions criteria for each program.

## Program requirements

The 93 -unit curriculum for the M.S. degree in criminal justice provides a mix of academic, experiential, and research activities essential for practice as a M.S.W./ M.S. degree student.

Students must maintain a grade point average of 3.0 (a letter grade of B) on a 4.0 scale; and meet the knowledge, skill, and professional performance competencies outlined by the program.

Students must also maintain a B- (2.7) or better in all courses. Courses with grades falling below the standards set for required and selective courses must be repeated. According to University policy, a student cannot repeat more than two courses during his/her graduate program. Students are financially responsible for the cost of repeating courses when grades do not meet these minimum standards.

### Required cognates

RELE 522	Bioethical Issues in Social Work	3
or RELE 524	Bioethics and Society	

### Professional foundation courses

SOWK 513	Human Behavior and Cross-Cultural Environment	5
SOWK 514	Social Welfare Policies and Services	5
SOWK 517	Practice I: Individuals	3
SOWK 518	Practice II: Groups	3

SOWK 519	Practice III: Organizations and Communities	3
SOWK 520	Practice IV: Families <sup>1</sup>	3
SOWK 521	Global Practice	3
SOWK 548	Research Methods	5
SOWK 682	Legal and Ethical Aspects in Health and Mental Health Services	3
SOWK 578	Field Orientation <sup>1</sup>	0
<b>Conjoining curriculum and processes</b>		
SOWK 610	Diversity Theory in Practice and Research	3
SOWK 613	Psychopathology, Psychopharmacology, and Diagnosis of Behavioral Health Conditions	4
SOWK 671	Social Work Administration	3
<b>Required curriculum nucleus</b>		
CRMJ 515	Crime and Society	3
CRMJ 517	Criminal Procedure and Rules of Evidence	3
CRMJ 519	Expert Testimony: Procedure and Practice	2
CRMJ 520	Restorative Justice	3
CRMJ 574	Criminological Theory	4
SOWK 681	Behavioral Health Policies and Systems	2
<b>Forensic Mental Health Specialization</b>		
CRMJ 620	Forensic Mental Health	3
CRMJ 630	Criminal Justice Planning and Administration	3
SOWK 648	Co-occurring Processes and Interventions	3
SOWK 661	Psychodynamic Therapies	3
SOWK 661L	Psychodynamic Practice Lab	1
SOWK 662	Behavioral and Cognitive Therapies	4
SOWK 662L	Behavioral and Cognitive Therapies Practice	1
SOWK 663	Crisis and Trauma Interventions	3
<b>Culminating curriculum and processes</b>		
SOWK 675	Supervision	3
<b>Degree completion options</b> 6		
Non-thesis option:		
SOWK 695A	Advanced Research Methods	
SOWK 695B	Advanced Research Methods	
SOWK 695C	Advanced Research Methods	
Thesis option: <sup>3</sup>		
SOWK 697	Applied Research	
SOWK 698	Thesis	
<b>Practicum and seminar</b> <sup>5</sup>		
CRMJ 787	Advanced Professional Practicum and Seminar	
SOWK 757A	Professional Foundation Practicum and Seminar <sup>3</sup>	
SOWK 757B	Professional Foundation Practicum and Seminar <sup>3</sup>	
SOWK 757C	Professional Foundation Practicum and Seminar <sup>3</sup>	
SOWK 787A	Advanced Professional Practicum and Seminar <sup>4</sup>	
SOWK 787B	Advanced Professional Practicum and Seminar <sup>4</sup>	
SOWK 787C	Advanced Professional Practicum and Seminar <sup>4</sup>	

Total Units 93

<sup>1</sup> Not eligible for waiver.

<sup>2</sup> Thesis option is available for students meeting program criteria.

<sup>3</sup> Hours: 160 + 20; Not eligible for waiver

<sup>4</sup> Hours: 200 + 20

<sup>5</sup> 700-numbered courses are not calculated into the total didactic units required for the degree.

## Normal time to complete the program

7 academic quarters (includes didactic courses and practicums) – based on full-time enrollment; part time permitted

## Social Work – M.S.W. with Gerontology – M.S.

**Program director**  
Kimberly Freeman

The combined degrees M.S.W./M.S. program integrates the content of the distinct degree programs, thus preparing graduates for advanced practice with older adults.

## Mission, goals, and objectives

The mission, program goals, and objectives build on elements from the M.S.W. (p. 195) and M.S. degree in gerontology (p. 191).

## General overview

The combined degrees M.S.W./M.S., seven-quarter full-time program begins with the social work core course work required for all students. Course work during the first year of study includes: generalist foundation social work practice, social welfare policy, religion, and social research methods. During the final year of study, students complete a clinical services specialization. An integrated practicum and specialized seminar class in gerontology typically begins in the summer quarter of the final year.

## Area of specialization

The combined degrees M.S.W. and M.S. in Gerontology Program offers an area of specialization in clinical service.

This specialization develops students' knowledge and skills in locating and providing resources, services, and opportunities for older adults and their families; as well as acquiring knowledge that supports enhancing the problem-solving and coping skills of older adults and their caregivers. Students gain an appreciation for the social support factors and community systems that create opportunities or exacerbate problems in daily living. Students develop an understanding of the issues that impact the creation of effective systems of care and responsive social policies.

## Liberal arts preparation

The M.S.W. and gerontology curricula are built on a liberal arts perspective. Individual applicants whose undergraduate degree does not reflect this perspective may be asked to enroll in additional courses.

Please note: Any prerequisite requirements must be completed before admission to the combined degrees M.S.W/ M.S. program.

## Program options

Alternate program options have been designed to address the varying needs of students. As such, the program offers a two-year option; a three-year option; and a four-year option.

## Admissions

### Admissions

Students wishing to take the dual degree must be admitted to both the M.S.W. (p. 197) and the M.S. in Gerontology (p. 192) program separately. Applicants should refer to the admissions criteria for each program.

## Program requirements

The M.S.W./M.S. in Gerontology degree consists of 93 units of didactic course work in addition to professional practica experiences. The program provides the mix of academic, experiential, and research activities essential for master's degree level students. Students must maintain a program grade point average of 3.0 (or a letter grade of B on a 4.0 scale) and meet the knowledge, skills, and professional performance competencies outlined by the program. The minimum acceptable grade for all courses is a B- (2.7). Courses with grades falling below this standard must be repeated. Students are financially responsible for the cost of repeating courses in which grades obtained do not meet the minimum standards.

### Required cognates

RELE 522	Bioethical Issues in Social Work	3
or RELE 524	Bioethics and Society	

### Professional foundation courses

GERO 515	Diversity and Aging	3
SOWK 513	Human Behavior and Cross-Cultural Environment	5
SOWK 514	Social Welfare Policies and Services	5
SOWK 517	Practice I: Individuals	3
SOWK 518	Practice II: Groups	3
SOWK 519	Practice III: Organizations and Communities	3
SOWK 520	Practice IV: Families <sup>1</sup>	3
SOWK 521	Global Practice	3
SOWK 548	Research Methods	5
SOWK 682	Legal and Ethical Aspects in Health and Mental Health Services	3
SOWK 578	Field Orientation <sup>1</sup>	0

### Conjoining curriculum and processes

SOWK 610	Diversity Theory in Practice and Research	3
SOWK 613	Psychopathology, Psychopharmacology, and Diagnosis of Behavioral Health Conditions	4
SOWK 671	Social Work Administration	3

### Required curriculum nucleus

BHCJ 649	Integration of Behavioral Health in Primary Care	2
GERO 615	Economics and Management Issues of Older Adult Services	4
GERO 617	Bio-psycho-social-spiritual Theories of Aging	4
SOWK 681	Behavioral Health Policies and Systems	2

### Clinical services concentration

GERO 654A	Therapeutic Interventions with Older Adults I	3
GERO 654B	Therapeutic Interventions with Older Adults II	3
SOWK 648	Co-occurring Processes and Interventions	3
SOWK 661	Psychodynamic Therapies	3
SOWK 661L	Psychodynamic Practice Lab	1
SOWK 662	Behavioral and Cognitive Therapies	4
SOWK 662L	Behavioral and Cognitive Therapies Practice	1

SOWK 663	Crisis and Trauma Interventions	3
<b>Culminating curriculum and processes</b>		
SOWK 675	Supervision	3
<b>General Selective</b> <sup>5</sup>		
Select 2 units from the following list:		2
SOWK 651	Medical Social Work	
SOWK 659	Recovery in Behavioral Health	
<b>Degree completion options</b>		6
Non-thesis option:		
SOWK 695A	Advanced Research Methods	
SOWK 695B	Advanced Research Methods	
SOWK 695C	Advanced Research Methods	
Thesis option: <sup>2</sup>		
SOWK 697	Applied Research	
SOWK 698	Thesis	
<b>Practicum and seminar</b> <sup>6</sup>		
GERO 787	Advanced Professional Practicum and Seminar	
SOWK 757A	Professional Foundation Practicum and Seminar <sup>3</sup>	
SOWK 757B	Professional Foundation Practicum and Seminar <sup>3</sup>	
SOWK 757C	Professional Foundation Practicum and Seminar <sup>3</sup>	
SOWK 787A	Advanced Professional Practicum and Seminar <sup>4</sup>	
SOWK 787B	Advanced Professional Practicum and Seminar <sup>4</sup>	
SOWK 787C	Advanced Professional Practicum and Seminar <sup>4</sup>	
Total Units		93

<sup>1</sup> Not eligible for waiver.

<sup>2</sup> Thesis option is available for students meeting program criteria.

<sup>3</sup> Hours: 160 + 20; Not eligible for waiver

<sup>4</sup> Hours: 200 + 20

<sup>5</sup> Students wishing to take courses that are not included in this list of approved selectives must obtain an academic variance through the department's Academic Standards Committee prior to enrolling in the course.

<sup>6</sup> 700-numbered courses are not calculated into the total didactic units required for the degree.

## Normal time to complete the program

7 academic quarters (includes didactic courses and practicums) – based on full-time enrollment; part time permitted

# COURSES

## Allied Health—Conjoint (AHCJ)

### Courses

**AHCJ 101. Introductory Chemistry. 4 Units.**

Basic survey of matter, energy, and measurement. Includes atoms and molecules; chemical bonding; chemical reactions and reaction rates; gases, liquids, and solids; solutions and colloids; acids and bases; nuclear chemistry. Prerequisite: High school algebra or equivalent.

**AHCJ 102. Introductory Organic Chemistry. 4 Units.**

Introduces the study of compounds that contain carbon. Covers alkenes, alkynes, and aromatic compounds; alcohols, phenols, ethers, and halides; aldehydes and ketones; carboxylic acids and esters; amines and amides. Prerequisite: AHCJ 101; or equivalent.

**AHCJ 103. Introductory Biochemistry. 4 Units.**

Introduces the chemistry of living systems, including carbohydrates, lipids, proteins, and nucleic acids; enzyme chemistry; bioenergetics; carbohydrate, lipid, and protein metabolism; biosynthetic pathways; protein synthesis; chemical transmitters and immunoglobulins; body fluids, nutrition, and digestion. Prerequisite: AHCJ 101, AHCJ 102; or equivalent.

**AHCJ 105. Procedures in Phlebotomy. 5 Units.**

Designed for individuals who are interested in laboratory medicine and would like to become certified phlebotomists. Includes instruction in medical terminology, laboratory safety, basic anatomy and physiology, specimen-collection techniques, hazards/complications, quality assurance methods, and medicolegal issues of phlebotomy. Clinical rotation arranged at Loma Linda University Medical Center and affiliates. Prerequisite: Current CPR certificate.

**AHCJ 111. Introductory Physics. 4 Units.**

Focuses on mechanics and properties of matter and heat; emphasizes concepts. Per week: lecture three hours, laboratory three hours. Designed for students entering programs in the allied health sciences and nursing.

**AHCJ 112. Introductory Physics. 4 Units.**

Focuses on sound, light, electricity and magnetism, atomic and nuclear physics, and relativity; emphasizes concepts. Per week: lecture three hours, laboratory three hours. Designed for students entering programs in the allied health sciences and nursing.

**AHCJ 115. Introduction to Health Care Professions I. 2 Units.**

Introduces health-care professions, including their entry-level educational requirements at the undergraduate level. Content includes concepts of health care as practiced within the U.S. health-care system, roles of specific professions, job descriptions and scopes of practice for the clinical disciplines being profiled, modes of interprofessional interaction, work environments of profiled disciplines, educational requirements and costs, employment analysis and salary ranges.

**AHCJ 116. Introduction to Health Professions II. 2 Units.**

Introduces health-care professions, including their entry-level educational requirements at the graduate level. Content includes concepts of health care as practiced within the U.S. health-care system, roles of specific professions, job descriptions and scopes of practice for the clinical disciplines being profiled; modes of inter-professional interaction, work environments of profiled disciplines, educational requirements and costs, employment analysis and salary ranges.

**AHCJ 124. Introductory Medical Anthropology. 4 Units.**

An interdisciplinary approach to understanding human behavior, with specific applications to all levels of the health-care professions. Studies human health and disease, health care and care-delivery systems, and biocultural adaptations. Holistically integrates all elements affecting health and disease—including spiritual, biological, social, and psychological factors. Provides insights into global issues through cross-cultural comparisons and analyses of health, disease, and care interventions. Builds perspectives and skills that prepare the student to successfully address and rise above the barriers often resulting from issues of diversity—including differences of culture, age, gender, sexual preference, religion, race, ethnicity, life experiences, and economic background. Emphasizes problem-solving insights and skills and extensively utilizes case studies and small-group synergy to ensure real-world usefulness.

**AHCJ 135. Essentials of Human Anatomy and Physiology. 5 Units.**

Studies the structure and function of the human body, including organ systems. Prerequisite to many certificate and associate degree programs. Lecture and laboratory required.

**AHCJ 151. General Chemistry I. 4 Units.**

First quarter of a three-quarter sequence in general college chemistry. Meets the general chemistry requirement for science, engineering, and prehealth professional majors. Prerequisite: High school chemistry; college algebra.

**AHCJ 152. General Chemistry II. 4 Units.**

Second quarter of a three-quarter sequence in general college chemistry. Meets the general chemistry requirement for science, engineering, and prehealth professional majors. Prerequisite: AHCJ 151.

**AHCJ 153. General Chemistry III. 4 Units.**

Third quarter of a three-quarter sequence in general college chemistry. Meets the general chemistry requirement for science, engineering, and prehealth professional majors. Prerequisite: AHCJ 152.

**AHCJ 225. History of Radiation and Imaging 1890-1940. 3 Units.**

The history of imaging and radiation from 1890 to 1940. Develops greater understanding of the evolution of imaging practices and the use of radiation in society from 1890 to 1940. Advances understanding through factual knowledge and appropriate analytical skills. Highlights the nature of change in imaging and the use of radiation for medical, commercial, industrial, and military uses. Builds on an understanding of cultural, institutional, and technological precedents that, along with geography, set the stage for advancements in technology and changes of ideologies.

**AHCJ 226. History of Radiation and Imaging 1940-Present Day. 3 Units.**

The history of imaging and radiation from 1940 to the present. Develops a greater understanding of the evolution of imaging practices and the use of radiation in society from 1940 to the present. Advances understanding through factual knowledge and appropriate analytical skills. Highlights the nature of change in imaging and the use of radiation for medical, commercial, industrial, and military uses. Builds on an understanding of cultural, institutional, and technological precedents that, along with geography, set the stage for advancements in technology and changes of ideologies.

**AHCJ 228. Hispanic Culture for Allied Health Professionals. 4 Units.**

Introduces basic humanities concepts relevant to the Hispanic culture and its influence on how health care is provided today. Includes cultural awareness, heritage, health beliefs and practices, and culturally competent care and communication.

**AHCJ 241. Microbiology. 2.5 Units.**

Designed for students in the health sciences. History, classification, morphology, growth, control, transmission, and pathology of selected bacteria, viruses, fungi, rickettsia, and parasites. Host defenses against microbial pathogens, including specific and nonspecific immunity. Per week: lecture thirty hours, laboratory thirty hours. Course covers two quarters. Grade given upon completion of the 241, 242 sequence. Prerequisite: A college-level chemistry course.

**AHCJ 242. Microbiology. 2.5 Units.**

Designed for students in the health sciences. History, classification, morphology, growth, control, transmission, and pathology of selected bacteria, viruses, fungi, rickettsia, and parasites. Host defenses against microbial pathogens, including specific and nonspecific immunity. Per week: lecture 30 hours, laboratory 30 hours. Course covers two quarters. Grade given upon completion of AHCJ 241, 242 sequence. Prerequisite: AHCJ 241.

**AHCJ 250. Human Anatomy and Physiology I. 5 Units.**

A 5-unit course covering structure and function of: cells; primary tissues; the integument; osseous tissue and the skeletal system; muscle tissues and skeletal muscles; as well as an introduction to the nervous system. For students entering two- and four-year health professional programs such as physical therapy, occupational therapy, cardiopulmonary sciences, communication sciences and disorders, radiation technology, nursing, and other programs with an anatomy and physiology prerequisite.

**AHCJ 251. Human Anatomy and Physiology II. 5 Units.**

A 5-unit course covering the organization and functions of the central and peripheral nervous systems and the visceral organ systems. For students entering two- and four-year health professional programs—such as physical therapy, occupational therapy, cardiopulmonary sciences, communication sciences and disorders, radiation technology, nursing, and other programs with an anatomy and physiology prerequisite. Prerequisite: AHCJ 250, or equivalent.

**AHCJ 305. Infectious Disease and the Health-Care Provider. 1 Unit.**

Current issues related to infectious disease, with special emphasis on principles of epidemiology and the etiology of HIV/AIDS. Discusses disease pathology and modes of transmission compared with hepatitis, tuberculosis, and influenza. Development of ethical response to psychosocial, economic, and legal concerns. Strategies and programs for education, prevention, and identification of resources. Impact on the health care worker; risk factors; and precautions for blood-borne pathogens, HIV, hepatitis, and tuberculosis.

**AHCJ 308. Professional Communications. 1,2 Unit.**

Forms of written and verbal communication routinely required in the performance of the health-care manager's duties. Projects include memos, letters, confidential FAX cover design, short reports, meeting notices, minutes, and creation of agendas.

**AHCJ 314. Managing Stress. 3 Units.**

Introductory course in managing stress from a mind, body, and spirit perspective. Emphasizes integration and unity of component parts to provide a composite, and the bases for managing stress with whole person care. Introduces evidence-based research for managing stress from health psychology; lifestyle health; and use of humor, music, exercise, rest/relaxation, and religion/spirituality—as well as other integrated areas. Introduces student to the tools needed to identify and manage stress, while teaching how to strive for health and balance.

**AHCJ 315. Psychosocial Aspects of Health Care. 3 Units.**

Based on the belief that an understanding of psychosocial aspects of health care optimizes therapeutic outcomes. Emphasizes the importance of the wholeness human factor in clinical competence and professional excellence. Comprehensively addresses a variety of psychosocial topics involving health professionals/health-care providers affected by pathology, impairment, functional limitation, and/or disability. Realistically and practically addresses real issues in today's health care, acknowledging time as well as other constraints; and describes recommended roles and intervention strategies for health-care providers. Applies to all health-care professions, such as nursing, physical and occupational therapy, speech-language pathology, physician assistant and medicine, respiratory therapy, social work, and medical laboratory science. Additional project required for fourth unit.

**AHCJ 318. Emotional Intelligence and Leadership Skills for Health-Care Professionals. 3 Units.**

Examines the foundational concepts of emotional and social intelligence. Students assess their strengths, design action plans to enhance their emotional and social intelligence competencies, and apply emotional and social intelligence concepts and theories to their personal and professional behavioral practices and to the management and leadership of others. Course based on a framework specific to the health-care environment.

**AHCJ 320. ADL and Assistive Devices. 3 Units.**

Introduces the implied adaptations necessary for an individual with disabilities to lead an effective life. Promotes an integrative perspective on all the biomechanical engineering that is necessary for activities of daily living and raises awareness of how orthotic and prosthetic devices interface in their purpose. Teaches the basic medical, custom seating principles.

**AHCJ 323. Economics and Business Management. 3 Units.**

Establishes principles of economics, financial management, and law as they apply to health-care settings, including: starting a new service, reimbursement, capital and operational budgeting, reading financial statements, and cost-saving measures.

**AHCJ 324. Psychosocial Models and Interventions. 2 Units.**

Major models of stress, crisis, and psychological trauma; and how they relate to health-care providers. Psychosocial reactions and responses of populations, individuals, and care providers to societal disruption and trauma, medical emergencies, and death and dying. Applies principles for suicide intervention, critical incident debriefings, and death notification. Roles of psychiatrists, psychologists, social workers, family therapists, and chaplains. Methods of providing temporary, adequate psychological care for individuals in psychosocial crisis.

**AHCJ 325. U. S. Health-Care Delivery System. 2 Units.**

Overview of U.S. health-care delivery, including the history of health-care institutions, accrediting bodies, organizations that provide health care; regulations and standards, reimbursement methods used, and the professionals who provide services. Presents course from a systems perspective, including research into the future of health care.

**AHCJ 326. Fundamentals of Health Care. 2 Units.**

Foundation of basic patient care information and skills for allied health professionals entering the clinical environment. Integrated basic care knowledge and skills required by each profession.

**AHCJ 328. Wholeness Portfolio I. 1 Unit.**

Students develop an introductory portfolio that demonstrates progression toward the student learning outcomes set by Loma Linda University—including wholeness, Christ-centered values, commitment to discovery and lifelong learning, effective communication, embracing and serving a diverse world, and collaboration.

**AHCJ 329. Organic Chemistry with Laboratory. 5 Units.**

Studies carbon chemistry as related to organic compounds found in the human organism.

**AHCJ 331. Human Resource Management. 3 Units.**

Theory and practice of the management of people at work. Organizational behavior concepts and the problems of employee procurement, training, and motivation. Job evaluation, wage administration, employee benefits, and negotiating with labor unions. Preparation for both managing people and directing a department in a complex organization.

**AHCJ 334. Biochemistry. 4 Units.**

Chemistry and metabolism of carbohydrates, lipids, nucleic acids, and proteins. Chemical basis of life processes. Lecture and laboratory demonstrations to support student competency.

**AHCJ 341. Cultural Perspectives in Professional Practice I. 3 Units.**

First course in a four-course sequence that progressively enhances students' ability to provide culturally sensitive care within a Western clinical context. Focuses on professional and academic aspects of writing; as well as on mastery of critical thinking processes that increase the student's ability to solve problems, form opinions, and make decisions. Typical assignments emphasize proficiency in the mechanics of speaking and writing in English, knowledge of the rules regarding plagiarism, and the application of APA guidelines.

**AHCJ 342. Cultural Perspectives in Professional Practice II. 3 Units.**

Second course in a four-course sequence that progressively enhances students' ability to provide culturally sensitive care within a Western clinical context. Continues the focus on professional and academic aspects of writing; as well as on mastery of critical thinking processes that enhance the ability to solve problems, form opinions, and make decisions. Typical assignments emphasize proficiency in technical writing for the health-care professional, based on APA guidelines.

**AHCJ 343. Cultural Perspectives in Professional Practice III. 3 Units.**

Third course in a four-course sequence that progressively enhances students' ability to provide culturally sensitive care within a Western clinical context. Continues the focus on professional and academic aspects of writing; as well as on mastery of critical thinking processes that enhance the ability to solve problems, form opinions, and make decisions. Typical assignments emphasize reflective and technical writing, including research papers that follow APA guidelines; as well as oral presentations.

**AHCJ 344. Cultural Perspectives in Professional Practice IV. 3 Units.**

Fourth course in a four-course sequence that progressively enhances students' ability to provide culturally sensitive care within a Western clinical context. Emphasizes mastery of professional and academic aspects of writing; as well as of critical thinking processes that enhance the ability to solve problems, form opinions, and make decisions. Additional practice in writing research papers that follow APA guidelines; as well as in making oral presentations.

**AHCJ 362. Anatomy. 3 Units.**

Gross anatomy of the musculoskeletal system—emphasizing spatial orientation, joint structure, skeletal muscle origins, insertions, actions, nerves, and blood supply. A cadaver-based course.

**AHCJ 368. Lifestyle Health and Wholeness. 3-4 Units.**

Explores current lifestyle health and diseases, including: cardiovascular, metabolic, communicable, and nutritional. Explores concepts regarding risk factors, screening approaches, and risk reduction, focusing on their impact on specific health parameters. Addresses the universal problem of personal health and the influence of lifestyle on health and lifestyle disease. For the beginner as well as for the health professional who wishes to attain or maintain good whole person health and freedom from disease by such natural means as minimizing the use of prescription drugs, food supplements, and diet fads. Presents specific lifestyle advice to attain these goals. Addresses disease prevention as well as treatment through whole person lifestyle, evidence-based measures. A whole person approach—mind, body, and spirit—inclusive of a perspective that explores the influence of religiosity on lifestyle health. Additional project required for a fourth unit of credit.

**AHCJ 369. Therapeutic Humor in Health Care. 3,4 Units.**

Distinguishes between humor and laughter and how each affects physiological, psychological, and sociological health. Discusses ways that health-care providers can incorporate humor into the care of patients and their families. Utilizes published research studies to support the efficacy of humor in health care as an evidenced-based practice. Designed for health-care providers who want to become knowledgeable and to utilize therapeutic humor in whole person care. Requires an additional assigned project for a fourth unit of credit.

**AHCJ 375. Physiology. 3 Units.**

Physiology of the human body—including cellular, neuromuscular, cardiovascular, respiratory, gastrointestinal, renal, and endocrine physiology.

**AHCJ 402. Pathology I. 4 Units.**

Fundamental mechanisms of disease, including cell injury; inflammation, repair, regeneration, and fibrosis; and vascular, cardiac, respiratory, gastrointestinal, hepatobiliary, urinary, reproductive, endocrine, and integumentary pathologies.

**AHCJ 403. Pathology II. 3,4 Units.**

Fundamental mechanisms of disease, including the central and peripheral nervous systems, bone and joint, skeletal muscle, developmental, genetic, infectious, and parasitic pathologies; and neoplasia. Fourth unit requires two autopsy viewings and written report. Prerequisite: AHCJ 402.

**AHCJ 404. Pharmacology. 1,2 Unit.**

Introduces pharmacology, including study of pharmacokinetics, pharmacodynamics, and actions of pharmaceuticals commonly encountered in various allied health professions. Different sections register for 1 or 2 units. Identical topics for both sections, with greater depth and detail for 2-unit course.

**AHCJ 407. Financial Management. 2 Units.**

Financial aspects of health care involving prospective reimbursement system, analysis of various health-care reimbursement schemes, and hospital financial disbursements. Budget variance analysis, analysis of cost components, operating statements, and productivity related to a department budget. Special projects may be assigned as needed. Per week: lecture two hours.

**AHCJ 410. Pathology for Health Professionals. 3 Units.**

Studies the fundamental mechanisms of pathology pertaining to the neuromusculoskeletal systems. Focuses on the functional consequences of human diseases.

**AHCJ 412. Anatomy. 9 Units.**

Gross anatomy of the musculoskeletal system, emphasizing spatial orientation, joint structure, skeletal muscle origins, insertions, actions, nerve, and blood supply. A cadaver-based course.

**AHCJ 418. Physiology I. 4 Units.**

Physiology of the human body, including cellular, neuromuscular, cardiovascular, respiratory, gastrointestinal, renal, and endocrine physiology.

**AHCJ 422. History of Disability. 3 Units.**

Reviews the power issues relating to disabilities in the history of the United States. Delineates the patient's rights from a historical context. Focuses on the contents and implementation of Americans with Disabilities Act (ADA). Outlines what role the ADA plays in the everyday practice of rehabilitation sciences.

**AHCJ 426. Introduction to Computer Applications. 2 Units.**

Hands-on instruction in Word, Excel, and PowerPoint. Lectures, laboratory assignments, quizzes, projects, and a practical examination. (Course not taught every quarter.).

**AHCJ 448. Human Resource Management. 3 Units.**

Human resource management from the department head point of view. Assesses the employment process from justification of a position until the position is filled and productive. Emphasizes position evaluation and development of the job description. Reviews labor unions from a management point of view. Wage analysis and employee benefits.

**AHCJ 465. Seminars in Leadership. 2 Units.**

Prepares graduates for entry into the new work requirements. Through observation and participation, students explore the responsibility of today's employee to successfully integrate customer and community service and social responsibility.

**AHCJ 493. Senior Portfolio I. 3 Units.**

Allows students to progress toward building competence in SAHP and program outcomes (including diversity) for graduates.

**AHCJ 494. Senior Portfolio II. 3 Units.**

Building on Portfolio I, students synthesize their learning and demonstrate their progress in building toward SAHP and program outcomes (including diversity), and beyond.

**AHCJ 496. Special Topics in Allied Health Studies. 1-4 Units.**

Lecture and discussion on a current topic in allied health studies. May be repeated for a maximum of 4 units applicable to degree program.

**AHCJ 498. Wholeness Portfolio II. 1 Unit.**

Students continue developing a portfolio that illustrates the potential graduate's ability to meet the student learning outcomes set by Loma Linda University—including wholeness, Christ-centered values, commitment to discovery and lifelong learning, effective communication, embracing and serving a diverse world, and collaboration.

**AHCJ 499. Directed Study. 1-4 Units.**

Individual arrangements for students to study under the guidance of a program faculty member. May include readings, literature review, or other special or research projects. Minimum of thirty hours required for each unit of credit. Laboratory may be required in addition to class time. A maximum of 4 units applicable to any degree program.

**AHCJ 506. Educational Evaluation and Clinical Assessment. 3 Units.**

Introduces principles and techniques of designing evaluation activities and tests for measuring classroom learning and instructional products. Includes criteria-referenced approaches, formative and summative instruments, critical incident observations, portfolio assessment, and other measurement concepts.

**AHCJ 509. Transformational Teaching and Learning. 3 Units.**

Explores theories and styles of learning and personality factors that relate to learning. Includes implications of effective intellectual, emotional, and social functioning within the context of structuring education for the adult learner. Includes analysis of the teaching process—from the setting of objectives, selection of content, and design of classroom and clinical teaching strategies (with particular emphasis on alternatives to lecturing) to assessment and evaluation.

**AHCJ 510. Human Gross Anatomy. 9 Units.**

Gross anatomy of the musculoskeletal system, with emphasis on spatial orientation, joint structure, skeletal muscle origins, insertions, actions, nerves, and blood supply. A cadaver-based course.

**AHCJ 514. Kinesiology: Motor Control and Learning. 3 Units.**

Advanced kinesiology, including movement science dealing with behavioral basis of motor control and motor learning from an information-processing perspective.

**AHCJ 515. Curriculum Development in Higher Education. 3 Units.**

Examines principles of curriculum development. Selection, organization, and evaluation of learning experiences. Examines the nature, place, and interrelationship of general and specialized education in higher education.

**AHCJ 516. Clinical Imaging. 3 Units.**

Explores modern imaging techniques used to assess musculoskeletal disorders and cardiovascular pathologies. Includes radiographs, CAT scans, MRIs, bone densitometry, PET scans. Emphasizes clinical ultrasound imaging as used in physical therapy.

**AHCJ 519. Graduate Wholeness Portfolio. 1 Unit.**

Students develop a portfolio that demonstrates the graduate student's progression toward the student learning outcomes set by Loma Linda University—including wholeness, Christ-centered values, commitment to discovery and lifelong learning, effective communication, embracing and serving a diverse world, and collaboration.

**AHCJ 524. Pharmacology. 2 Units.**

Introduces pharmacology, including study of pharmacokinetics, pharmacodynamics, and actions of pharmaceuticals commonly encountered in various allied health professions.

**AHCJ 528. Lifestyle Health and Wholeness. 3,4 Units.**

Explores current lifestyle health and diseases, including: cardiovascular, metabolic, communicable, and nutritional. Explores concepts regarding risk factors, screening approaches, and risk reduction, focusing on their impact on specific health parameters. Addresses the universal problem of personal health and the influence of lifestyle on health and lifestyle disease. For the beginner as well as for the health professional who wishes to attain or maintain good whole person health and freedom from disease by such natural means as minimizing the use of prescription drugs, food supplements, and diet fads. Presents specific lifestyle advice to attain these goals. Addresses disease prevention as well as treatment through whole person lifestyle, evidence-based measures. A whole person approach—mind, body, and spirit—with a biblical perspective that explores the influence of the mind and the spirit/religiosity on lifestyle health. Additional project required for fourth unit.

**AHCJ 538. Histology. 3 Units.**

Surveys the fundamental tissues (epithelial, connective, muscle, and nerve); as well as the histopathology of selected diseases, including changes in bone, cartilage, and other tissues.



**AHCJ 541. Managing Stress. 3,4 Units.**

Provides a comprehensive approach to stress management that focuses on the integration, balance, and harmony of mind, body, spirit, and emotions. Examines the balance among the research of health psychology, the psychology of lifestyle, the science of psychoneuroimmunology, and holistic healing. Provides tools needed to identify and manage stress, as well as to achieve health and balance. Additional project required for fourth unit.

**AHCJ 542. Pathology I. 4 Units.**

Fundamental mechanisms of disease, including: cell injury, inflammation, repair, fluid disorders, neoplasms; developmental, genetic, pediatric, immune, infectious, physical, dietary, blood, vascular, and heart diseases.

**AHCJ 543. Pathology II. 3 Units.**

Fundamental mechanisms of disease, including: respiratory, gastrointestinal, liver and biliary tract, pancreatic, endocrine, kidney, urinary tract, male and female genital tract, breast, musculoskeletal, nervous system, and skin diseases.

**AHCJ 544. Advanced Functional Neuroanatomy. 3 Units.**

Analyzes and applies neuroanatomy to lesions of the human nervous system; clinical significance of such lesions.

**AHCJ 545. Legal and Ethical Issues in the Health Professions. 3 Units.**

History and structure of federal and state governments, including torts, contracts, administrative law, criminal law, and reporting issues. Legal and ethical issues in patient confidentiality and release of patient information. The impact of technology on the collection and dissemination of patient information. Medical-legal liability issues, including corporate compliance.

**AHCJ 546. Therapeutic Humor in Health Care. 3 Units.**

Distinguishes between humor and laughter and how each affects physiological, psychological, and sociological health. Discusses ways that health-care providers can incorporate humor into the care of patients and their families. Utilizes published research studies to support the efficacy of humor in health care as an evidenced-based practice. Designed for health-care providers who want to become knowledgeable and to utilize therapeutic humor in whole person care.

**AHCJ 548. Human Resource Management in the Health-Care Environment. 3 Units.**

Discusses human resource management issues from the viewpoint of the health-care professional. Includes the legal foundation governing human resource management, as well as the impact that leadership has on the employee's quality of work, motivation, and performance management. Human resource planning and job analysis, recruitment and selection, employee pay and benefit plans, labor management and collective bargaining. Opportunity for role playing and negotiation experiences. Paper required.

**AHCJ 549. Professional Responsibility in Allied Health Professions. 3 Units.**

Provides graduate students an advanced overview that combines aspects of substantive law and ethical guidelines in the profession. Focuses in part on handling problems that include the canons of ethics; duty to patients, the workplace, and the profession. Also covers legal aspects, such as conflicts of interest, solicitation, and professional discipline.

**AHCJ 550. Organizational Theory. 3 Units.**

Introduces students to the concepts needed to understand and predict the behavior of people in health-care organizations today. Covers foundations of organizational structure, leadership, politics, and conflict management.

**AHCJ 555. Writing for Health-Care Professionals. 3 Units.**

Writing for health professionals for professional publication. Selection of journal, preparation of abstract, manuscript or research paper for potential publication.

**AHCJ 556. Administration in Higher Education. 3 Units.**

Leadership philosophy and styles of administrative leadership in higher education, with particular application to health professions educational programs. Includes personnel management; budgeting; contracting for clinical placement; group leadership in committees; faculty selection, development, and evaluation; strategic planning; and policy development.

**AHCJ 557. Integrating Emotional Intelligence Leadership into the Healthcare Professions. 3 Units.**

Students examine their personal emotional and social competencies and apply these foundational concepts in the health care and educational environments. Specifically focuses on developing EI in leadership and supervisory roles. Emphasizes developing EI competencies in staff, faculty, and/or students.

**AHCJ 560. Physiology. 4 Units.**

Physiology of the human body, including neuromuscular, cardiovascular, respiratory, gastrointestinal, renal, and endocrine physiology.

**AHCJ 561. Neuroscience I: Neuroanatomy. 4 Units.**

Basic anatomy and function of the central, peripheral, and autonomic nervous systems and related structures. Gross anatomy of the brain and spinal cord. Functional consideration of cranial nerves, tracks, and nuclei of major systems. Lecture, slides, and laboratory with specimens.

**AHCJ 562. Neuroscience II: Neurophysiology. 3 Units.**

Presents current knowledge of cellular physiology and the role of chemokines and cytokines in health and disease. Covers membrane physiology and the resting membrane; and action potential, muscle physiology, and thermoregulation and neural control systems for movement—with special emphasis on gait.

**AHCJ 563. Neuroscience III: Clinical Neurology. 2 Units.**

Systematic review of clinical disorders of the central and peripheral nervous systems, emphasizing sensorimotor sequelae of injury and disease.

**AHCJ 564. Collaborative Learning in Higher Education. 3 Units.**

Collaborative learning, theories of group-individual interaction, and the communication process. Educational orientation to the utilization of groups to enhance motivation, commitment, and learning in higher education.

**AHCJ 566. Theoretical Foundations of Leadership. 3 Units.**

A web-based course that introduces students to the discipline of leadership. Focuses on the relevance of leadership through study of trait theory, situational leadership, transactional v. transformational leadership, leadership v. management, and leadership ethics. Students will reflect upon theoretical approaches, correlate those approaches with personal experience, and apply those approaches in the professional setting.

**AHCJ 567. Personal Leadership. 3 Units.**

A Web-based course that focuses on the discovery and growth of an individual's personal leadership style. Students reflect upon various leadership qualities at the personal level, complete the Life Styles Inventory (LSI-1), analyze data from the LSI-1, and discuss the recommendations for increased effectiveness.

**AHCJ 568. Spirituality and Health: The Wholeness Connection. 3 Units.**

Utilizes known physiological mechanisms of the central nervous, neuroendocrine, and immune systems to examine the influence of religious/spiritual beliefs and practices on physical and mental health. Focuses on the integrative science of psychoneuroimmunology as a basis for understanding how devout religious/spiritual beliefs and practices may affect not only a sense of well-being and quality of life, but also longevity. Includes religious/spiritual study methodologies and research instruments. Explores principles of spiritual care as applied to practice, including perspectives on the theology of healing, the connection between body and spirit, and the roles of faith and meaning.

**AHCJ 569. Computers and Electronics for Clinicians. 3 Units.**

Explains the roles of computers and electronics in a clinical setting. Equipment used in a classroom setting.

**AHCJ 575. Couples, Families, and Disabilities. 3 Units.**

Examines not only the effects disabilities have on couples and family systems, but also what contributions family members are making to the rehabilitation process of disabled individuals. Looks at the discourse patterns taking place within a person with a disability; within the disabled person's family and social support system; and most importantly, within the context of the individual, the family, and the medical and rehabilitation providers. Addresses the issues of human sexuality, reproduction, and disability.

**AHCJ 576. Basics of Marketing. 3 Units.**

Provides an overview of the principles of developing a marketing strategy. Illustrates how marketing can assist an organization in arriving at a competitive advantage; and in creating, capturing, and sustaining value in the eyes of the buyer.

**AHCJ 577. Science of Happiness. 3-4 Units.**

Focuses on a fundamental finding from positive psychology that happiness is inextricably linked to wholeness, strong social ties, and contributing to something bigger than self. Students learn about the cross-disciplinary research supporting this view, spanning the fields of psychology, neuroscience, biology, and religion. Additional project required for a fourth unit of credit.

**AHCJ 579. Instructional Effectiveness. 3 Units.**

Develops strategies for instructional effectiveness, as well as processes for evaluation and assessment, that apply to face-to-face and online interactions.

**AHCJ 586. Curricula Planning in Health Sciences. 3 Units.**

Applies curriculum-development theories and approaches to the health science arena. Students develop a learning-centered curriculum.

**AHCJ 587. Introduction to Approaches in Music Therapy. 3-4 Units.**

Assesses the strengths and needs of clients and utilizes music interventions—creating, singing, moving to, and/or listening to music—to address the physical, emotional, cognitive, and social needs in support of accomplishing individualized therapeutic goals. Additional project required for a fourth unit of credit.

**AHCJ 588. Fundamentals of Human Resource Management. 3 Units.**

Introduces students to the fundamentals of human resource management in the private, public, and nonprofit sectors. Covers employee development, legal compliance, and diversity management from a health-care perspective.

**AHCJ 589. Strategic Planning in Health-Care Organizations. 3 Units.**

Applies health-care systems knowledge and skills to real-life assessment scenarios. Focuses on integrating systems components and analyzing their interactions in the health-care industry. Emphasizes development of systems assessment techniques that facilitate understanding of the traits of a particular organization, such as its strengths, weaknesses, areas of growth, and changes needed. Students conduct their organizational assessment, apply didactic content presented in other courses in the curriculum, and enhance their strategic planning skills.

**AHCJ 599. Directed Teaching. 3 Units.**

Student develops a specialty module and presents it in a classroom or clinical setting. Includes course application, course syllabus, measuring instrument, student course evaluation, and lesson plans. Prerequisite: Consent of instructor or of program director.

**AHCJ 600. Active Online Learning. 3 Units.**

Online course (organized around the AVLL standard for online instruction). Focuses on integration of active learning strategies, meaningful interactions, and stimulating learning experiences. Modules include: introduction, course organization, a safe learning environment, the relational basis of learning, integration of faith, appropriate assessment, and the needs of individual learners.

**AHCJ 699. Directed Study. 1-6 Units.**

Individual arrangements for advanced students to study under the guidance of a program faculty member. May include reading, literature review, and/or other special projects. Minimum of thirty hours required for each unit of credit.

**AHCJ 705. Infectious Disease and the Health Care Provider. 1 Unit.**

Current issues related to infectious disease, with special emphasis on principles of epidemiology and the etiology of HIV/AIDS. Discusses disease pathology and modes of transmission compared with hepatitis, tuberculosis, and influenza. Development of ethical response to psychosocial, economic, and legal concerns. Strategies and programs for education, prevention, and identification of resources. Impact on the health care worker; risk factors; and precautions for blood-borne pathogens, HIV, hepatitis, and tuberculosis.

**AHCJ 721. Wholeness Portfolio I. 1 Unit.**

Students continue developing a portfolio that illustrates the potential graduate's ability to meet the student learning outcomes set by Loma Linda University—including wholeness, Christ-centered values, commitment to discovery and lifelong learning, effective communication, embracing and serving a diverse world, and collaboration.

**AHCJ 722. Wholeness Portfolio II. 1 Unit.**

Students continue developing a portfolio that illustrates the potential graduate's ability to meet the student learning outcomes set by Loma Linda University—including wholeness, Christ-centered values, commitment to discovery and lifelong learning, effective communication, embracing and serving a diverse world, and collaboration.

## Allied Health Research Methods (AHRM)

### Courses

**AHRM 354. Statistics for the Health Professions. 3 Units.**

Fundamental procedures in collecting, summarizing, analyzing, presenting, and interpreting data. Measures of central tendency and variation, probability, binomial and normal distribution, hypothesis testing and confidence intervals, t-tests, chi-square, correlation, and regression. Introduction to SPSS statistical package for computer data analysis.

**AHRM 471. Statistics and Research for Health Professionals I. 3 Units.**

Presents statistical methods relative to research design for health professionals, with introduction to SPSS statistical package for computer data analysis. Discusses philosophical approaches to scientific inquiry, range of research designs, roles of variables, and ethics.

**AHRM 472. Statistics and Research for Health Professionals II. 3 Units.**

Advanced conceptual frameworks, data analyses, and techniques in quantitative and qualitative research. Emphasizes process for obtaining and using evidence-based research. Prerequisite: AHRM 471.

**AHRM 475. Health-Care Research and Statistics. 4 Units.**

Statistical methods presented in the context of health-care research. Rationale for research questions, definition of populations, roles of variables, reliability and validity of research tools, common research designs, internal and external validity of research designs. Descriptive statistics, confidence interval, hypothesis testing concepts, t-tests, chi-square tests, correlation and regression. Interpretation of computer output. Evaluation of the health-care literature.

**AHRM 514. Biostatistics. 3 Units.**

Fundamental procedures of collecting, summarizing, presenting, analyzing, and interpreting data. Sampling, measures of central tendency and variation, probability, binomial distribution, normal distribution, sampling distributions and standard error, confidence intervals, hypothesis testing, t-tests, chi-square, correlation, and regression. Introduces computer analysis for solution of statistical problems.

**AHRM 571. Statistics and Research for Health Professionals I. 3 Units.**

Presents statistical methods relative to research design for health professionals, with introduction to SPSS statistical package for computer data analysis. Discusses philosophical approaches to scientific inquiry, range of research designs, roles of variables, and ethics. Critical analysis of scientific literature related to an identified professional practice area, which results in an evidence-based practice paper.

**AHRM 572. Statistics and Research for Health Professionals II. 3 Units.**

Advanced conceptual frameworks, data analyses, and techniques in quantitative and qualitative research. Emphasizes process for obtaining and using evidence-based research. Data analysis of a small data set in order to answer a research question and write a formal results section complete with appropriate tables and graphs. Prerequisite: AHRM 571.

**AHRM 581. Research and Statistics I. 3 Units.**

In-depth study of research designs: their advantages and disadvantages, including pretest/posttest designs; posttest-only, control group designs; time series designs; factorial designs; randomized block and repeated-measures designs; and incomplete block designs. Introduces clinical trials, sequential research designs; and single case, experimental designs. Measures and analyzes validity and reliability. Survey-instruments(s) design. Power calculations for choosing appropriate sample sizes.

**AHRM 582. Research and Statistics II. 3 Units.**

Analyzes data using one-way ANOVA with multiple comparisons, factorial ANOVA designs, randomized complete and incomplete block designs, and repeated measures. Introduces multiple correlation and regression and model building using multiple regression techniques. Evaluates research literature that uses multivariate analysis for data analysis. Introduces nonparametric statistics. Interprets multivariate analysis computer output.

**AHRM 595. Research and Statistics Concepts and Methods: Intermediate. 3 Units.**

An in-depth study of research designs, including completely randomized designs, randomized block designs, and statistical tests—such as ANOVA (one-way, repeated measures, factorial)—used to analyze data. Introduces multiple linear regression and correlation, as well as model-building techniques. Interprets multivariate analysis computer output and hands-on statistical computer experience. Introduces nonparametric statistical tests and their appropriate use. Measures and analyzes data for validity and reliability studies. Evaluates research literature that uses multivariate analysis for data analysis.

**AHRM 604. Research-Proposal Writing. 3 Units.**

Student prepares a research proposal, including components essential for submission to the Institutional Review Board. Emphasizes writing skills in preparation of literature review, purpose, conceptual framework, proposed methodology, and statistical analysis. Includes ways in which proposal serves as the basis for a published article.

**AHRM 605. Critical Analysis of Scientific Literature. 2,3 Units.**

A variable unit course that evaluates scientific literature, including critical evaluation of the rationale for the study; population inclusion/exclusion criteria; sampling and randomization techniques; sample size; appropriateness of the research design; choice of the data analysis; structure and content of tables and graphs; interpretation of statistical results; and applications to practice. Students evaluate research articles by answering questions posed by the instructor in a Web discussion board and virtual classroom. Students submit weekly evaluation papers for the articles discussed. Additional evaluation time required for 3 units of credit.

## Anatomy (ANAT)

### Courses

**ANAT 301. Head and Neck Anatomy, DH. 4 Units.**

Gross anatomy of the head and neck. Lecture and demonstration.

**ANAT 303. General and Oral Histology and Embryology. 3 Units.**

Microscopic study of fundamental cells, organs, tissues, and systems of the body. Analyzes in detail the pulp, periodontal tissues, alveolar process, oral mucosa, and calcified tissues of the tooth. Includes development of head and neck structures.

**ANAT 507. Stem Cell Biology and Medicine. 4 Units.**

Provides students with information on the latest developments in animal and human stem cell research and on the potential application of stem cells to medicine. Explores the derivation, manipulation, and differentiation of embryonic, germ, and adult stem cells. Lectures presented by faculty participating in stem cell research in areas of their expertise.

**ANAT 510. Gross Anatomy. 8.5 Units.**

Supports the organ system curriculum in the first year of medical education. Teaches students the morphological setting upon which clinical knowledge and experiences are built. Approaches anatomy from a gross structural perspective. Students use knowledge to recognize clinical variations and abnormalities in preparation for their medical careers.

**ANAT 511. Human Anatomy for Dentists I. 5 Units.**

An in-depth study of the human anatomical sciences, including: gross anatomy, general and oral histology, embryology, and neuroscience as they relate to the dental profession. Designed for students in the first year of dentistry, and for students in the dental track of the biomedical sciences postbaccalaureate certificate program.

**ANAT 512. Human Anatomy for Dentists II. 5 Units.**

An in-depth study of the human anatomical sciences, including gross anatomy, general and oral histology, embryology, and neuroscience as they relate to the dental profession. Designed for students in the first year of dentistry, and for students in the dental track of the biomedical sciences postbaccalaureate certificate program.

**ANAT 513. Human Anatomy for Dentists III. 5 Units.**

An in-depth study of the human anatomical sciences, including gross anatomy, general and oral histology, embryology, and neuroscience as they relate to the dental profession. Designed for students in the first year of dentistry, and for students in the dental track of the biomedical sciences postbaccalaureate certificate program.

**ANAT 515. Human Embryology. 2 Units.**

Reviews the morphologic processes and molecular basis of human development. Includes the production of human gametes, fertilization, gastrulation, placentation, and development of the major organ systems. Emphasizes clinically relevant features of pregnancy and developmental processes that are susceptible to malformation.

**ANAT 516. Neuroscience GS. 6 Units.**

Integrated approach to the fundamentals of neuroanatomy and neurophysiology, with applications to clinical neurology.

**ANAT 525. Special Topics: Advanced Dissection. 1-4 Units.**

Detailed dissection of a specified body region. Demonstration and lecture. May be repeated for additional credit. Offered on demand. Prerequisite: ANAT 541; or equivalent with approval of program director or department chair.

**ANAT 527. Advanced Clinical Anatomy for Nurse Anesthetists. 5 Units.**

Emphasizes detailed description and applied anatomy of the body systems (cardiovascular, respiratory renal, hepatic nervous, and endocrine) relevant to the nurse anesthetist.

**ANAT 529. Gross Anatomy and Embryology. 10.5 Units.**

Provides the morphological foundation upon which clinical knowledge and experiences are built. Supports the organ-system curriculum in the freshman year. Approaches anatomy from gross structural and embryological perspectives. Provides students with the knowledge necessary to recognize clinical variations and abnormalities during their medical careers. Cross-listing: ANAT 510.

**ANAT 541. Gross Anatomy GS. 7 Units.**

Anatomy of the head, neck, locomotor system, thorax, abdomen, pelvis, and perineum. Correlated with radiology, applied features, and embryological development. Summer and Autumn quarters.

**ANAT 542. Cell Structure and Function GS. 7 Units.**

The microscopic structure of cells, tissues, and organs of the human body. Autumn Quarter.

**ANAT 544. Human Embryology Lecture. 2 Units.**

The plan of development as it pertains to humans. Considers principles.

**ANAT 548. Introductory Flow Cytometry. 1 Unit.**

Provides the introductory education and skills students need to implement basic flow cytometry-based techniques into the repertoire on which they draw in addressing experimental questions and in developing research proposals. Includes identifying basic science and translational research questions that can be addressed with flow cytometry, introduction to flow cytometry sample preparation, data collection, and data analysis; as well as presentation of data in figures for communication of results at science conferences and in peer-reviewed publications.

**ANAT 558. Applied Gross Anatomy GS. 3 Units.**

Emphasizes practical application of the anatomical knowledge covered in human gross anatomy. Considers applied anatomy problems involving biomechanical functions of the body, as well as application of anatomical principles to specific fields of human activity. Prerequisite: ANAT 541; or consent of instructor.

**ANAT 594. Directed Study in Anatomy. 1-7 Units.**

Intensive study of a selected topic approved by the chair of the department. Individual guidance by a staff member.

**ANAT 697. Research. 1-8 Units.****ANAT 699. Dissertation. 1-5 Units.****ANAT 891. Anatomy Elective. 1.5-18 Units.**

A self-designed and self-directed dissection elective in the fourth year of the MD curriculum with emphasis on the head, neck, abdomen, pelvis, thorax, back, or limbs—correlating basic anatomy with clinical applications.

## Anesthesiology (ANES)

### Courses

**ANES 891. Anesthesiology Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of anesthesiology, including research.

## Anthropology (ANTH)

### Courses

**ANTH 315. Cultural Anthropology. 4 Units.**

Advanced course in ethnology and social organization. Explores the nature of culture, giving special attention to such features as technology, economic activities, community organization, kinship and marriage, social control, magic and religion, the arts, and other forms of cultural behavior. Presents a wide array of examples from societies around the world.

## Behavioral Health—Conjoint (BHCJ)

### Courses

**BHCJ 303. Cultural Learning. 4 Units.**

Students develop skills in learning a culture by applying principles from two modes of inquiry: ethnography and ethnology. Practice gathering cultural information and data through ethnographic interviews, as well as through research in the human relations area files. Focuses on developing knowledge of a particular culture in which the student has an interest.

**BHCJ 501. Critical Thinking. 4 Units.**

Develops in postbaccalaureate students critical-thinking skills, including: evaluating ideas, using dialogical learning for deep reliable knowledge, thinking inductively and deductively, accurately conceptualizing for better decision making and behavioral choices, applying critical thinking to academic success and life-long learning.

**BHCJ 502. Classroom Teaching Strategies. 3 Units.**

Addresses pedagogical issues including, but not limited to: developing a healthy learning environment in the classroom, developing effective teaching strategies, fostering effective learning strategies in students, preparing syllabi, lecturing, managing classroom discussion, evaluating students' performance.

**BHCJ 505. Personal Finance for Behavioral Health. 1 Unit.**

Helps students develop their ability to make wise decisions by recognizing, understanding, and comparing the alternatives facing them as consumers. Topics include budgeting, purchasing decisions, consumer credit, banking services, investing, life, auto and property insurance, income taxes.

**BHCJ 514. Editing, Style, and Grammar for Academic Writing and Publication. 2 Units.**

Focuses on mastery of the editing stage of academic manuscript preparation. Applicable to all academic works, including publishable research results, term papers, dissertations, theses, and proposals. Covers the self-editing option, editing techniques, grammar, punctuation, and style. Addresses APA and other styles.

**BHCJ 515. Researching and Writing Graduate Level Papers. 2-4 Units.**

Provides skills for critical writing, including organization, development of idea, and presentation of conclusion. Develops skills applicable to the preparation of term papers in the students' disciplines.

**BHCJ 550. Fundamentals of Dialectical Behavior Therapy. 2 Units.**

Examines the theory, empirical foundations, and applications of dialectical behavior therapy (DBT), an evidenced-based psychosocial treatment initially developed for suicidal individuals with borderline personality disorder (BPD). Familiarizes students with the techniques of DBT, as well as the latest research on and adaptations for use of DBT with other populations.

**BHCJ 585. Sociology of Communities. 4 Units.**

Examines classical and contemporary theories of community. Provides a theoretical foundation for applied social science professional programs that require an understanding of the community in contemporary society.

**BHCJ 615. Writing for Thesis/Dissertation. 2-4 Units.**

Develops skills necessary for researching and writing theses and dissertations. Includes researching literature in electronic and library sources; and collecting, filtering, paraphrasing, and organizing data from literature. Develops editing skills that may be applied to any prose writing involved in producing a thesis or dissertation—including proposals, abstracts, introductions, reviews of literature, write-ups of data analyses, and conclusions.

**BHCJ 649. Integration of Behavioral Health in Primary Care. 2 Units.**

Introduces the integration of behavioral health in primary care settings. Focuses on how a wholistic (bio-psychosocial-spiritual) approach to behavioral health care (including the integration of diet and exercise) can improve emotional well-being and health-care outcomes. All students in the school's behavioral health disciplines encouraged to take this course.

## Biochemistry (BCHM)

### Courses

**BCHM 510. Fundamentals of Human Biochemistry. 2.5 Units.**

Supports the organ system curriculum in the first year of medical education. Combines lectures, in-class quizzes, and case-based exercises to teach the biochemical basis for cell structure and function, emphasizing an integrated approach to the understanding of protein structure and function; intermediary metabolism of carbohydrates, lipids, proteins, and nucleic acids; and the metabolic patterns of selected tissues.

**BCHM 515. Introduction to Bioinformatics. 2 Units.**

Introduces bioinformatics methods and their application to biological research. Provides a conceptual understanding of the algorithms behind standard bioinformatics software, as well as practical experience in programs and databases commonly utilized in biological research.

**BCHM 517. Scientific Foundations of Nurse Anesthesia Practice. 2 Units.**

Provides students with an understanding and appreciation of scientific phenomena and with the ability to apply scientific methods, critical thinking, and problem-solving skills in exploring, conserving, and managing their environments.

**BCHM 518. Fundamentals of Human Biochemistry. 2.5 Units.**

Supports the organ system curriculum in the freshman year. Provides a foundation in the nature and properties of biological molecules in the human body that can support the subsequent years of medical training and students' careers as practicing physicians. Combines lectures, in-class quizzes, and case-based exercises to teach the biochemical basis for cell structure and function, emphasizing an integrated approach to the understanding of protein structure and function; intermediary metabolism of carbohydrate, lipids, proteins, and nucleic acids; and the metabolic patterns of selected tissues.

**BCHM 519. Medical Biochemistry, Molecular Biology, and Genetics. 4.5 Units.**

Comprehensive course in biochemistry and molecular biology that establishes the biochemical basis for cell structure, emphasizes an integrated approach to the understanding of cellular metabolism, provides a biochemical/genetic/molecular basis for understanding disease, and examines the mechanisms for genetic information flow in prokaryotic and eukaryotic cells. Course restricted to Biomedical Science Program (certificate).

**BCHM 529. Fundamentals of Human Biochemistry and Genetics. 4.5 Units.**

A lecture sequence for first-year medical students in biochemistry and molecular biology that establishes the biochemical basis for cell structure, emphasizes an integrated approach to the understanding of cellular metabolism, and examines the mechanisms for genetic information flow in eukaryotic cells.

**BCHM 530. Biochemical Basis of Human Disease SM. 2 Units.**

A series of lectures for second-year medical students designed to provide a biochemical/genetic/molecular basis for understanding human diseases.

**BCHM 544. Advanced Topics in Biochemistry. 2-4 Units.**

Recommended for the Ph.D. degree (2+2+2). Recent examples include proteins: modern methods of study; selected cellular events in carcinogenesis; enzyme kinetics; transgenic plants for human health.

**BCHM 551. Special Problems in Biochemistry. 2-6 Units.****BCHM 697. Research. 1-10 Units.****BCHM 699. Dissertation. 1-5 Units.****BCHM 891. Biochemistry Elective. 1.5-12 Units.**

Fourth-year elective that allows the student to create materials for team-based learning in the biochemical basis of human disease. Includes identifying a disorder that has clear and characteristic biochemical manifestations; as well as preparing a set of teaching notes, assessment tools, and application exercises.

## Biology (BIOL)

## Courses

### **BIOL 116. Introduction to Human Biology. 3 Units.**

Introductory course in human biology. Explores basic principles of human anatomy and physiology and their relationships to social functioning. Fulfills the human biology prerequisite for the master's degree Social Work Program.

### **BIOL 406. Marine Biology. 4 Units.**

Surveys marine species of the world and the oceanographic processes and ecological interactions that affect them. Emphasizes tropical and coral ecosystems. Includes an independent project. Four class hours per week, plus all-day field trips (usually on Sunday).

### **BIOL 407. Herpetology. 3 Units.**

Covers a broad range of topics in herpetology, including systematics, diversity, morphology, physiology, behavior, ecology, conservation, and research methodology. Focuses field experience on Southern California herpetology. Two hours lecture, three-hour laboratory each week.

### **BIOL 409. Mammalogy. 4 Units.**

Studies the mammals of the world, with emphasis on North America. Includes classroom and field study of systematics, distribution, behavior, and ecology. Per week: class three hours, one three-hour laboratory.

### **BIOL 414. Biology of Marine Invertebrates. 4 Units.**

Behavior, physiology, ecology, morphology, and systematics of marine invertebrates, with emphasis on morphology and systematics. Three class hours per week, one-day field trip alternate weeks, or the equivalent.

### **BIOL 415. Ecology. 4 Units.**

Principles of terrestrial, aquatic, and marine ecology—with a focus on individual, population, community, and ecosystem levels of organization. Laboratory work includes field studies that examine ecological principles. Per week: class three hours, laboratory three hours.

### **BIOL 426. Invertebrate Paleontology. 4 Units.**

Structure, classification, ecology, and distribution of selected fossil invertebrate groups. Considers principles and methods involved in the study and analysis of invertebrate fossils. Per week: class three hours, plus one three-hour laboratory.

### **BIOL 427. Vertebrate Paleontology. 4 Units.**

Fossil vertebrates, with emphasis on the origins of major groups. Systematics, biology, and biogeography of ancient vertebrates. Per week: class three hours, plus one three-hour laboratory.

### **BIOL 428. Genetics and Speciation. 4 Units.**

Introduces genetic mechanisms of biological change. Processes of inheritance through time evaluated in their ecological context.

### **BIOL 437. Animal Behavior. 4 Units.**

Behavioral mechanisms of animals and their role in survival. Lectures and projects.

### **BIOL 439. Behavioral Ecology. 4 Units.**

Examines in depth how behavior contributes to the survival of animals, with emphasis on behavioral strategies that reflect adaptation to the animal's environment.

### **BIOL 444. Paleobotany. 4 Units.**

Fossil plants; their morphology, paleoecology, taphonomy, classification, and stratigraphic distribution. Analyzes floral trends in the fossil record. Per week: class three hours, plus one three-hour laboratory or field trip.

### **BIOL 449. Biodiversity and Conservation. 3 Units.**

Examines contemporary issues related to diminishing biodiversity on regional and global scales, and the need to conserve both biodiversity and the critical habitats that support threatened flora and fauna.

### **BIOL 456. Techniques in Vertebrate Ecology. 3 Units.**

Theory and practice of vertebrate ecology research, including marking methods, population estimation, home range and habitat analysis, and radiotelemetry. Software used extensively for analysis of data, some of which will be collected during field trips.

### **BIOL 465. Introduction to GIS for the Natural Sciences. 2 Units.**

Principles and practice of GIS data acquisition, data editing, map making, and geodatabase management. Recommended for students beginning a research project.

### **BIOL 466. Multivariate Statistics. 3 Units.**

Practical, software-based application of multivariate statistics to complex data sets, including both null hypothesis testing and practical significance. Builds on the foundation of an introductory statistics course.

### **BIOL 475. Philosophy of Science and Origins. 4 Units.**

Concepts in the history and philosophy of science, and the application of these principles in analyzing current scientific trends.

### **BIOL 479. Readings in Biology. 1-4 Units.**

Studies, analyzes, and discusses current and classic papers.

### **BIOL 488. Current Topics in Biology. 1-4 Units.**

Reviews cutting-edge literature in the biological sciences. Different sections may be repeated for additional credit.

### **BIOL 495. Undergraduate Research. 1-4 Units.**

Student pursues original investigation and/or literature study under the direction of a faculty member. May be repeated for additional credit.

### **BIOL 497. Special Projects in Biology. 1-4 Units.**

Student responsible for a special research project in the field, laboratory, museum, or library. May be repeated for additional credit.

### **BIOL 502. Orientation to Graduate Biology. 1 Unit.**

Introduces students to skills and strategies for successfully navigating through EBS as graduate biology students. Provides opportunities for discussion, activities related to topic areas, discovery, group exchange, instruction, and critical evaluation and decision making regarding ethical practices in research.

### **BIOL 504. Biology of Marine Invertebrates. 4 Units.**

Behavior, physiology, ecology, morphology, and systematics of marine invertebrates, with emphasis on morphology and systematics. Per week: class three hours; one-day field trip alternate weeks, or the equivalent.

### **BIOL 505. Marine Biology. 4 Units.**

Surveys marine species of the world, and the oceanographic processes and ecological interactions that affect them. Emphasizes tropical and coral ecosystems. Includes an independent project. Per week: class four hours, plus all-day field trips (usually on Sundays).

### **BIOL 507. Herpetology. 3 Units.**

Covers a broad range of topics in herpetology, including systematics, diversity, morphology, physiology, behavior, ecology, conservation, and research methodology. Field experience focuses on southern California herpetology. Per week: Two hours lecture and a three-hour laboratory.

### **BIOL 515. Biogeography. 3 Units.**

Present and past distribution and migrations of the natural populations of organisms.

### **BIOL 517. Ecological Physiology. 4 Units.**

Studies the interface between the individual and the environment, with emphasis on unusual environments, in order to explore the limits of physiological systems. Per week: class four hours. Offered alternate years.

**BIOL 518. Readings in Ecology. 2 Units.**

Studies, analyzes, and discusses current and classic papers.

**BIOL 529. Mammalogy. 4 Units.**

Studies the mammals of the world, with emphasis on North America. Includes classroom and field study of systematics, distribution, behavior, and ecology. Per week: class three hours, one three-hour laboratory. Additional work required beyond BIOL 409.

**BIOL 539. Behavioral Ecology. 4 Units.**

Examines in depth how behavior contributes to the survival of animals, with an emphasis on behavioral strategies that reflect adaptation to the animal's environment.

**BIOL 545. Genetics and Speciation. 4 Units.**

Comparative analysis of species concepts, mechanisms of speciation, and analysis of micro- and macroevolution. Prerequisite: A course in genetics and philosophy of science.

**BIOL 546. Techniques in Vertebrate Ecology. 3 Units.**

Theory and practice of vertebrate ecology research, including marking methods, population estimation, home range and habitat analysis, and radiotelemetry. Software used extensively for analysis of data, some of which will be collected during field trips.

**BIOL 549. Biodiversity and Conservation. 3 Units.**

Examines contemporary issues related to diminishing biodiversity on regional and global scales and the need to conserve both biodiversity and the critical habitats that support threatened flora and fauna.

**BIOL 555. Molecular Genetics. 3 Units.**

An overview of the molecular basis of life, with emphasis on DNA as an information storage medium. The systems of information retrieval found in prokaryotes and eukaryotes.

**BIOL 558. Philosophy of Science. 4 Units.**

Studies selected topics in the history and philosophy of science, and applies these principles in analyzing contemporary scientific trends.

**BIOL 559. Philosophy of Science and Origins. 1 Unit.**

Studies selected topics in the history and philosophy of science, and applies these principles in analyzing current scientific trends. Provides an advanced update in the topic for students who have had a similar course at the undergraduate level.

**BIOL 565. Introduction to GIS for the Natural Sciences. 2 Units.**

Principles and practice of GIS data acquisition, data editing, map making, and geodatabase management. Recommended for students who are beginning a research project.

**BIOL 566. Multivariate Statistics. 3 Units.**

Practical, software-based application of multivariate statistics to complex data sets, including both null hypotheses testing and practical significance. Builds on the foundation of an introductory statistics course.

**BIOL 588. Current Topics in Biology. 1-5 Units.**

Reviews cutting-edge literature in the biological sciences. Different sections may be repeated for additional credit.

**BIOL 589. Readings in Biology. 1-4 Units.**

Studies, analyzes, and discusses current and classic papers on an individual basis with advisor.

**BIOL 607. Seminar in Biology. 0.5 Units.**

Seminar presentations by guest scientists on recent research and developments in biological science. No student presentation required.

**BIOL 616. Research and Experimental Design. 2 Units.**

Concepts, methods, and tools of research, including experimental design and data analysis.

**BIOL 617. Proposal Writing and Grantsmanship. 2 Units.**

Skills and practice of effective proposal writing and strategies for locating and obtaining research grants.

**BIOL 618. Writing for Publication. 1 Unit.**

Explores the mechanics and processes of preparing, submitting, revising, and resubmitting a manuscript for publication in a peer-reviewed journal. Designed for students who are well along in the process of writing their first manuscript for publication. Prepares students to handle the manuscript revision process when the manuscript is returned from reviewers, as well as the final stage of resubmission to the journal.

**BIOL 658. Advanced Philosophy of Science readings. 2 Units.**

Reading and discussion of selected references in the philosophy of science, and the application of these concepts in the practice of scientific research and interpretation, including their influence on scientific study of origins. Best taken near the end of a student's graduate program. Two-hour class session per week.

**BIOL 695. Special Projects in Biology. 1-4 Units.**

Student responsible for a special research project in the field, laboratory, museum, or library. May be repeated for additional credit.

**BIOL 697. Research. 1-8 Units.**

See department checklist for recommended number of units.

**BIOL 698. Thesis Research. 1-8 Units.**

Credit for research and for writing the master's thesis. Grade received does not indicate whether thesis is completed and approved.

**BIOL 699. Dissertation Research. 1-8 Units.**

Credit for research and for writing the doctoral dissertation. Grade received does not indicate whether dissertation is completed and approved.

## Cardiac Electrophysiology Technology (CEPT)

### Courses

**CEPT 245. Cardiovascular Anatomy and Physiology. 3 Units.**

Explores normal and pathological cardiovascular anatomy and physiology. Emphasizes myocardial excitation, contraction, intracardiac flow, intracardiac pressure, valve function, coronary anatomy, and ventricular function. Studies in detail the electrical conduction system and cardiovascular hemodynamic principles. Introduces pathological coronary anatomy, as well as abnormalities of the cardiovascular system.

**CEPT 248. Cardiovascular Patient Assessment. 2 Units.**

Principals of assessment for the patient with cardiovascular disorders, including: health history, physical assessment techniques, interpretation of laboratory data, diagnostic data, chest radiography, auscultation, and diagnostic procedures. Interview techniques and the development of patient care techniques specific to the cardiovascular patient.

**CEPT 251. Cardiac Electrophysiology and Rhythm Recognition I. 2 Units.**

Clinical use of diagnostic tests and procedures related to cardiac electrophysiology disease states. Introduces anatomical and physiologic concepts of rhythm generation and cardiac electrophysiology pathways, with emphasis on basic rhythm recognition and evaluation.

**CEPT 252. Cardiac Electrophysiology and Rhythm Recognition II. 2 Units.**

Principles of application and interpretation of the 12-lead system. Emphasizes recognition of the acute myocardial infarction and common myocardial pathology. Additional topics include, but are not limited to, axis deviation, acute ischemic conditions, electrolyte imbalances, bundle-branch block, and infarct imposters. Practical application of information to bedside care of cardiac patients—emphasizing patient assessment, data collection, and use of the 12-lead to guide rapid intervention. American Heart Association advanced cardiac life support certificate issued upon successful completion of the course.

**CEPT 253. Cardiac Electrophysiology and Rhythm Recognition III. 3 Units.**

Explores the clinical use of diagnostic tests and procedures related to intracardiac catheter placement and the electrograms that are created during EP studies/procedures. Improves recognition and interpretation of the intracardiac electrograms. Introduces anatomical and physiological concepts of rhythm generation and cardiac electrophysiology pathways. Emphasizes basic intracardiac electrogram recognition, which combined with practice, leads to greater interpretation proficiency during cardiac EP procedures/studies. Prerequisite: CEPT 251, CEPT 252.

**CEPT 258. Fundamentals of Biomedical Science. 2 Units.**

Study and application of basic sciences related to physiology and pathophysiology, integrating the concepts into the fundamentals of biomedical electronics—specifically the physical sciences to cardiac management.

**CEPT 261. Cardiac Electrophysiology Science I. 3 Units.**

Principles of cardiac electrophysiology, including electrophysiology conduction, pathways and mapping, measurements of refractory periods, aberrant conduction of the myocardium, tests of sinus node function, atrial and ventricular extrastimulus testing, pacing protocols for diagnostic electrophysiology studies, and cardiac resynchronization. Emphasizes application to the clinical setting.

**CEPT 262. Cardiac Electrophysiology Science II. 3 Units.**

Medical instrumentation and clinical application used in cardiac electrophysiology. In-depth study of the technical knowledge used for diagnostic, interventional, and therapeutic modalities. Applies scientific principles to the operation of laboratory equipment. Identifies correct patient-specific or appropriate device system adjustments.

**CEPT 263. Cardiac Electrophysiology Science III. 3 Units.**

Continues CEPT 261 and 262, developing advanced knowledge, skills, and application of mapping and monitoring systems. Explores device features, therapy options, and hands-on troubleshooting in depth. Includes case study review.

**CEPT 271. Cardiology Diseases and Therapeutics I. 2 Units.**

Overview of pathophysiology of cardiac diseases. Describes appropriate therapy for acute and chronic cardiovascular disease states. Emphasizes scientific support for treatment modalities and reviews current treatment trends for cardiovascular diseases.

**CEPT 272. Cardiology Diseases and Therapeutics II. 2 Units.**

Addresses major cardiac pathologies, congenital and acquired. Focuses on cardiac rehabilitation science and current therapy of the cardiac patient. Includes applied knowledge of relevant risk factors and fosters appreciation of cardiovascular disease prevention. Emphasizes the function of exercise in disease prevention, as well as the role nutrition plays in promoting cardiovascular health. Discusses testing protocols and exercise prescription, along with evidence-based therapies.

**CEPT 275. Cardiovascular Pharmacology. 3 Units.**

Pharmacological agents currently used in the treatment of cardiovascular disease management, including biophysical, biochemical, and cellular basis of treatment, pharmacokinetics, pharmacodynamics, and therapeutics. Emphasizes pharmaceuticals commonly given to and used to treat cardiac patients.

**CEPT 281. Cardiac Electrophysiology Procedures I. 3 Units.**

Indications for technology-based evaluations and diagnostic and therapy interventions. Focuses on interventions that minimize procedural and device-related complications. Includes information related to patient monitoring and comfort. Laboratory practice and techniques.

**CEPT 282. Cardiac Electrophysiology Procedures II. 3 Units.**

Continues to explore advanced cardiovascular diagnostic and therapeutic procedures. Laboratory practice and techniques.

**CEPT 285. Cardiology. 3 Units.**

Assists the health-care provider to develop assessment skills and to increase knowledge of medical management of the patient with acute and chronic cardiovascular disorders. Focuses on anatomy and physiology, underlying pathophysiology, advanced history taking and physical assessment, cardiovascular pharmacology, electrical modalities, cardiac diagnostic testing, and current research.

**CEPT 321. Cardiac Electrophysiology Clinical Practicum I. 0.5 Units.**

Introduces the clinical setting. Orients the student to environments in which the CEP specialist works. Student participates in or conducts a health history and physical assessment of the cardiac patient and learns proper documentation procedures. Hands-on experience to assist development of basic clinical skills. Introduces procedures, diagnostic examinations, and equipment utilized in cardiac procedures.

**CEPT 322. Cardiac Electrophysiology Clinical Practicum II. 1.5 Unit.**

Clinical experience and application of cardiac electrophysiology procedures, interventions, instrumentation, and patient-care interactions. Preceptors in the clinical settings facilitate experiences that enable students to develop and enhance competencies related to cardiac testing and procedures. Includes practice with components of communicating effectively with clients, their families, and other members of the health-care team.

**CEPT 323. Cardiac Electrophysiology Clinical Practicum III. 1.5 Unit.**

Clinical assignments to assist the student in gaining specific experiences that enable him/her to develop and enhance competencies in cardiac testing and patient evaluation. Guided by clinical preceptors, student rotates through multiple environments relevant to the practice of cardiac electrophysiology.

**CEPT 324. Cardiac Electrophysiology Clinical Practicum IV. 2 Units.**

Student rotates through several clinical environments in order to gain advanced competencies in all content areas. Includes, but is not limited to Holter scanning, cardiac rehabilitation, exercise testing, pacemaker technologies, and cardiac mapping.

**CEPT 345. Case Studies in Cardiac Electrophysiology. 2 Units.**

Presents cardiac electrophysiology concepts through a case study model. Student reviews and presents case studies that integrate knowledge of cardiac disease, treatments, diagnostic tests, and procedures. Utilizes a simulated patient care setting to improve and develop critical thinking skills.

**CEPT 348. Cardiac Electrophysiology Seminar. 3 Units.**

A comprehensive view of the rapidly evolving field of interventional cardiology. Studies new developments, technological innovations, and advances in clinical application.



# Child Life Specialist (CHLS)

## Courses

### **CHLS 501. Hospitalized Infant and Toddler Development. 3 Units.**

Emphasizes the development of infants and toddlers in the hospital setting. Presents theory and research findings regarding socialization, emotional development, and temperament. Focuses on working with this specific population in the health-care system and exposes students to practical interventions and activities. Discusses bereavement topics, appropriate health, safety, and nutritional practices. Provides tools to develop competencies and skills necessary to effectively work with infants and toddlers.

### **CHLS 502. Child Life Seminar. 2 Units.**

Develops a child life specialist identity through readings, presentations, and discussion of child life history and practice. Reviews child growth and development theories. Encourages application for student membership in professional organizations, such as the Child Life Council. Reviews standards of clinical practice using the clinical documents of the Child Life Council.

### **CHLS 503. Child Life Seminar. 3 Units.**

Students develop a child life specialist identity in preparation for clinical practice through readings, discussion of clinical practice placements, group process, and case-study overview. Students apply and interview for clinical placement, discuss other related child life topics, and review standards of clinical practice using the clinical documents of the Child Life Council.

### **CHLS 504. Child Life Administration and Program Development. 3 Units.**

Introduces students to the history and development of the child life profession. Health-care environment, administrative issues, program development, and outcome assessment process. Develops competencies and skills necessary to effectively administer a child life program.

### **CHLS 505. Cross-Cultural Perspectives in Health Care. 3 Units.**

Introduces students to the diversity of cultures and the powerful impact diversity has on the delivery of health-care services. Explores specific characteristics regarding the composition, cultural aspects, and unique health-care issues faced by African Americans, Asian Americans/Pacific Islanders, Hispanics/Latinos, and American Indians/Alaskan Natives. Enhances students' understanding of human differences, preferences, biases, and stereotypes; and fosters development of the awareness, sensitivity, knowledge, and competence required to affirm diversity in health-care and practice settings.

### **CHLS 506. Therapeutic Play for Children Affected by Illness and Injury. 3 Units.**

Teaches the developmental aspects of play therapy, in collaboration with the developmental stages of the child/teen and family in the context of a health-care setting. Provides student with an experiential understanding of play therapy, recreation therapy, education, and practice.

### **CHLS 507A. Aspects of Illness and Disease. 3 Units.**

Teaches the child life student about the childhood disease process and describes the pathophysiology, symptoms, diagnostic testing, and treatment of disease. How disease affects the child and family's behavioral, social, and emotional development and coping strategies.

### **CHLS 507B. Aspects of Illness and Disease. 3 Units.**

Focuses on childhood disease process and describes the pathophysiology, symptoms, diagnostic testing, and treatment of disease. Discusses how disease affects the child and family's behavioral, social, and emotional development and coping strategies. Prerequisite: CHLS 507A.

### **CHLS 508. Grief and Loss. 3 Units.**

Promotes understanding of various theories, and practices specific interventions that assist hospitalized children/teens or adult family members when they encounter issues of death, loss and/or grief. Students examine how these issues affect them personally and professionally; and describe their own epistemology regarding death, loss and grief. Examines these issues from a family-system's perspective in a hospital setting.

### **CHLS 509. Child Life Assessment. 3 Units.**

Orients students to child life in hospitals and other health-care environments. Gives attention to stress and coping assessment, along with other interventions used to assist patients and families. Examines additional interventions and significant variables, such as providing emotional support for families and encouraging optimum development of children facing a broad range of challenging experiences. Addresses roles and responsibilities of membership on an interdisciplinary team of health professionals, as well as requirements for professional standards of practice.

### **CHLS 600. Child Life Theory and Practice. 3 Units.**

Examines children and their families in a health care setting from the perspective of a child life specialist. Demonstrates the role of the child life specialist in minimizing the stress and anxiety experienced during hospitalization. Focuses on educational and play components, as well as the general support and scope of practice that are unique to the field of child life.

### **CHLS 604. Child Life Internship and Supervision I. 3,4 Units.**

While accumulating the hours required by the Child Life Council to establish eligibility for the certification examination, students work with children, youth, teens, and their families in a hospital and/or related setting under the supervision of a certified child life specialist. Gives special attention to legal, ethical, moral, educational, cultural, spiritual, and gender issues in the clinical internship. 3 units (250 hours) required for students under pre-2014-2015 catalogs; 4 units (300 hours) required for students beginning with the 2014-2015 catalog. Prerequisite: CHLS 608.

### **CHLS 605. Child Life Internship and Supervision II. 3,4 Units.**

While accumulating the hours required by the Child Life Council to establish eligibility for the certification examination, students work with children, youth, teens, and their families in a hospital and/or related setting under the supervision of a certified child life specialist. Gives special attention to legal, ethical, moral, educational, cultural, spiritual, and gender issues in the clinical internship. 3 units (250 hours) required for students under pre-2014-2015 catalogs; 4 units (300 hours) required for students beginning with the 2014-2015 catalog. Prerequisites: CHLS 608.

### **CHLS 606. Parenting Medically Fragile Children. 3 Units.**

Introduces students to parenting issues related to the medically fragile child. Provides knowledge of theories, techniques, skills, available community resources, and legal and ethical considerations that pertain to this specific group.

### **CHLS 607. Child Life Professional. 3 Units.**

Prepares students for entering the professional field of child life by demonstrating clinical assessment, documentation, and skills related to child life practice. Includes application of ethical principles, as well as issues of professionalism. Requires a 100-hour practicum.

**CHLS 608. Child Life Practicum. 1 Unit.**

Students carry out assigned playroom duties: supervise activities that foster creativity, divert patients from stress and worry, and normalize their environment; and provide opportunities for patients and families to socialize and engage in developmentally appropriate activities. Students assist with bedside interaction and interventions and assist staff with escorting patients to other locations of the hospital for special programming.

**CHLS 609. Global Practice: Child Life Specialist. 2 Units.**

Introduces students to child life practice in a global context. Examines the ethical and practice issues associated with delivery of pediatric psychosocial services in health-care systems in underdeveloped and developed environments. Gives critical attention to issues of pediatric and adolescent growth and development, family-centered care, grief and loss, and advocacy. Shares models for learning and collaboration within the context of health-care delivery. Prerequisite: CHLS 502.

**CHLS 694. Directed Study: Child Life Specialist. 1-4 Units.**

Individual study in areas of special interest concerning the pediatric patient and family. May be repeated for credit at the discretion of the faculty.

## Clinical Laboratory Science/ Cytotechnology (CLSC)

### Courses

**CLSC 301. Introduction to Radiographic Procedures I. 2 Units.**

Introduces the nature and description of radiographic procedures for the nonradiologic technologist, with an emphasis on radiographic procedures used in the collection of cytologic specimens. Applies principles, medical techniques, and instrumentation to a radiographic setting. Includes observation laboratory.

**CLSC 302. Introduction to Radiographic Procedures II. 2 Units.**

Introduces the nature and description of radiographic procedures for the nonradiologic technologist, with an emphasis on radiographic procedures used in the collection of cytologic specimens. Applies principles, medical techniques, and instrumentation to a radiographic setting. Includes observation laboratory.

**CLSC 341. Gynecologic Cytology. 11 Units.**

Study of the anatomy, histology, and cytology of the female genital tract—including cytohormonal changes, nonneoplastic abnormalities, premalignant and malignant lesions, and rare extrauterine malignancies. Students interpret clinical history, explain significance of data, render diagnoses, and offer recommendations for further testing. Lecture and laboratory.

**CLSC 351. Respiratory Cytology. 8 Units.**

Study of the anatomy, histology, and cytology of the respiratory tract—including fine needle aspiration of the lung. Students interpret clinical history, explain significance of data, render diagnoses, and offer recommendations for further testing. Lecture and laboratory.

**CLSC 353. Urinary Tract and Prostate Cytology. 3 Units.**

Study of the anatomy, histology and cytology of the urinary tract—including the bladder, ureters, renal pelvis, kidney, and prostate. Students interpret clinical history, explain significance of data, render diagnoses, and offer recommendations for further testing. Lecture and laboratory.

**CLSC 357. Gastrointestinal Tract Cytology. 2 Units.**

Study of the anatomy, histology, and cytology of the gastrointestinal tract—including the esophagus, stomach, small and large intestines, and colon. Students interpret clinical history, explain significance of data, render diagnoses, and offer recommendations for further testing. Lecture and laboratory.

**CLSC 364. Body Fluid Cytology. 5 Units.**

Anatomy, histology, and cytology of fluids from serosal cavities, including CSF. Students interpret clinical history, explain significance of data, render diagnoses, and offer recommendations for further testing. Lecture and laboratory.

**CLSC 371. Cytopreparation Techniques. 3 Units.**

Collection techniques; fixation and staining procedures; preparation of monolayers, smears, and cell blocks from various cytologic specimens. Includes basic laboratory skills, such as universal precautions, reagent preparation, centrifugation, pipetting, and micropipetting. Introduces basic laboratory operations, including quality control, quality assurance, laboratory safety, and emergency preparedness. Lecture, demonstration, and laboratory.

**CLSC 373. Histotechnology Techniques. 1 Unit.**

Technical preparation of tissue specimens for microscopic evaluation, with emphasis on special stains and immunohistochemistry. Lecture and observation laboratory.

**CLSC 381. Fine Needle Aspiration Cytology I. 4 Units.**

Study of the benign and malignant cells aspirated from thyroid, salivary gland, breast, liver, pancreas, lymph node, soft tissue masses, and other miscellaneous organs. Includes fine needle aspiration techniques, touch prep of cores preparation, and rapid on-site adequacy assessment. Students interpret clinical history, explain significance of data, render adequacy assessment and/or diagnoses, and offer recommendations for further testing. Lecture and laboratory.

**CLSC 382. Fine Needle Aspiration Cytology II. 6 Units.**

Study of the benign and malignant cells aspirated from thyroid, salivary gland, breast, liver, pancreas, lymph node, soft tissue masses, and other miscellaneous organs. Includes fine needle aspiration techniques, touch prep of cores preparation, and rapid on-site adequacy assessment. Students interpret clinical history, explain significance of data, render adequacy assessment and/or diagnoses, and offer recommendations for further testing. Lecture and laboratory.

**CLSC 406. Pathophysiology. 3 Units.**

Advanced didactic study of disease processes and corresponding pathologic findings of major organ systems of the human body.

**CLSC 411. Histopathology I. 4 Units.**

Didactic and microscopic study of basic normal tissue types of major organs and systems of the human body, with emphasis on function and clinical relevance of histologic structures.

**CLSC 412. Histopathology II. 4 Units.**

Didactic and microscopic study of basic pathology of major organs and systems of the human body, with emphasis on relevance to field of cytotechnology.

**CLSC 424. Hematology. 3 Units.**

Theory and background of routine and special laboratory procedures used in diagnosis and treatment of hematologic and other diseases. Evaluates and compares methodologies. Emphasizes bone marrow, body fluid, and peripheral blood-cell morphology: hematopoiesis, maturation, kinetics. Atypical and abnormal cellular morphology, including leukemias, lymphomas, and anemias.

**CLSC 432. Current Research Techniques. 3 Units.**

Introduces current research techniques and skills development. Techniques in immunocytochemistry, image and flow cytometry, and molecular pathology.

**CLSC 471. Advanced Cytology Practices I. 2 Units.**

Provides further practical experience by working with routine cytology specimens. Includes cytopreparation; microscopic evaluation of gynecologic and nongynecologic specimens, with an emphasis on fine needle aspiration specimens; maintenance of regulatory statistics, and error identification.

**CLSC 472. Advanced Cytology Practices II. 2 Units.**

Expands clinical experience with advanced theory and techniques, including image-assisted screening, LIS operation, mock proficiency testing, and use of telepathology.

**CLSC 481. Supervised Cytology Research Project I. 2 Units.**

Research project under the supervision of the program director. Oral presentation and paper.

**CLSC 482. Supervised Cytology Research Project II. 2 Units.**

Research project under the supervision of the program director. Oral presentation and paper.

**CLSC 494. Cytology Practicum. 11 Units.**

Eleven weeks of clinical cytology internships in a variety of cytopathology laboratories. Students rotate through all phases of diagnostic service work and laboratory functions (pre-analytical, analytical, and postanalytical). Independent microscopic evaluation of gynecologic, nongynecologic, and fine needle aspiration specimens.

## Clinical Laboratory Science/Medical Technology (CLSM)

### Courses

**CLSM 105. Procedures in Phlebotomy. 4 Units.**

Training in venipuncture and skin puncture, medical terminology, laboratory safety, CPR, basic anatomy and physiology, specimen-collection techniques, hazards/complications, quality assurance methods, and medicolegal issues of phlebotomy. Clinical rotation arranged at Loma Linda University Medical Center and affiliates. CPR training and certificate arranged for students not already certified. Prerequisite: Current CPR certificate.

**CLSM 303. Urine and Body Fluid Analysis I. 2 Units.**

Urinalysis screening procedure and its application in the diagnosis of renal, systemic, and metabolic diseases. Analysis and morphology of body fluids. Lecture and laboratory.

**CLSM 307. Medical Parasitology. 3 Units.**

Medically important parasites: life cycles, clinical features, infective diagnostic stages. Demonstrations, slide studies, and diagnostic procedures. Lecture and laboratory.

**CLSM 309. Quantitative Analysis (Chemical). 4 Units.**

Provides a rigorous background in chemical principles particularly important to analytical clinical chemistry. Develops an appreciation for the task of judging the accuracy and precision of experimental data and the application of statistical methods. Covers both fundamental and practical aspects of chemical analysis; neutralization titrations; acid-base titrations; spectrophotometric methods; and electrochemical and chromatographic methodologies. Lecture and laboratory.

**CLSM 321. Hematology I. 4 Units.**

Examines normal hematologic physiology, cellular development, and hemostasis in the human. Introduces pathophysiology, with emphasis on clinical and laboratory evaluation of hematologic status. Theory and background of laboratory procedures used in diagnosis and treatment of hematologic and other diseases. Stresses proficiency in evaluation of normal and abnormal cellular morphology. Lecture and laboratory.

**CLSM 322. Hematology II. 4 Units.**

Theory and background of routine and special laboratory procedures used in diagnosis and treatment of hematologic and other diseases. Emphasizes peripheral blood-cell morphology, hematopoiesis, maturation, and kinetics. Pathophysiology of hematologic disorders, including anemias and hematologic malignancies. Correlation of hemostasis testing with clinical hemostatic disorders. Lecture and laboratory. Prerequisite: CLSM 321.

**CLSM 325. Clinical Immunology. 3 Units.**

Presents the basic principles of immunology. Topics covered include humoral and cell-mediated immunity, complement, autoimmunity, immunodeficiency, hypersensitivity, tumor immunology, transplant immunology, virology, syphilis serology, and immunologic laboratory techniques. Emphasizes principles, laboratory procedures, and clinical significance. Lecture and laboratory.

**CLSM 327. Clinical and Pathogenic Microbiology I. 5 Units.**

Introduces microbiological concepts, leading to an in-depth study of the major groups of pathogenic bacteria and their relationship to human disease. Emphasizes clinical laboratory identification methods and procedures. Lecture and laboratory.

**CLSM 328. Clinical and Pathogenic Microbiology II. 5 Units.**

Nature and control of microorganisms encountered in clinical material and various anatomical sites. Emphasizes antimicrobial agents, mycology, and virology, including hepatic viruses and HIV/AIDS. Lecture and laboratory. Prerequisite: CLSM 327; or consent of instructor.

**CLSM 331. Biochemistry. 5 Units.**

Chemical structure and metabolism of carbohydrates, amino acids, lipids, and nucleic acids. Protein synthesis, functions, and analysis. Enzymes and their structure, function, kinetics, and regulation. Lecture and laboratory.

**CLSM 332. Clinical Chemistry I. 4 Units.**

Clinical chemistry procedures and their clinical significance in medicine, with focus on the following areas: fluids and electrolytes, acid-base balance, carbohydrates and diabetes mellitus, and proteins. Presents quality assurance, method evaluation, and establishment of reference ranges. Lecture and laboratory. Prerequisite: CLSM 331; or consent of instructor.

**CLSM 333. Clinical Chemistry II. 4 Units.**

Clinical chemistry procedures and their clinical significance in medicine, with focus on the following areas: lipids, lipoproteins, cardiovascular disease, enzymes, liver function, the endocrine system; thyroid, parathyroid, adrenal cortex and catecholamines, and steroids; reproduction, pregnancy, and fetal well-being; therapeutic drug monitoring and toxicology. Lecture and laboratory. Prerequisite: CLSM 332.

**CLSM 341. Immunohematology I. 3 Units.**

Fundamentals of antigen-antibody reactions. Studies major blood-group systems, compatibility testing, and antibody-identification techniques. Clinical analysis of hemolytic disease of the newborn. Lecture and laboratory.

**CLSM 342. Immunohematology II. 3 Units.**

Blood collection, donor testing, component preparation, and quality management in the collection facility. Identification of multiple antibodies, typing discrepancies, hemotherapy, hazards of transfusion, and investigation of autoimmune hemolytic disease. Lecture and laboratory. Prerequisite: CLSM 341.

**CLSM 396. CLS Junior Seminar. 1 Unit.**

Prepares student for entry into the senior year clinical practicum. Introduces student to the clinical laboratory and its operations by direct observation and discussions to include pre-analytical, analytical, and postanalytical areas. Students expected to apply knowledge acquired from all disciplines within the junior year curriculum. Visits to off-site locations may be required.

**CLSM 411. Urine and Body Fluid Analysis II. 1 Unit.**

Correlates theory and clinical experience with and applies them to analytical techniques. Assesses and interprets data. Evaluates and compares methodologies. Urinalysis screening procedures and applications in the diagnosis of renal, systemic, and metabolic diseases. Processing, analysis, and morphologic evaluation of body fluids. Prerequisite: CLSM 303.

**CLSM 413. Diagnostic Microbiology. 6 Units.**

Correlates theory and clinical experience with, and applies them to, analytical techniques. Assesses and interprets data. Evaluates and compares methodologies. Directed study and review of diagnostic bacteriology, mycology and virology. Emphasizes isolation and identification of pathogenic microorganisms. Includes susceptibility testing, instrumentation, and rapid identification methods. Prerequisite: CLSM 307, CLSM 327, CLSM 328.

**CLSM 414. Clinical Parasitology. 2 Units.**

Correlates theory and clinical experience with and applies them to analytical techniques. Assesses and interprets data. Evaluates and compares methodologies. Directed study and review of medical parasitology. Emphasizes testing for and identification of pathogenic parasites. Prerequisite: CLSM 307.

**CLSM 422. Hematology III. 6 Units.**

Correlates theory and clinical experience with and applies them to analytical techniques. Assesses and interprets data. Evaluates and compares methodologies. Directed study and review of hemostasis, cellular quantification and identification techniques, and clinical hematology. Includes white cell, red cell, platelet, and hemostatic disorders. Prerequisite: CLSM 321, CLSM 322.

**CLSM 434. Clinical Chemistry III. 5 Units.**

Correlates and applies theory and clinical experience with analytical techniques. Assesses and interprets data. Evaluates and compares methodologies. Directed study and review include: carbohydrates, proteins, lipids, enzymology, electrolytes, acid-base balance, endocrine system, and therapeutic drug monitoring. Prerequisite: CLSM 333.

**CLSM 435. Immunoassay and Molecular Diagnostic Techniques. 3 Units.**

Reviews common immunoassay and molecular diagnostic assay methodologies utilized in the clinical laboratory. Discusses immunoassay technologies, including: EIA, ELISA, EMIT, FPIA, and chemiluminescence. Discusses molecular diagnostic techniques, including: nucleic acid extraction and purification, gel electrophoresis, nucleic acid hybridization and blots, DNA sequencing, and amplification technologies. Compares and contrasts several signal and target amplification technologies, including real-time technologies. Discusses and applies the clinical uses of the foregoing methods to clinical laboratory science. Addresses laboratory design and safety issues. Prerequisite: CLSM 325; or consent of the instructor.

**CLSM 442. Immunohematology III. 3 Units.**

Applies theory and techniques routinely used in transfusion medicine. Emphasizes correlation with clinical experience. Directed study and review include type and screen, antibody identification, investigation of hemolytic disease of the newborn, hemotherapy, and hazards of transfusion. Assesses and interprets data. Overview of donor facilities: donor criteria, records management, component preparation, blood storage, and infectious disease testing. Prerequisite: CLSM 341, CLSM 342.

**CLSM 451. Clinical Laboratory Management I. 2 Units.**

Introduces management theory, including: management styles, professional communications, business ethics, group theory, team building, process management, process control, and personnel.

**CLSM 452. Clinical Laboratory Management II. 2 Units.**

Financial management, with emphasis on concepts, tools, and strategies underlying financial decision making. Topics include health-care reimbursement systems, coding, billing, development of operating budgets, and financial reports. Concepts of financial negotiations, inventory management, and financial planning. Integrates and applies analytical techniques used in the service industries.

**CLSM 453. Clinical Laboratory Management III. 2 Units.**

Introduces theories of quality management, organization, strategic planning, and the decision-making process. Reviews and analyzes government agencies, legislation, and regulatory bodies that impact laboratory management. Compares quality systems-management philosophies.

**CLSM 455. Special Procedures. 4 Units.**

Correlates and applies theory and clinical experience requiring assessment and interpretation of data. Evaluates and compares methodologies. Directed study and review include the following immunoassays: chemiluminescence, enzyme and radioisotopic assays, microparticle enzyme immunoassay, and fluorescence polarization and nephelometry. Also includes thin-layer and high-pressure liquid chromatography, electrophoresis, spectrophotometry, toxicology, amino acids assay, rapid-detection testing for bacteria and viruses, polymerase and ligase chain reactions, Western blot assays, serology, and current immunologic techniques. Prerequisite: CLSM 324, CLSM 333.

**CLSM 471. Clinical Practicum I. 5 Units.**

Thirteen weeks of supervised clinical laboratory experience in selected areas, including parasitology, hematology, urinalysis, and body fluids. Student performs tests routinely done in these areas of the clinical laboratory.

**CLSM 472. Clinical Practicum II. 5 Units.**

Thirteen weeks of supervised clinical laboratory experience in selected areas, including: microbiology and immunohematology, with experience in transfusion services and in a blood-collection facility. Student performs tests routinely done in these areas of the clinical laboratory. Emphasizes clinical-laboratory quality-control procedures and evaluation.

**CLSM 473. Clinical Practicum III. 5 Units.**

Thirteen weeks of supervised clinical laboratory experience in selected areas, including: chemistry and special procedures. Student performs tests routinely done in these areas of the clinical laboratory. Incorporates experience in administrative duties.

**CLSM 474A. Clinical Correlations. 1 Unit.**

Interactively bridges knowledge from textbook to clinical practice and decision making. Stimulates students' intellectual curiosity as it applies to laboratory medicine—including interpretation of laboratory data, case study analysis, impact on patient treatment and prognosis, assessment of validity of laboratory data, and administration of mock board examinations.

**CLSM 474B. Clinical Correlations. 1 Unit.**

Interactively bridges knowledge from textbook to clinical practice and decision making. Stimulates students' intellectual curiosity as it applies to laboratory medicine—including interpretation of laboratory data, case study analysis, impact on patient treatment and prognosis, assessment of validity of laboratory data, and administration of mock board examinations.

**CLSM 474C. Clinical Correlations. 1 Unit.**

Interactively bridges knowledge from textbook to clinical practice and decision making. Stimulates students' intellectual curiosity as it applies to laboratory medicine—including interpretation of laboratory data, case study analysis, impact on patient treatment and prognosis, assessment of validity of laboratory data, and administration of mock board examinations.

**CLSM 496. Clinical Laboratory Science Seminar I. 1 Unit.**

Introduces an assigned capstone project designed to incorporate skills developed and knowledge obtained in the Clinical Laboratory Science Program junior year. Project must be of current interest to the laboratory field. Topics related to the project include literature-search methods, research methods, presentation skills, team building, assessment of impact on clinical outcomes, and analysis and implementation of clinical applications. Prerequisite: Satisfactory completion of Clinical Laboratory Science Program junior-year courses, or consent of instructor.

**CLSM 497. Clinical Laboratory Science Seminar II. 1 Unit.**

Continues assigned capstone project. Presents relevant contemporary topics. Prerequisite: CLSM 496; or consent of instructor.

**CLSM 498. Clinical Laboratory Science Seminar III. 2 Units.**

Students apply educational methodologies and objective writing to the capstone presentation, incorporating skills developed and knowledge obtained during the Clinical Laboratory Science Program junior and senior years. Project-related topics include presentation skills, assessment of impact on clinical outcomes, and analysis and implementation of clinical applications. Requires regular meetings with faculty advisors to formulate plans and provide status reports on the progress of the capstone project, as well as additional time outside regular class periods. Culminates with submission and presentation of the assigned capstone project to faculty and administration. Prerequisite: CLSM 496, CLSM 497; or consent of instructor.

**CLSM 499. Clinical Laboratory Science Independent Study. 1-5 Units.**

Project or paper to be submitted on a topic of current interest in an area related to medical technology. Regular meetings provide student with guidance and evaluation. Elected on the basis of need or interest.

## Coding Specialist (HLCS)

### Courses

**HLCS 236. Pharmacology. 3 Units.**

Introduces pharmacology, including a review of pharmaceuticals used in diagnosis, prevention, and treatment of disease as commonly encountered in medical records.

**HLCS 238. Essentials of Human Diseases. 3 Units.**

Surveys human diseases, including the etiology, pathogenesis, and clinical manifestations of commonly encountered diseases.

**HLCS 239. Introduction to Health Records Science. 3 Units.**

Introduces health-care facilities and the information systems involving health records. In-depth study of health record content, confidentiality of health-care information, and professional ethics.

**HLCS 241. Medical Terminology. 2 Units.**

Prefixes, suffixes, and root words used in the language of medicine. Terms pertaining to pathology and surgery. Terms studied by body system: gastroenterology, cardiology, neurology, musculoskeletal, dermatology, ophthalmology, otorhinolaryngology, and respiratory.

**HLCS 242. Coding I. 4 Units.**

Principles and conventions of ICD-10-CM and ICD-10-PCS coding in diseases and procedures pertaining to infectious diseases; diseases of blood, endocrine, respiratory, digestive, genitourinary, skin, and musculoskeletal systems; and mental disorders.

**HLCS 243. Coding II. 4 Units.**

Principles and conventions of ICD-10-CM and ICD-10-PCS coding in diseases and procedures pertaining to pregnancy, perinatal conditions, poisonings, injuries, complications of medical and surgical care, the circulatory system, and neoplasms. Prerequisite: HLCS 242.

**HLCS 245. Coding III. 4 Units.**

Principles of current procedural coding terminology (CPT) at the intermediate level, including: surgical coding for all body systems; medical procedures; anesthesia coding; radiology, pathology, and laboratory coding for inpatient and outpatient health-care settings. Modifier assignment. Also includes laboratory practice on 3M software. Prerequisite: HLCS 243.

**HLCS 254. Evaluation and Management Coding for Billing and Reimbursement. 3 Units.**

Principles of billing and third-party reimbursement as they relate to physician professional coding and APC assignment for health-care institutions. Includes E & M coding conventions and modifiers. Coding for physician practice settings—including outpatient, inpatient, ER, observation, SNF, and other common settings. Covers principles of health service billing, including billing terminologies, the billing process, and universal billing forms. Includes laboratory practice using actual patient records and 3M encoding software to enhance student proficiency.

**HLCS 257. Coding Special Topics. 3 Units.**

Coding-system usage by reimbursement agencies, laws governing these processes, and federally supervised coding auditing to assure that the laws of coding are followed. Health-care delivery systems and internal billing and reimbursement in these settings. Requirements of state and federal coding regulatory agencies, ethics of coding, coding quality, and coding compliance. Content varies to accommodate the changing nature of health care reimbursement processes and laws. Prerequisite: HLCS 245.

**HLCS 291. Computer Applications in Health Care I. 1 Unit.**

Introduces health-care information systems concepts and applications. Focuses on software application in the health-care arena. Specific topics addressed include: general system theory; interoperability; specific health record applications (encoder, ADT-R, ROI, etc); electronic health records; personal health records; and patient informatics applications.

**HLCS 292. Computer Applications in Health Care II. 1 Unit.**

Introduces health-care information systems concepts and applications. Focuses on software application in the health-care arena. Specific topics addressed include: general system theory; interoperability; specific health record applications (encoder, ADT-R, ROI, etc); electronic health records; personal health records; and patient informatics applications. One hour required each week.

**HLCS 961. Coding Practicum I. 2 Units.**

Twelve-week (six hours per week) coding laboratory provides a capstone experience for students who have completed all academic course work in coding. Enables students to apply all state and national coding and reimbursement regulations to a variety of inpatient and outpatient records. Provides students the opportunity to improve speed and accuracy prior to entering the job force. Prerequisite: HLCS 257.

**HLCS 962. Coding Practicum II. 2 Units.**

Continues HLCS 961. HLCS 962 includes an additional twelve-week (six hours per week) coding laboratory experience under direct supervision of an instructor. Prerequisite: HLCS 961.

# Communication Sciences and Disorders (CMSD)

## Courses

**CMSD 217. Beginning Sign Language. 3 Units.**

Focuses on learning American Sign Language (ASL) for conversational purposes. Finger spelling, a sign vocabulary of approximately 500 words, and acquisition of the basic grammatical rules of ASL. ASL contrasted with the various sign systems currently being used in educational settings in this country.

**CMSD 267. Speech-Language Pathology Assistant Fieldwork. 2 Units.**

Guided observation of clinical management of individuals with communication disorders. Supervised clinical experience in assisting the speech-language pathologist in a school and hospital setting. Course may not be taught every year.

**CMSD 284. Introduction to Speech-Language Pathology and Audiology. 3 Units.**

Major types of disorders. Etiology and treatment. Survey course for students majoring in speech-language pathology and audiology, prospective teachers, and others who may encounter speech-language or hearing disorders in their professions.

**CMSD 304. Hearing Science. 4 Units.**

Introduces basic theories and laboratory exercises in acoustics, psychoacoustics, and physiological acoustics.

**CMSD 314. Language Science. 4 Units.**

Introduces techniques of linguistic analyses used in the study of phonology, morphology, syntax, and semantics.

**CMSD 318. Transcription Phonetics. 3 Units.**

Student develops transcription skills using the International Phonetic Alphabet.

**CMSD 324. Language Disorders of Children. 4 Units.**

Impairments of language development in children. Formal and informal assessment of children. Program planning and remediation procedures. Prerequisite or concurrent: CMSD 388.

**CMSD 334. Speech Sound Disorders in Children. 4 Units.**

Definition, classification, etiology, diagnosis, and treatment of phonological/articulation disorders. Prerequisite or concurrent: CMSD 318.

**CMSD 367. SLPA Practicum and Ethics. 4 Units.**

Discussion of scope of practice and requirements for licensure for SLPAs in the state of California. Discussion of ethical issues related to the profession. Guided observation of clinical management of individuals with communication disorders. Supervised clinical experience in assisting the SLP in a school or hospital setting.

**CMSD 376. Anatomy of Speech-Hearing Mechanism. 4 Units.**

Anatomy and physiology of auditory-vocal communicative process.

**CMSD 388. Communication across the Lifespan. 4 Units.**

Overview of language development and normal changes over the lifespan. Development of language from infancy to adolescence, and the effects of aging on communication. Includes study of hearing.

**CMSD 417. Speech Science. 4 Units.**

Acoustic and physiological correlates of speech-sound production.

**CMSD 424. Adult Language Pathology. 4 Units.**

Impairment of language and speech related to organic neuropathology.

**CMSD 426. Behavior Management Applications with Special Populations. 4 Units.**

Addresses the principles of behavior modification and discrete trials training as they apply to persons with autism, developmental delays, congenital syndromes, and attention deficit hyperactivity disorders.

**CMSD 434. Disorders of Fluency. 2 Units.**

Characteristics, theories of etiology, and principles of management of stuttering and other fluency disorders.

**CMSD 435. Voice Disorders. 2 Units.**

Definition, classification, etiology, diagnosis, and treatment of voice disorders. Pitch, intensity, quality, and resonance.

**CMSD 444. Organic Speech Disorders. 4 Units.**

Introduces the classification, cause, manifestations, assessment, and treatment of craniofacial disorders/cleft palate, tongue thrust, dysarthria, apraxia of speech, and dysphagia.

**CMSD 445. Techniques for ESL and Accent Modification. 2 Units.**

Principles and procedures for teaching English as a second language (ESL) and accent modification to bilingual speakers of English.

**CMSD 454. Introduction to Audiology. 4 Units.**

Anatomy and physiology of the auditory mechanism. Nature of the acoustic stimulus, disorders of the ear, problems of the hard-of-hearing. Pure-tone audiometry. Applicable toward California audiometric certification.

**CMSD 464. Introduction to Aural Rehabilitation. 4 Units.**

Explores methods and techniques used with hearing-impaired children and adults who depend on hearing aids, cochlear implants, or assistive devices to develop or improve auditory and visual reception and speech production. Prerequisite: CMSD 454.

**CMSD 467. Speech-Language Pathology and Audiology Practicum. 1-4 Units.**

Supervised practice in diagnosis and therapy.

**CMSD 477. Bilingualism and Biculturalism. 2 Units.**

Addresses the clinical competencies and cultural sensitivity needed in dealing with bicultural and bilingual clients. Discusses the impact of such knowledge on assessment and intervention.

**CMSD 485. Clinical Methods in Speech-Language Pathology. 4 Units.**

Principles and procedures of speech-language therapy within and across disorders. Methods of determining treatment effectiveness. Regulations governing public school services.

**CMSD 486. Diagnostic Methods in Speech-Language Pathology. 4 Units.**

Purposes for assessment. Procedures employed in describing and diagnosing speech-language impairments.

**CMSD 488. Autism Spectrum Disorders. 4 Units.**

Characteristics, classifications, theories of etiologies, and principles of management of the autism spectrum disorders. Emphasizes assessment methods and intervention. Prerequisites: CMSD 324, CMSD 426, CMSD 485, CMSD 486.

**CMSD 499. Speech-Language Pathology and Audiology Independent Study. 1-2 Units.**

Student submits a project or paper on a topic of current interest in an area related to speech-language pathology and audiology. Regular meetings to provide the student with guidance and evaluation. Elected on the basis of need or interest.

**CMSD 511. Graduate Portfolio I. 2 Units.**

The first in a series of two courses that provides students with a format for demonstrating their acquisition of the knowledge and skills that prepare them for entry into the profession. Students learn the requirements for professional accreditation and certification, and of licensing entities; and develop a professional portfolio. Emphasizes ethical, business, and legislative considerations in speech-language pathology.

**CMSD 512. Graduate Portfolio II. 1 Unit.**

The second in a series of two courses that teaches students the requirements for professional accreditation and certification, and of licensing entities; and that helps them continue to develop an organized means of demonstrating the knowledge and skills acquired during their graduate program. Requires development of a professional portfolio.

**CMSD 514. Anatomy of Speech-Hearing Mechanism. 4 Units.**

Addresses anatomy and physiology of basic human auditory-vocal communicative processes. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 515. Transcription Phonetics. 3 Units.**

Student develops transcription skills using the International Phonetic Alphabet. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 516. Speech and Hearing Science. 3 Units.**

Introduces and explores basic theories in acoustics, psychoacoustics, and speech perception and production. Includes basic physics and algebra, as well as the application of scientific principles to clinical practice.

**CMSD 520. Communication across the Lifespan. 4 Units.**

Overview of language development and normal changes over the lifespan. Development of language from infancy to adolescence, and the effects of aging on communication. Includes study of hearing. Includes monthly meetings to discuss clinical applications.

**CMSD 521. Language Disorders of Children. 4 Units.**

Addresses impairments of language development in children, formal and informal assessment of children, and programming and planning of remediation procedures. Students meet monthly to discuss application to clinical populations. Prerequisite or concurrent: CMSD 520.

**CMSD 522. Organic Speech Disorders. 4 Units.**

Introduces the classification, cause, manifestations, assessment, and treatment of craniofacial disorders/cleft palate, tongue thrust, dysarthria, apraxia of speech, and dysphagia. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 523. Seminar in Early Childhood Language Disorders. 3 Units.**

Addresses the principles and procedures in assessment and interventions of language disorders in children. Emphasizes early-language learners (birth to 3 years).

**CMSD 525. Seminar in School-Aged Child Language Disorders. 3 Units.**

Addresses the principles and procedures of assessment and intervention of preschool, primary, and adolescent school-age children with language disorders. Emphasizes school-age learning in the areas of semantics, syntax, pragmatics, narrative, and phonological awareness.

**CMSD 529. Adult Language Pathology. 4 Units.**

Addresses impairment of language and speech related to organic neuropathology. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 533. Language Science. 4 Units.**

Introduces techniques of linguistic analysis used in the study of phonology, morphology, syntax, and semantics. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 534. Speech Sound Disorders in Children. 4 Units.**

Addresses definition, etiology, characteristics, prevention, assessment, and intervention for phonological/articulation disorders. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 535. Voice Disorders. 3 Units.**

Discusses diagnosis and intervention techniques used with children and adults displaying a variety of voice disorders. Includes demonstration and operation of instrumentation used for physiological and acoustic analysis of abnormal voice production.

**CMSD 537. Clinical Methods in Speech-Language Pathology. 4 Units.**

Addresses principles and procedures of speech and language therapy within and across disciplines. Addresses methods of determining treatment effectiveness. Discusses regulations governing public school services. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 538. Diagnostic Methods in Speech-Language Pathology. 4 Units.**

Discusses purpose of assessment, including procedures employed in describing and diagnosing speech and language impairments. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 539. Introduction to Audiology. 4 Units.**

Provides anatomy and physiology of the auditory mechanism. Addresses the nature of acoustic stimulus, disorders of the ear, and problems of the hard-of-hearing. Covers pure-tone audiometry. Applicable for California audiometric certification. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 545. Issues in School Speech-Language Pathology. 3 Units.**

Addresses issues confronted by school speech-language pathologists, including PL 94-142, IDEA, NCLB, planning for and conducting IEPs, scheduling and caseload management, evaluating and assessing students from diverse backgrounds, due process, and advocating for students.

**CMSD 546. Laryngopharyngeal Endoscopy Techniques. 1 Unit.**

Provides hands-on learning of rigid and flexible endoscopy techniques within the scope of practice for speech pathologists in the assessment and management of communication and swallowing disorders.

**CMSD 554. Swallowing Disorders. 3 Units.**

Lecture and discussion of the speech-language pathologist's role in the diagnosis and treatment of swallowing disorders in children and adults. Addresses ethical and cultural issues. Emphasizes analysis of current literature and clinical applications. Selected laboratory experiences.

**CMSD 564. Seminar: Aural Rehabilitation and Cochlear Implants/Hearing Aids. 3 Units.**

Studies the mechanisms for achieving hearing rehabilitation—including amplification, speech reading, auditory training, hearing-aid orientation, and speech conservation. Considers hearing-aid function and philosophies of rehabilitation for the hearing impaired (e.g., auditory, aural, manual, and total communication).

**CMSD 567. Clinical Practice in Speech-Language Pathology and Audiology, Advanced. 1-6 Units.**

Supervised practice in diagnosis and therapy.

**CMSD 575. Instrumentation in Speech and Hearing. 1 Unit.**

Lecture, discussion, and laboratory experience in the areas of speech acoustics, speech production and perception, psychoacoustics, and speech and hearing physiology.

**CMSD 576. Instrumentation II. 1 Unit.**

Guides students through practical application of theoretical information acquired in CMSD 575 regarding speech instrumentation. Individually paced, with guided assistance, so that student can complete competency on selected speech instrumentation.

**CMSD 577. Bilingualism and Biculturalism. 2 Units.**

Addresses the clinical competencies and cultural sensitivity needed for dealing with bicultural and bilingual clients. Discusses the impact of such knowledge on assessment and intervention. In addition to scheduled classes, students required to meet monthly to discuss application to clinical populations.

**CMSD 585. Seminar in Professional Aspects of Speech-Language Pathology. 3 Units.**

Emphasizes ethical, business, and legislative considerations in speech-language pathology. Students develop a professional resume and practice interviewing. Covers professional issues such as advocacy, clinical supervision, and diversity.

**CMSD 586. Educational Fieldwork I. 1 Unit.**

Initial supervised therapy on the elementary and/or secondary level and/or in a classroom for the severely language-handicapped child.

**CMSD 587. Counseling in Communication Disorders. 3 Units.**

Explores the counseling role of the speech-language pathologist and identifies clinician responsibilities in working with individuals of different cultures, ethnicity, gender, age, and belief systems.

**CMSD 588. Educational Fieldwork II. 8 Units.**

Supervised therapy on the elementary and/or secondary level and/or in a classroom for the severely language-handicapped child.

**CMSD 589. Remediation/Advanced Directed Teaching. 1 Unit.**

For students who have not successfully completed CMSD 588. Requires remediation or completion of clinical skills necessary for work in the public schools. Prerequisite: CMSD 588.

**CMSD 596. Medical Fieldwork I. 1 Unit.**

Initial supervised clinical practice in a medical center, rehabilitation facility, or skilled nursing facility.

**CMSD 597. Medical Fieldwork II. 8 Units.**

Supervised clinical practice in a medical center, rehabilitation facility, or skilled nursing facility.

**CMSD 598. Research Methods and Professional Literature in Communication Sciences and Disorders. 3 Units.**

Lecture and discussion that facilitates the student's ability to read and interpret professional literature, develop research ideas, and develop professional writing skills.

**CMSD 599. Remediation/Externship. 1 Unit.**

For students who have not successfully completed CMSD 597. Requires remediation or completion of clinical skills necessary for work in medical settings. Prerequisite: CMSD 597.

**CMSD 679. Seminar: Motor Speech Disorders/Augmentative Communication. 3 Units.**

Problem-based learning seminar that focuses on etiology, characteristics, evaluation, and treatment of motor speech disorders, including the dysarthrias and apraxia.

**CMSD 682. Seminar: Traumatic Brain Injury. 3 Units.**

Explores pathophysiology, diagnosis, and rehabilitation of cognitive communication disorders in children and adults with traumatic closed-head injuries. Lecture and discussion format emphasizes reading current professional literature and developing skills in formal and informal assessment and functional treatment.

**CMSD 684. Seminar: Adult Language Disorders. 3 Units.**

Problem-based learning seminar that focuses on etiology, characteristics, evaluation, and treatment of acquired adult language disorders.

**CMSD 685. Seminar: Stuttering. 3 Units.**

Provides practical instruction in assessment and remediation with individuals who stutter and/or clutter.

**CMSD 687. Seminar: Open Seminar. 1-3 Units.**

**CMSD 687A. Seminar: Open Seminar. 1 Unit.**  
Facilitates students' advanced study of current issues in the diagnosis and treatment of communication disorders.

**CMSD 687B. Seminar: Open Seminar. 1 Unit.**

Facilitates students' advanced study of current issues in the diagnosis and treatment of communication disorders.

**CMSD 688. Seminar: Speech Sound Disorders - Advanced. 3 Units.**

Typical development of phoneme acquisition and use. Explores etiology, characteristics, assessment and treatment of articulation and phonological disorders and differences in children.

**CMSD 697. Research. 1-4 Units.****CMSD 698. Thesis. 1-6 Units.****CMSD 699. Directed Study. 1-3 Units.**

Independent study on a research project selected in consultation with the advisor. For advanced students. May be repeated once. Student's transcript will show specific area of study, for example: SPPA 699 Directed Study: Adult Language Disorders.

## Counseling and Family Science Global (CFSG)



## Courses

### **CFSG 584. Global Practice Experience. 3 Units.**

Provides students with global educational and practice experience to increase their capacity for working in other contexts and for learning and sharing best-practice skills with peoples of other nations. Course conducted at approved international sites or selected areas in the United States where students are exposed to experiences related to their field of study. May use telesupervision to support oversight of students and their regular contact with the assigned faculty member from LLU. Host site may also require concurrent enrollment in courses that support understanding of specific practice methods and population milieus. Students' department coordinates enrollment. Availability for participation limited to students in good academic and professional performance standing. Minimum and maximum numbers of students participating may vary and are subject to change, depending on the practice site. Costs and international visa requirements depend on economic and government differences, by country.

## Counseling (COUN)

### Courses

#### **COUN 501. Research Tools and Methodology: Quantitative. 3 Units.**

Current social research methods; practice in the use of techniques. Considers the philosophy of the scientific method, and familiarizes with counseling test instruments. Prerequisite: An introductory course in statistics as an undergraduate research methods course.

#### **COUN 502. Research Tools and Methodology: Qualitative. 3 Units.**

Qualitative methodology. Prepares students to undertake research projects using the intensive interview method of qualitative research. Explores practical and epistemological issues and problems in qualitative research explored in a workshop format.

#### **COUN 515. Crisis Intervention and Client Advocacy. 3 Units.**

Examines theory, techniques, and practice of crisis intervention and client-centered advocacy, with emphasis on development of basic counseling skills and recovery-oriented methods of service delivery. Addresses professional development, socialization, and collaboration among mental health providers. Utilizes multiple presenters from community agencies and recordings of crisis counseling work. Explores crises such as substance abuse, domestic violence, incest, spousal abuse, rape, treating the severely mentally ill, trauma, and disaster. Includes small-group laboratory experiences for practice of crisis counseling skills. Cross-listing: MFAM 515.

#### **COUN 524. Psychopharmacology and Medical Issues. 3 Units.**

Introduces common physical and medical issues related to the practice of counseling. Students learn a biopsychosocial-spiritual model to assess and intervene—emphasizing psychopharmacology, neuroanatomy, the mind-body relationship, and research relative to the field of counseling.

#### **COUN 528. Culture, Socioeconomic Status and Therapy. 3 Units.**

Addresses current information and historical narratives related to cultural diversity that impact belief systems, communication patterns, roles, and expectations within human relationships and systems. Examines SES and a wide range of social, racial, and ethnic factors that create meanings for individuals, couples, families, and mental health counselors. Emphasizes populations that become professional partners or clients served within this geographic region. Cross-listing MFAM 528.

#### **COUN 540. Foundations of Counseling and Psychotherapy. 3 Units.**

Examines history and scope of counseling specialties, principles of collaboration among diverse mental health professionals, factors influencing counseling process, and basic counseling skills. Addresses social ecology impacting consumers and providers within health care. Opens ongoing process of nurturing personal qualities related to counseling practice through deconstruction of personal biases; articulation of personal epistemologies; and development of autobiography, including spiritual formation. Course includes laboratory experience for practice of fundamental counseling skills, with live demonstrations and in-class role play.

#### **COUN 545. Gender Perspectives. 2 Units.**

Explores the identities, roles, and relationships of women and men in light of social, cultural, and historical perspectives. Implications for family therapists, educators, and other professionals explored.

#### **COUN 547. Social Ecology of Individual and Family Development. 3 Units.**

Studies human individual development and its relationship to the family life cycle from birth through aging and death of family members. Discusses biological, psychological, educational, social, and spiritual development in the context of family, education, and career dynamics involving traditional two-parent families, alternative partnerships, single parents, blended families, and intergenerational communities.

#### **COUN 556. Psychopathology and Diagnostic Procedures. 3 Units.**

Explores the history and development of psychopathology and how it relates to current clinical practice in general and marriage and family therapy in particular. Addresses classifications such as ADD/ADHD that affect school achievement and educational placement. Utilizes the multiaxial classifications of the DSM-IV as a practical basis for diagnostics. Prerequisite: A course in abnormal psychology.

#### **COUN 568. Groups: Process and Practice. 3 Units.**

Surveys major theoretical approaches, including individual theories, marital groups, network, and family therapy groups. Group laboratory experience provided in which students apply theory to practice and develop group-leadership skills.

#### **COUN 574. Educational Psychology. 3 Units.**

Explores educational psychology through application of development and learning theories to instruction, achievement motivation, self-esteem, classroom management, supportive and disruptive processes on school sites, campus standards, disciplinary practices, legal/ethical issues. Requires research of effective educational practices and related foundations. Prerequisite: General psychology.

#### **COUN 575. Counseling Theory and Applications. 3 Units.**

Counseling theories and applications necessary for work as counselors, therapists, and other mental health professionals. Historical overview of all theories from psychoanalytic, Adlerian, existential, person-centered, Gestalt, behavior, cognitive behavior, reality, feminist, postmodern (solution-focused and narrative), family systems, and integrative perspectives. Meaningful integration of ethics, theory, and experience on personal and case-study levels.

#### **COUN 576. Exceptional and Medically Challenged Children. 3 Units.**

Studies the determinants, characteristics, problems, and adjustments of individuals who deviate markedly from the norm in their mental, physical, emotional, or social aptitudes, traits, and tendencies. Emphasizes education and career planning.

**COUN 577. Assessment in Counseling. 3 Units.**

Develops competencies and understandings for selecting, administering, and interpreting the major types of standardized tests and inventories used in psychology and education. Theoretical principles and issues presented with hands-on applications. Practicum required.

**COUN 578. College and Career Counseling. 3 Units.**

Examines vocational and career-choice theories, trends, and related educational programming, including introduction to interest, attitude, and ability evaluation used for career counseling. Includes administration, scoring, and interpretation as part of hands-on application in schools and clinic settings.

**COUN 579. Career Theories and Applications. 4 Units.**

Study of career theories such as Holland, Ginzberg, Super; as well as multiple approaches, including family and systemic influences on career choice. Application made to values, ethics, meaning, decision making, and individual differences in twenty-first century work places. Includes laboratory experience in the field.

**COUN 584. Advanced Child and Adolescent Development. 2,3 Units.**

Advanced study of child and adolescent development using topical instructional format. Explores relationship of development to family attachments, self-esteem, school achievement, and social competence. Explores counseling interventions related to development of support for relational and educational success.

**COUN 604. Social Context in Clinical Practice: Gender, Class, and Race. 3 Units.**

Addresses social inequalities that result in unfairness, health disparities, assaults to personal dignity, and family stress. Examines effects of social hierarchies such as gender, socioeconomic status, race, and sexual orientation on psychological and relational health. Integrates social contextual factors with recovery-based approach to clinical counseling. Cross-listing: MFAM 604.

**COUN 614. Law and Ethics. 3 Units.**

Examines laws, ethical standards, and current trends for mental health professionals as delineated by organizations such as ACA, ASCA, BBS, and CTC. Reviews legal and ethical guidelines for mental health counseling with individuals and families, including topics related to child welfare, separation, divorce, and financial aspects of family maintenance. Emphasizes ethical counselor-client relationships and collaboration with mental health colleagues. Explores counselor's sense of self, human values, professional behavior, scope of practice, and ethics. Assists in understanding impact of culture, poverty, social stress, and biology on the recovery process. Cross-listing: MFAM 614.

**COUN 624. Individual and Systems Assessment. 3 Units.**

Applies psychological testing methods in the diagnostic assessment of individual, family, and group behavioral dynamics as encountered in marriage and family counseling and related experience. Observations and/or laboratory experience.

**COUN 638. Family Therapy and Chemical Abuse. 3 Units.**

Current theories and treatment of chemical dependencies. Emphasizes family therapy, assessment techniques, understanding of how chemicals affect the mental and biological systems, issues of dual diagnosis.

**COUN 644. Child Abuse and Family Violence. 3 Units.**

Identifies and defines psychological and emotional abuse, neglect, sexual molestation, dynamics of family violence, and characteristics of offenders and nonoffenders. Examines modalities and treatment considerations related to individual and group work with children, adolescents, adults abused as children, families, and unrelated group members. Addresses ethical and legal issues, confidentiality, community resources, and multidisciplinary approaches to child abuse assessment and interview techniques. Explores impact of culture, SES, poverty, and social stressors on family mental health. Minimum of 30 contact hours. Cross-listing: MFAM 644.

**COUN 674. Human Sexual Behavior. 3 Units.**

Sexuality in contemporary society from the sociopsychological viewpoint. Anatomy and physiology of human sexuality: reproduction, normal and abnormal sexual response, psychosexual development, human fertility, human sexual dysfunction. Integration of systems theory. A minimum of thirty contact hours.

**COUN 675. Dynamics of Aging. 1,2 Unit.**

Studies aging and related processes of personal and systemic change, such as developmental and self-actualization challenges, retirement, chronic illness, long term care, losses, and other end-of-life issues. Additional unit of study involves laboratory field experience.

**COUN 678. Consultation and Program Evaluation. 3 Units.**

Examines principles and practices of consultation and program evaluation within educational and clinical counseling environments. Emphasizes systemic concepts, leadership development, counselor advocacy, relational competence, team building, and professional accountability of personnel and programs.

**COUN 679. Professional School Counseling. 3 Units.**

Integrates knowledge and skills essential for development, implementation, coordination, and supervision of counseling programs within educational institutions—with emphasis on the role and function of school counselors in preschool, elementary, middle, and secondary grades. Applications made to state graduation requirements, case management, school law, community, consultation, and professional ethics.

**COUN 680. Field Experience in Counseling. 3-9 Units.**

Student demonstrates knowledge and skills within supervised field experience in schools and other agencies. Competencies include areas of educational assessment, personal and social counseling, academic and career counseling, program development, program coordination and supervision, consultation, legal aspects, and professional ethics. State pupil personnel services (PPS) requires a minimum of 600 clock hours—which must include two educational levels, public school activity, and involvement with students from diverse cultural-ethnic-language backgrounds. Prerequisite: Department approval at least six weeks prior to placement; and state clearances for health, character, and competence in basic skills.

**COUN 681. School Counseling Practicum and Seminar. 1 Unit.**

Focuses on California standards for the pupil personnel services (PPS) credential in school counseling and K-12 public school counseling programs. Addresses professional development and practice of school counseling through readings, case presentation, University mentoring, and group process. Enrollment restricted to students in the M.S. degree in Counseling Program and in the School Counseling Certificate Program. Requires minimum of two quarters of COUN 681 School Counseling and practicum.

**COUN 682. Clinical Counseling Practicum and Seminar. 1 Unit.**

Focuses on California standards for licensure as a licensed professional clinical counselor (LPCC). Addresses professional development and practice of clinical counseling through readings, case presentations, University mentoring, and group process. Enrollment restricted to students in M.S. degree in Counseling Program. Registration in COUN 682 required during every quarter of field experience in clinical counseling.

**COUN 691. Process Approaches to Counseling and Psychotherapy. 2 Units.**

Explores advanced process approaches to theory and experiential work that are fundamental to understandings of self-awareness, relationship skills, behavioral observations, self-regulatory processes, emotion-focused therapy, and counselor-client contact with individuals and groups. Involves live demonstrations of professional counseling, in-class role play, and laboratory experiences that utilize recording and evaluation of student practice sessions. Enrollment restricted to candidates in clinical degree programs.

**COUN 692. Cognitive Approaches to Counseling and Psychotherapy. 2 Units.**

Integrates advanced cognitive approaches with experiential work, including current practice of cognitive behavioral therapies such as DBT and TF-CBT. Includes live demonstrations of professional counseling, in-class role play, and laboratory experiences that utilize recording and evaluation of student practice sessions. Enrollment restricted to candidates in clinical degree programs.

**COUN 693. Systemic Approaches to Counseling and Psychotherapy. 2 Units.**

Integrates theory and advanced approaches to counseling individuals and groups within various systems. Demonstrates evidenced-based psychoeducation programs, therapy structures, and mental health delivery methods, with emphasis on recovery care and trauma response models. Enrollment restricted to candidates in clinical degree programs.

**COUN 694. Directed Study: Counseling. 1-4 Units.**

Directed study in counseling.

**COUN 781. School Counseling Field Experience (PPS). 4 Units.**

Requires successful completion and evaluation of 200 hours of counseling activities supervised by a PPS-credentialed school counselor at a public school site. Students may continue an on-going field experience registration over a period of five quarters, with an In Progress (IP) notation until the fifth quarter, which must be graded as Satisfactory (S) or Unsatisfactory (U).

**COUN 782. School Counseling Field Experience (PPS). 4 Units.**

Requires successful completion and evaluation of 200 hours of counseling activities supervised by a PPS-credentialed school counselor at a public school site. Students may continue an on-going field experience registration over a period of five quarters, with an In Progress (IP) notation until the fifth quarter, which must be graded as Satisfactory (S) or Unsatisfactory (U).

**COUN 783. School Counseling Field Experience (PPS). 4 Units.**

Requires successful completion and evaluation of 200 hours of counseling activities supervised by a PPS-credentialed school counselor at a public school site. Students may continue an on-going field experience registration over a period of five quarters, with an In Progress (IP) notation until the fifth quarter, which must be graded as Satisfactory (S) or Unsatisfactory (U).

**COUN 784. School Counseling Field Experience. 3 Units.**

Fourth course in a series of 3-unit registrations (COUN 781-786) for University-arranged field experience in school counseling. Requires that student document 100 hours of counseling practicum; obtain a certificate of clearance from the California Commission on Teacher Credentialing; and subsequently complete 100 hours of supervised counseling in a public school, with on-site supervision by a PPS-credentialed school counselor. Enrollment restricted to students in the M.S. degree in Counseling Program and/or the School Counseling Certificate Program who are working toward the pupil personnel services credential (PPS) in school counseling.

**COUN 791. Clinical Counseling Field Experience (LPCC). 3 Units.**

Requires successful completion and evaluation of 150 hours—at least 100 of which must be supervised, face-to-face clinical counseling supported by a minimum of 50 hours involving supervision, reporting, documentation, and other counseling-related activities. Students may continue an on-going field experience registration over a period of five quarters, with an In Progress notation (IP) until the fifth quarter, which must be graded as Satisfactory (S) or Unsatisfactory (U).

**COUN 792. Clinical Counseling Field Experience (LPCC). 3 Units.**

Requires successful completion and evaluation of 150 hours—at least 100 of which must be supervised, face-to-face clinical counseling supported by a minimum of 50 hours involving supervision, reporting, documentation, and other counseling-related activities. Students may continue an ongoing field experience registration over a period of five quarters, with an In Progress notation (IP) until the fifth quarter, which must be graded as Satisfactory (S) or Unsatisfactory (U).

**COUN 793. Clinical Counseling Field Experience (LPCC). 3 Units.**

Requires successful completion and evaluation of 150 hours—at least 100 of which must be supervised, face-to-face clinical counseling supported by a minimum of 50 hours involving supervision, reporting, documentation, or other counseling-related activities. Students may continue an on-going field experience registration over a period of five quarters, with an In Progress (IP) notation until the fifth quarter, which must be graded as Satisfactory (S) or Unsatisfactory (U).

## Criminal Justice (CRMJ)

### Courses

**CRMJ 515. Crime and Society. 3 Units.**

Discusses crime as a social problem and surveys its criminal justice responses. Provides an overview of criminological theory by placing crime in its cultural, social, political, and historical context. Describes the criminal justice system from an institutional perspective; and examines the intersecting roles of the police, forensic science agencies, the courts, and corrections as they aim to promote justice in the context of the social good.

**CRMJ 517. Criminal Procedure and Rules of Evidence. 3 Units.**

Studies criminal procedures as they are guided by the U.S. Constitution. Focuses on 4th-, 5th-, 6th-, and 14th-Amendment rights with regard to searches and seizures, confessions, due process, jury trials, assistance of counsel, and equal protection under the law. Discusses the introduction of scientific evidence in criminal trials as the point of intersection between science and law. Pretrial discovery rules, access to expert witnesses and testing, as well as federal and state rules of admissibility examined as they shape the content and process of evidence presentation in the courts by expert witnesses.

**CRMJ 519. Expert Testimony: Procedure and Practice. 2 Units.**

Familiarizes students with judicial procedure, and provides opportunity in a simulated trial setting for them to practice testifying as expert witnesses.

**CRMJ 520. Restorative Justice. 3 Units.**

Provides a new perspective on the purpose and role of the criminal justice system by examining how restorative justice attempts to forge new relationships between offenders and the people and communities they have victimized.

**CRMJ 574. Criminological Theory. 4 Units.**

Provides students with a detailed examination of the best-known and most influential theories of crime causation. Examines and evaluates selected theories from sociological, psychological, and behavioral perspectives.

**CRMJ 588. Topics in Forensic Science. 2 Units.**

Addresses current interests in specific areas of forensic science, offered at the discretion of the Department of Social Work and Social Ecology. Topics may include quality assurance, forensic chemistry and controlled substances, forensic biology, forensic toxicology, questioned documents, and others. Sections consist of lectures but may also include laboratory experience under the guidance of criminalists.

**CRMJ 599. Directed Study/Special Project. 1-4 Units.**

Limited to matriculating master's degree in criminal justice students who wish to pursue independent investigations in criminal justice practice or policy under the direction of a department faculty member.

**CRMJ 620. Forensic Mental Health. 3 Units.**

Overviews the specialized mental health and substance-abuse disorders treatment for persons incarcerated in jails, prisons, or special forensic psychiatric hospitals. Reviews effective treatment methods in forensic institutions and examines the current criminal justice system's handling of persons with mental illness and substance-abuse disorders.

**CRMJ 630. Criminal Justice Planning and Administration. 3 Units.**

Examines the structure, function, and effective operation of criminal justice agencies and organizations—including law enforcement, the courts, and corrections—within the overall context of the criminal justice system.

**CRMJ 697. Research. 2 Units.**

Supports students who choose to complete the thesis option. Provides research matriculation in the collection and analysis of data for the thesis. Students required to register for two quarters, or a total of 4 units.

**CRMJ 698. Thesis. 2 Units.**

The culminating work of the student's independent research, under the direction of the research advisor. Registration during the quarter in which student defends research and submits final document to the department and School of Behavioral Health.

**CRMJ 757A. Professional Practicum and Seminar. 3 Units.**

Experiential learning in criminal justice. Students must satisfactorily complete 160 practicum hours and 20 hours of concurrent seminar.

**CRMJ 757B. Professional Practicum and Seminar. 3 Units.**

Experiential learning in criminal justice. Students must satisfactorily complete 160 practicum hours and 20 hours of concurrent seminar.

**CRMJ 757C. Professional Practicum and Seminar. 3 Units.**

Experiential learning in criminal justice. Students must satisfactorily complete 160 practicum hours and 20 hours of concurrent seminar.

**CRMJ 787. Advanced Professional Practicum and Seminar. 4 Units.**

Experiential learning in advanced criminal justice practice. Students must satisfactorily complete 200 practicum hours and 20 hours of concurrent seminar.

## Dental Anesthesiology (ANDN)

### Courses

**ANDN 314. Dental Anesthesia: Local Anesthesia and Inhalation Sedation. 4 Units.**

A philosophy of patient management, including use of local anesthetics and nitrous oxide/oxygen sedation, as well as the physiological and psychological aspects of pain and anxiety. Covers the history of anesthesia, patient evaluation, pharmacology armamentarium and complications regarding use of these agents, and management of office emergencies. Students practice local anesthetic injections and administer nitrous oxide/oxygen to each other.

**ANDN 521. Principles of Medicine, Physical Diagnosis, and Hospital Protocol. 1 Unit.**

Studies methods recognizing normal and abnormal physical conditions. Reviews organ systems to expand the dentist's general medical knowledge. Specific topics reviewed include blood diseases, systemic diseases, cardiac disease, patient admission, physical examination, and hospital charting. Repeated registrations required to fulfill total units.

**ANDN 547. Anesthesia Grand Rounds. 1 Unit.**

Weekly meeting of the Department of Dental Anesthesiology featuring guest lecturers who present a variety of current topics in anesthesiology. One session per month designated as the Mortality and Morbidity Conference.

**ANDN 549. Contemporary Anesthesia. 1 Unit.**

Presents current concepts, practice, and controversies in general anesthesia. Reviews textbook chapters on a weekly basis during the Fall and Winter quarters.

**ANDN 604. Anesthesia Literature Review. 1 Unit.**

Weekly session reviews current anesthesia literature.

**ANDN 652. Introduction to General Anesthesia. 1 Unit.**

Focuses on rapid acquisition of basic knowledge of the important elements of general anesthesia by new anesthesia residents in their first month of training.

**ANDN 654. Practice Teaching in Anesthesia 1. 1 Unit.**

Provides opportunity for second-year residents to participate in teaching anesthesia-related topics to first-year residents.

**ANDN 674. Crisis Management in Anesthesia. 0.5 Units.**

Provides opportunity for residents to respond to simulated anesthesia challenges and complications as their anesthesia knowledge and skills are developed. Offered at the LLU simulation center each quarter over the 24-month program.

**ANDN 696. Scholarly Activity in Dental Anesthesiology 1. 4 Units.**

Selected didactic, clinical, and/or laboratory activity developed by the program director or a designated program faculty member. Primarily designed for resident to fulfill the certificate requirements for scholarly activity/research in dental anesthesiology. Multiple registrations may be needed to complete these activities.

**ANDN 697A. Research. 1 Unit.**

Student identifies a research project, prepares a protocol, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities.

**ANDN 697B. Research. 1 Unit.**

Student participates in ongoing research or original projects, collects and analyzes data, and writes a report of findings. Multiple registrations may be needed to complete research activities.

**ANDN 697C. Research. 1 Unit.**

Resident completes research project, holds a public presentation of research, and submits a publishable paper to his/her research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

**ANDN 699. Scholarly Activity II in Dental Anesthesiology. 4 Units.**

Requires students to write a publishable paper on an assigned topic of importance to dental anesthesiology.

**ANDN 746. General Anesthesia. 10 Units.**

Administration of general anesthesia and regional block anesthesia to a variety of medical and dental patients in the operating room, under the supervision of attending anesthesiologists. A minimum of 300 clock hours per quarter (8 quarters) required to fulfill total units.

**ANDN 751. Dental Anesthesia: Local Anesthesia and Inhalation Sedation. 4 Units.**

A philosophy of patient management, including use of local anesthetics and nitrous oxide/oxygen sedation, as well as the physiologic and psychologic aspects of pain and anxiety. Course covers the history of anesthesia, patient evaluation, pharmacology, armamentarium, complications regarding use of these agents, and the management of office emergencies. Students practice local anesthetic injections and administer nitrous oxide/oxygen to each other.

**ANDN 801. Dental Anesthesia: Advanced Topics. 2 Units.**

Theory of general anesthesia. Hospital dentistry, patient evaluation, medical consultations. Reviews local anesthesia and introduces additional techniques of pain and anxiety control.

## Dental Educational Services (DNES)

### Courses

**DNES 200. Curricular Practical Training. 0 Units.**

Presents opportunities for service learning in different environments. Increases students' awareness of the importance of oral health education and professional practice and, in the process, gives them insight into different cultural and socioeconomic conditions. Students develop an understanding of LLUSD service learning heritage and the role they play in promoting the healing and teaching ministry of Jesus Christ to their community.

**DNES 305. Etiology and Management of Dental Caries. 2 Units.**

Etiology, prevention, and management of dental caries. The specific plaque hypothesis; the role of diet, host resistance, and time in caries. Remineralization, principles of medical management, caries risk assessment, patient education.

**DNES 400. Interprofessional Laboratory Experience. 0 Units.**

An interprofessional laboratory experience that allows dental and dental hygiene students to interact, communicate, and problem solve in a simulated clinical setting with students from other disciplines.

**DNES 500. Curricular Practical Training. 0 Units.**

Presents opportunities for service learning in different environments. Develops in students an increased awareness of the importance of oral health education and professional practice and, in the process, provides insights into different cultural and socioeconomic conditions. Develops students' understanding of LLUSD service learning heritage and the role they play promoting the healing and teaching ministry of Jesus Christ to their community.

**DNES 504. Curricular Practical Training for IDP. 0 Units.**

Presents opportunities for service learning in different environments. Develops an increased awareness of the importance of oral health education and professional practice and, in the process, provides insights into different cultural and socioeconomic conditions. Develops students' understanding of LLUSD service learning heritage and the role they play promoting the healing and teaching ministry of Jesus Christ to their community.

**DNES 700. Orientation to Tooth Morphology. 2 Units.**

Tooth morphology, terminology, morphologic characteristics, and the interrelationship of permanent teeth. Laboratory experience waxing various teeth.

**DNES 705. Etiology and Management of Dental Caries. 2 Units.**

Etiology, prevention, and management of dental caries. The specific plaque hypothesis; role of diet, host resistance, and saliva in caries. Diagnosis, lesion progression, remineralization. Principles of medical and surgical management. Caries risk assessment. Establishes a caries-management program. Patient education.

**DNES 707. Personal Development. 2 Units.**

Introduces students to individual, professional, and practical issues confronted by the dentist as a member of the health professions. Topics include understanding human behavior, as well as maladaptive behaviors; developing coping skills and a professional perspective; and managing stress.

**DNES 708. Introduction to the Dental Profession. 1 Unit.**

Overview of dentistry as it has evolved into a health-care profession. History of dentistry, characteristics of professions, dental ethics, purpose and structure of professional organizations, discussion of the specialties. Introduces personal finance.

**DNES 718. Communication Basics for the Dentist. 1 Unit.**

Introduces students to the skills required for communication in a health-care environment. Topics include basic communication skills, problem-solving strategies, patient-provider communication, and communication with special needs populations (e.g., pediatric patients).

**DNES 789. National Board Part I Review. 2 Units.**

Reviews basic and preclinical sciences to prepare students for the National Dental Board Examination Part I.

**DNES 794. Public Health Dentistry. 2 Units.**

Introduces community dentistry, oral epidemiology, public health programs, preventive dentistry, health education, and volunteer programs.

**DNES 800. Interprofessional Laboratory Experience. 0 Units.**

An interprofessional laboratory experience that allows dental and dental hygiene students to interact, communicate, and problem solve in a simulated clinical setting with students from other disciplines.

**DNES 804. Applied Statistics. 2 Units.**

Introduces research methodology. Develops critical statistical thinking, enabling students to critique research results reported in dental journals and to understand and correctly interpret the research so that new findings can be properly implemented in dental practice. Provides students with statistical tools necessary to pursue lifetime learning in the dental sciences.

**DNES 806. Research Design. 2 Units.**

Developing a research protocol. Authoring skills, role of the mentor and investigator, topic selection, assurances and approvals (animals/IRB), fiscal responsibility, and research misconduct.

**DNES 806L. Research Design Laboratory. 1 Unit.**

Student reviews literature and designs a research proposal in preparation for professional presentation of a table clinic. Student conducts research experiment or project culminating in presentation of the results at a professional meeting.

**DNES 807. Practice Management I. 2 Units.**

Management of a dental practice, including: business economic principles, practice-management systems, financial considerations in dental practice, budgeting and debt management, dental service fees and collections, and third-party payment systems.

**DNES 809. Practice Management II. 2 Units.**

Establishing and monitoring practice goals, leadership and staff relations, patient relations, and marketing. Employment as a dentist, locating practice opportunities, attaining practice ownership, incorporating technology into dental practice, ongoing professional growth.

**DNES 817. Practice Management I for IDP Students. 2 Units.**

Introduction to the management of a dental practice, including: business economic principles, practice management systems, financial considerations in dental practice, budgeting and debt management, dental service fees and collections, and third-party payment systems.

**DNES 818. Practice Management II for IDP Students. 2 Units.**

Establishing and monitoring practice goals, leadership and staff relations, patient relations, and marketing. Employment as a dentist, locating practice opportunities, attaining practice ownership, incorporating technology into dental practice, ongoing professional growth.

**DNES 851. The Dentist and the Law. 2 Units.**

Addresses statutes, regulations, and case law that govern the practice of dentistry.

**DNES 889. National Board Part II Review. 2 Units.**

Reviews basic and clinical sciences and their application in case-based testing format to prepare students for National Dental Board Examination Part II.

## Dental Hygiene (DNHY)

### Courses

**DNHY 216. Oral Health and Preventive Dentistry. 2 Units.**

Introduces preventive dentistry concepts, including the history of dentistry and dental hygiene in oral health promotion and disease prevention. Emphasizes the prevention of oral diseases through effective patient education and motivation, including current theories and principles of psychology as they relate to learning and teaching, personality development and change, and interpersonal processes and dynamics in oral health-care education. Includes instruction in oral health-care techniques for clinical application during concurrent preclinical laboratory sessions.

**DNHY 217. Community Oral Health Theory. 2 Units.**

Philosophy, principles, language, and objectives of dental public health. Critical review of literature, including epidemiology of oral disease. Principles and practices involved in teaching community oral health. Lesson plan development. Methods and practice of professional presentation.

**DNHY 218. Community Oral Health Practicum. 2 Units.**

Fieldwork in local schools and the community.

**DNHY 290. Research Design and Biostatistics. 3 Units.**

Introduces research methodology. Fundamentals of statistical analysis and critique of research data in scientific literature. Student reviews literature and designs proposal in preparation for community oral health practicum.

**DNHY 303. Dental Materials and Techniques. 2 Units.**

Materials and equipment used in dentistry. Practice in the manipulation and use of common materials. Includes a laboratory component.

**DNHY 305. Oral Anatomy Lecture. 2 Units.**

Anatomy of the teeth and surrounding tissues.

**DNHY 305L. Oral Anatomy Laboratory. 1 Unit.**

Laboratory for DNHY 305, Oral Anatomy Lecture.

**DNHY 309. Radiology I. 3 Units.**

Principles governing radiation production and safety relative to radiographic anatomy/dental materials. Fundamentals of intraoral and extraoral techniques, darkroom procedures, and mounting of radiographs. Practical application of techniques. Basic fundamentals of quality assurance.

**DNHY 310. Radiology II. 3 Units.**

Continues laboratory techniques. Intraoral and extraoral radiographic interpretation—including anatomy, pathology, and interpretation of the disease process of the oral hard tissues. Basic fundamentals of radiographic selection criteria. Includes laboratory component.

**DNHY 321. Preclinical Dental Hygiene I Lecture. 2 Units.**

Preclinical phases of dental hygiene, including instrumentation techniques, patient management, intra- and extraoral soft-tissue assessment, charting procedures, disease processes, patient-health assessment, basic operatory preparation, clinical asepsis, and oral health-care techniques.

**DNHY 321L. Preclinical Dental Hygiene I Laboratory. 2 Units.**

Laboratory course for DNHY 321, Preclinical Dental Hygiene I.

**DNHY 322. Preclinical Dental Hygiene II Lecture. 2 Units.**

Continues DNHY 321. Prerequisite: DNHY 321.

**DNHY 322L. Preclinical Dental Hygiene II Laboratory. 2 Units.**

Laboratory course for DNHY 322, Preclinical Dental Hygiene II Laboratory. Prerequisite: DNHY 321, DNHY 321L.

**DNHY 323. Preclinical Dental Hygiene III. 2 Units.**

Continues DNHY 322. site or concurrent\*: DNHY 321, DNHY 322\*, DNHY 321L, DNHY 322L\*.

**DNHY 323L. Preclinical Laboratory. 1 Unit.**

Laboratory course for DNHY 323, Preclinical Laboratory. Prerequisite or concurrent\*: DNHY 321L, DNHY 322L\*, DNHY 321, DNHY 322\*.

**DNHY 328. Dental Hygiene Portfolio Practicum. 1 Unit.**

Student develops a capstone project to show evidence of personal growth and success in the dental hygiene core competencies.

**DNHY 375. Dental Hygiene Clinic. 1 Unit.**

Clinical application of skills and techniques of dental hygiene. Prophylaxes on pediatric and adult patients.

**DNHY 376. Dental Hygiene Clinic. 4 Units.**

Continues DNHY 375. Prerequisite or concurrent: DNHY 375.

**DNHY 380. Medically Compromised Patients. 2 Units.**

Lectures dealing with the medically compromised patient relative to the use of local anesthetics, drug interactions, need for antibiotic premedication, and necessary modification in treatment planning. Repeated registrations required to fulfill total units.

**DNHY 381. Pharmacology for the Dental Hygienist I. 2 Units.**

Introduces the basic principles of pharmacology. Emphasizes the use, actions, and clinical implications/contraindications to medications used by dental patients.

**DNHY 382. Pharmacology for the Dental Hygienist II. 2 Units.**

Continues DNHY 381. Emphasizes application through the use of case studies.

**DNHY 390. Introductory Statistics. 2 Units.**

Fundamentals of statistical analysis and critique of research data in scientific literature and in student research projects. Inferential and descriptive statistics, frequency distribution, histograms, bar graphs, and statistical tests. Computer applications in preparing and analyzing research data. Domain II.

**DNHY 391. Introduction to Grant Writing. 2 Units.**

An overview of the basic principles and practice of effective public health and education grant writing. Introduces students to the processes, structures, factors, and essential skills required to develop competitive proposals. Familiarizes students with key elements in proposal preparation; differentiates foundation (private) and government (public) grants and grant making; identifies prospective funding sources; and engages students in the grant review process.

**DNHY 392. Grant Writing II. 2 Units.**

Continues DNHY 391, Introduction to Grant Writing I. Guides students through the development of a private (foundation) grant proposal, including project need and evaluation, design, and budget preparation. Familiarizes students with the key elements of preparing public (federal) grant applications. Prerequisite: DNHY 391.

**DNHY 400. Oral Disease Management. 2 Units.**

An overview of the role of the oral health professional in the management of individuals with oral disease. Explores the process of care, with a focus on the evidence-based pathophysiology of common oral disease conditions—such as, dental caries, periodontal diseases, and oral pathology.

**DNHY 405. Introduction to Periodontics. 2 Units.**

Reviews gross and microscopic anatomy of the periodontium in health and disease. Primary etiology of periodontal disease. Examines patient's clinical periodontal status. Introduces the diagnostic and treatment-planning process.

**DNHY 406. Orthodontics Concepts for Dental Hygiene. 1 Unit.**

Basic skeletal and dental growth and development as applied to orthodontics. Treatment modalities. Retention principles and methods. Impressions for orthodontic models. Intraoral measurements for orthodontic procedures. Placing and removing orthodontic separators. Placing, ligating, and removing prepared arch wires. Removing excess cement from orthodontic bands. Checking for loose bands. Seating adjusted retainers and headgear. Instructing the patient. Using ultrasonic scaler to remove excess cement.

**DNHY 408. Professional Ethics. 2 Units.**

Develops understanding of hygienist's obligations to the public and to his/her professional association. Defines the ethical and mature conduct expected of professional health-care providers. Compares and contrasts professional ethics and personal morality as they relate to dental hygiene practice.

**DNHY 409. Jurisprudence and Practice Management. 2 Units.**

Laws and regulations that govern the practice of dental hygiene, with special emphasis on California regulations. Standards of government regulations. Obligations of the hygienist to the public and to his/her profession.

**DNHY 410. Cultural Competency in Health Care. 2 Units.**

Explores cultural competency as it relates to the health, illness, and healing beliefs in caring for people from diverse backgrounds. Addresses Christian perspectives on wholeness.

**DNHY 411. Dental Hygiene Topics I. 2 Units.**

Student develops advanced hygiene-care planning skills, with emphasis on knowledge synthesis. Topics cover aspects of patient care, including whole-patient care and patients with special needs.

**DNHY 412. Dental Hygiene Topics II. 2 Units.**

Continues instruction in advanced clinical skills. Areas covered include pulp vitality, dentinal hypersensitivity, esthetic whitening procedures, chemotherapeutic agents, and use of technology for the dental hygiene process of care.

**DNHY 413. Dental Hygiene Topics III. 2 Units.**

Topics related to employment for dental hygienists. Additional topics include various opportunities in the dental hygiene profession and educational advancement strategies.

**DNHY 414. Personal Finance. 2 Units.**

Personal finance topics, including credit, taxes, insurance, real estate, budgeting, housing, and inflation.

**DNHY 415. Applied Nutrition. 2 Units.**

Basic concepts of nutrition. Balance, adequacy, nutrient density, dietary choice, weight management, nutrition, and oral health. Addresses nutritional needs of children and the aged, and medically and dentally compromised patients. Dietary assessment and counseling.

**DNHY 416. Dental Health Education I. 2 Units.**

Current theories and principles of psychology as they relate to learning and teaching, personality development and change, and interpersonal processes and dynamics.

**DNHY 417. Dental Health Education II. 2 Units.**

Principles and practices involved in teaching dental public health. Fieldwork in local schools and community. Methods and practice of professional presentation.

**DNHY 419. Essentials of Public Health for Dental Hygienists. 3 Units.**

Public health background, issues and concepts—including history from ancient times to HMOs; definitions, organization and infrastructure; function, practices, programs, and services. Contributions of important public health practitioners. Political, social, and economic considerations of public health programs.

**DNHY 421. Research I. 2 Units.**

Introduces research methodology. Evaluates literature, emphasizing statistics adequate for interpretation of the literature. Student reviews literature and designs a research proposal in preparation for professional presentation of a table clinic or informational project. Inprogress (IP) given until completion of all units for this course.

**DNHY 422. Research II. 2 Units.**

Review and emphasis of research methodology. Develops literature review, emphasizing statistics adequate for interpretation of the literature. Student continues to develop a research proposal in preparation for professional presentation of a table clinic or informational project. Student conducts research experiment or project culminating in presentation of the results at a professional meeting. In progress (IP) given until completion of all units for this course.

**DNHY 425. Educational Psychology for Health Professionals. 3 Units.**

Fundamentals of psychological principles related to learning in professional and higher education. Major theories of learning and behavior change; as well as research in the areas of cognitive, social, emotional, and moral development. Emphasizes the nature of learning at all age levels, motivation, communication skills; and the influence of cultural, racial, gender, ethnic, and socioeconomic diversity; and stimulates high-level thinking and problem solving.

**DNHY 428. Health-Care Management. 3 Units.**

Management theory, planning, organizing, directing, and controlling (including budgetary controls). Department productivity and theories of work simplification. Preparation of resumes, interviewing skills, professional attitudes, group theory, and group dynamics. Students spend the last two-to-three weeks doing special projects designed and supervised by their department.

**DNHY 431. Public Health Dentistry. 3 Units.**

Philosophy, principles, language, and objectives of public health and public health dentistry. Critical review of the literature.

**DNHY 435. Special Topics in Periodontal Therapy. 2 Units.**

Studies advanced periodontal topics and special problems related to periodontal therapy.

**DNHY 436. Ethical and Legal Principles in Education. 2 Units.**

Discusses theoretical and practical applications of the ethical and legal principles and issues encountered in an educational setting.

**DNHY 437. Ethical and Legal Principles in Public Health for the Dental Hygienist. 2 Units.**

Discusses theoretical and practical applications of the ethical and legal principles and issues encountered in public health settings.

**DNHY 441. Principles of Education I. 3 Units.**

Introduces methods of effective instruction and curriculum design for adult learners. Topics include learning and teaching styles, development of course goals, learning outcomes and objectives; teaching methods and strategies for face-to-face and online instructional presentations, public education, in-service, and continuing education; and cultivation of respect for diversity in learning.

**DNHY 442. Principles of Education II. 3 Units.**

Integrates knowledge and skills related to educational methodology with emphasis on experiential teaching; outcomes assessments, including test construction and implementation; curriculum vitae and resume writing; accreditation; leadership in higher education; and promotion and tenure. Students prepare and present lectures and develop an examination for a didactic course. Prerequisite: DNHY 441.

**DNHY 444. Teaching Practicum. 3 Units.**

Develops the student teacher's skills in the preparation and presentation of didactic material relevant to the education of dental hygiene students. Provides practical experience in teaching methods through active participation in all aspects of the assigned didactic or laboratory.

**DNHY 446. Principles of Clinical Instruction. 3 Units.**

Provides students experience in developing criteria and methods for teaching strategies and evaluation mechanisms to be used in preclinical and clinical instruction. Emphasizes clinical evaluation procedures and the skills and strategies utilized to promote interpersonal and psychomotor skill development in students.

**DNHY 449. Treating the Special-Needs Patient. 3 Units.**

Develops the student-teacher's ability not only to identify patients with special care needs, but also to recognize and understand the appropriate care alternatives. Addresses the role of commonly prescribed medications used for treatment to determine if treatment modifications are appropriate.

**DNHY 450. Junior Clinical Seminar. 1 Unit.**

A two-quarter course that introduces topics and issues directly and indirectly related to the comprehensive practice of dental hygiene.

**DNHY 451. Clinical Seminar I. 1 Unit.**

Topics and issues related to clinical competency and development of critical-thinking skills through the use of patient-care examples and class discussion.

**DNHY 452. Clinical Seminar II. 1 Unit.**

Topics and issues related to clinical competency and preparation for the clinical board examination. Student development of advanced patient-care plans.

**DNHY 453. Clinical Seminar III. 1 Unit.**

Topics and issues related to clinical competency. Presentation of advanced patient-care plans. Prerequisite or concurrent: DNHY 452.

**DNHY 464. Evidence-based Decision Making. 2 Units.**

Introduces students to use of the Web for instructional purposes. Students evaluate the usefulness of various on-line journals and databases, as well as conduct productive database literature searches. Critical analysis of scientific publications provides practice applying formal rules of evaluating and ranking scientific evidence.

**DNHY 475. Dental Hygiene Clinic I. 4 Units.**

Integrates all components of oral health care into the clinical treatment of patients.

**DNHY 476. Dental Hygiene Clinic II. 4 Units.**

Integrates all components of oral health care into the clinical treatment of patients. Prerequisite or concurrent: DNHY 475.

**DNHY 477. Dental Hygiene Clinic III. 4 Units.**

Integrates all components of oral health care into the clinical treatment of patients. Prerequisite for concurrent\*: DNHY 475, DNHY 476\*.

**DNHY 478. Advanced Clinical Concepts. 2 Units.**

Reviews advanced skills in dental hygiene instrumentation needed as a clinical educator. Topics include alternative fulcrums and hand positions, uses of specialty instruments, and alternative techniques for instrumentation and clinician ergonomics.

**DNHY 495. Dental Hygiene National Board Preparation. 1,2 Unit.**

Lecture and case-based reviews of the entire dental hygiene curriculum, including, but not limited to: prerequisite basic sciences; preclinical, laboratory, and clinical sciences; and behavioral sciences. Reviews in preparation for the dental hygiene national board examination directly related to concurrent test-taking skill workshops based on standardized testing evidence for success.

**DNHY 497. Advanced Shadowing Experience. 12 Units.**

An elective course open to students seeking shadowing experience in dental hygiene. Credits do not count toward an academic degree.



**DNHY 498. Dental Hygiene Directed Study. 1-10 Units.**

Independent research on problems/topics related to dentistry, dental hygiene, and dental education; collaboration with researcher/faculty member. Written report required. Prerequisite: DNHY 421, DNHY 422, DNHY 390.

**DNHY 499. Research Writing. 2 Units.**

Elective course for students wishing to write their research study for submission to professional journals for possible publication.

## Dermatology (DERM)

### Courses

**DERM 891. Dermatology Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of dermatology, including research.

## Dietetics (DTCS)

### Courses

**DTCS 300. Contemporary Nutrition. 3 Units.**

Provides the essential science foundation needed to adequately comprehend nutrition topics. Includes scientific discussions and a variety of real-life applications and examples. Provides nutrition information that can be utilized by the student to modify his or her diet to meet personal needs. Discusses vegetarian diets and the Seventh-day Adventist approach to health. For students with a limited background in college-level biology, chemistry, or physiology.

**DTCS 301. Human Nutrition. 3 Units.**

Fundamentals of normal nutrition. Carbohydrates, proteins, fats, vitamins, minerals; their roles in human metabolism. Introduction to nutrition in the life cycle. Per week: lecture three hours.

**DTCS 302. Food Selection and Presentation. 5 Units.**

Foods and their nutritive values. Changes associated with maturation, preservation, table preparation, transportation, and storage in relation to food safety. Nutritional concepts and cultural food patterns in planning and producing meals. Meal service in family, social, and professional settings. Per week: lecture three hours, practicum six hours. Laboratory fee.

**DTCS 304. Community Nutrition. 4 Units.**

Education of community members in different areas related to nutrition. Requires knowledge of normal nutrition and life-cycle issues. Nutrition assessment; medical nutrition-therapy topics such as obesity, CHD, diabetes, etc. Legislative processes and politics. Program planning, implementation, management, and evaluation. Counseling, teaching, and facilitating group processes. Interpreting data and research findings. Identifying and accessing community nutrition resources. Community interactions that promote a healthy lifestyle, including but not limited to nutrition topics. Per week: lecture two hours, practicum six hours.

**DTCS 305. Professional Issues in Nutrition and Dietetics. 1 Unit.**

Growth of nutrition and dietetics as a profession, and the role of the professional in restoration and maintenance of health. Illustrated nontraditional roles of the registered dietitian and dietetic technician, registered. Emphasis on development of professionalism, accountability, and responsibility for life-long learning. Preparation of a professional portfolio.

**DTCS 311. Human and Clinical Nutrition for Nursing. 4 Units.**

Fundamentals of normal nutrition. Carbohydrates, proteins, fats, vitamins, minerals; their roles in human metabolism. Investigates the role of nutrition at various stages in the life cycle of the individual in health and disease. Nutrition intervention in the prevention and treatment of disease in the clinical setting.

**DTCS 312. Clinical Nutrition for Nursing. 2 Units.**

Nutrition intervention in the prevention and treatment of disease in the clinical setting.

**DTCS 321. Nutrition and Human Metabolism. 4 Units.**

Nutritional requirements and metabolism of essential nutrients for the human organism at the cellular level. Focuses on macro- and micronutrients metabolism. Per week: lecture four hours. Prerequisite: Anatomy and physiology, biochemistry.

**DTCS 341. Introduction to Clinical Nutrition. 5 Units.**

Basic knowledge of the responsibilities of the clinical dietitian: review of the medical record, documentation in the medical record, medical terminology, and patient interviewing. Clinical management will include normal nutrition needs of individuals across the lifespan, with a focus on pregnancy and lactation normal infant growth and development; childhood and adolescence, with an overview of school feeding programs. Introduces nutrition assessment, adult men and women's health issues, geriatrics, anemia, food allergies, vegetarian diets, nutrition quackery, obesity, eating disorders, and ethnic dietary patterns. Per week: lecture three hours, practicum six hours. Prerequisite: or equivalent; anatomy and physiology with laboratory; introductory chemistry.

**DTCS 342. Medical Nutrition Therapy I. 5 Units.**

Basic biochemical and physiological conditions that necessitate dietary modifications in the clinical management of the patient, including: cardiovascular disease and hypertension; diabetes; cancer; HIV/AIDS; and other disorders. Continues practice in interviewing and counseling the patient, nutrition assessment and documentation, and use of computer-assisted nutritional analysis. Ongoing study of medical terminology. Advanced topics: lipids, antioxidants, and phytochemicals. Per week: lecture three hours, practicum six hours. Prerequisite: DTCS 341; or equivalent course.

**DTCS 343. Medical Nutrition Therapy II. 5 Units.**

Basic biochemical and pathophysiologic processes that necessitate dietary modifications in the clinical management of the patient with pulmonary disease—including cystic fibrosis; digestive disorders; disorders of the liver, biliary system, and pancreas; alcoholism; renal disease; solid-organ transplantation; sepsis/trauma; metabolic disorders; and neurologic disorders—including spinal cord injury and stroke. Continues nutrition assessment, patient interviewing, and counseling. Applies enteral and parenteral nutrition support when indicated in the clinical management of patients with these conditions. Introduces preparation of an in-depth case study. Per week: lecture 3 hours, practicum 6 hours.

**DTCS 371. Quantity Food Purchasing, Production, and Service. 5 Units.**

Emphasizes methods to achieve quantitative and qualitative standards in quantity food production. Menu planning for institutions. Practicum in food purchasing, production, and service. Open to dietetics students only. Per week: lecture two hours, practicum nine hours.

**DTCS 372. Food Systems Organization and Management. 4 Units.**

Studies food-service systems. Effective utilization of resources within the food system. Computer application in food-systems management. Per week: lecture two hours, practicum six hours.

**DTCS 395. Nutrition and Dietetics Practicum. 12 Units.**

Supervised experience in medical nutrition therapy, community, and administrative dietetics in hospitals, outpatient clinics, public health departments, and food systems. Performance review and evaluation. Ten weeks (400 clock hours) during the summer at the end of the junior year.

**DTCS 405. Senior Seminar. 1 Unit.**

Develops professional skills, team efforts to market nutrition in the community, volunteer efforts in the community, professional networking, and special topics as determined by nutrition and dietetics faculty. Emphasizes professional portfolio and transition to entry-level nutrition educator/dietitian/food service director. Introduces preparation of an in-depth case study.

**DTCS 442. Nutrition Counseling. 3 Units.**

Applies techniques of nutrition counseling, with emphasis on improving skills in verbal and nonverbal communication, assertiveness, dealing with cultural differences, dealing with death and dying. Skills in administration for the nutrition counselor. Ethical implications in health care. Per week: lecture two hours, practicum three hours.

**DTCS 445. Nutrition Care Management. 4 Units.**

Applies operations analysis, financial management, quantitative decision making, and productivity-management techniques to enhance the delivery of nutrition care. Staff justification, continuous quality improvement, reimbursement for nutrition services, case management, and entrepreneurship.

**DTCS 452. Advanced Nutrition. 4 Units.**

Presents advanced topics of normal nutrition, with emphasis on case studies to illuminate metabolic pathways and effects of disease.

**DTCS 453. Advanced Medical Nutrition Therapy. 3 Units.**

Case-study approach to the theory and application of critical-care nutrition to complex medical conditions. Interprets and synthesizes the following information: fluid and electrolyte balance, acid/base balance, vital signs, ICU monitoring forms, interpretation of laboratory data and diagnostic tests, medical and surgical history, and drug/nutrient interactions. Focuses on a problem-list approach to nutrition assessment, documentation, intervention, and outcome evaluation. Clinical rotation in critical-care setting. Per week: lecture two hours, practicum three hours.

**DTCS 461. Food Science. 4 Units.**

Chemical, physical, and biological effects of maturation, processing, storage, and preservation on the structure, composition, palatability, product quality, and microbiological safety of food and its additives. Per week: lecture four hours, laboratory three hours. Laboratory fee. Prerequisite: Basic foods, human nutrition, organic chemistry.

**DTCS 473. Medical Nutrition-Therapy Affiliation. 6,12 Units.**

Student applies knowledge and skills in clinical facilities as s/he works with a staff dietitian and confers with supervisor to develop and enhance advanced-level professional competence. Student completes a major project relating to medical nutrition therapy. For 6 units, minimum of five weeks (200 clock hours); for 12 units, minimum of ten weeks (400 clock hours). May take more than once for credit.

**DTCS 476. Exercise Physiology in Medical-Nutrition Therapy. 3 Units.**

Basic preparation for development and leadership of exercise programs. Includes: exercise-physiology training, acute and chronic effects of exercise, simple assessment of fitness, role of exercise in prevention of common health problems, and management of selected risk factors. Discusses endurance, strength, flexibility, and aerobic exercises. Laboratory included. Prerequisite: Anatomy and physiology.

**DTCS 499. Nutrition and Dietetics Independent Study. 1-5 Units.**

Project or paper to be submitted on a topic of current interest in an area of nutrition and dietetics. Regular meetings provide the student with guidance and evaluation. Elected on the basis of need or interest.

**DTCS 504. Metabolism of Nutrients. 5 Units.**

The study of normal metabolism of carbohydrates, lipids, and proteins. Includes vitamin and mineral involvement, as well as metabolic changes due to the presence of various hormonal states.

**DTCS 505. Graduate Seminar—Portfolio. 2 Units.**

Discusses issues related to the profession of technology and its application in the delivery of nutrition care. Student portfolio documents personal development of advanced management and leadership skills.

**DTCS 506. Professional Seminar in Nutrition and Dietetics. 1 Unit.**

Review and application of topics in nutrition and dietetics in preparation for professional practice and the registration examination for dietitians. Student presentations covering professional competencies and material essential for high-level practice.

**DTCS 510. Public Health Nutrition Issues and Policies. 3 Units.**

Nutrition policies and interventions that lead to prevention of and care for diseases prevalent in the community. Genetic and environmental influences related to nutrition health studies.

**DTCS 517. Carbohydrates and Lipids. 4 Units.**

A comprehensive study of the sources, metabolism, and function of carbohydrates and lipid—including their influence on human health and disease states.

**DTCS 518. Proteins, Vitamins and Minerals. 4 Units.**

A comprehensive study of the sources, metabolism, and function of proteins, vitamins, and minerals—including their influence on human health and disease states.

**DTCS 519. Functional Foods and Phytochemicals. 2 Units.**

Study of phytochemicals and their impact on treatment and prevention of diseases and their role in health maintenance.

**DTCS 525. Nutrition Care Marketing. 3 Units.**

Applies marketing concepts to health care-delivery systems and food and nutrition services. Emphasizes strategic market-management approach for developing and evaluating strategies and programs in food and nutrition services. Includes development of a case study in nutrition care marketing.

**DTCS 526. Pharmacology in Medical Nutrition Therapy. 2 Units.**

Pharmacology at the graduate level, including kinetics, dynamics, and therapeutics of drugs. Basic definitions, sources of information, classification of drugs, and principles and mechanisms of drug actions. Emphasizes drug-nutrient interactions.

**DTCS 534. Pediatric Medical Nutrition Therapy. 3 Units.**

Management of the nutrition needs of the pediatric population. Focuses on growth and development in the normal and abnormal child. Addresses the biochemical and physiological conditions that necessitate dietary modifications in the clinical management of the patient. Per week: lecture 2 hours, practicum 3 hours.

**DTCS 536. Health Care Financial Management. 3 Units.**

Management of the nutrition care-management system involving prospective reimbursement and dietitian billing, business plan development, budget development and analysis of budget variances, operation statements, and productivity related to a department budget.

**DTCS 542. Nutrient Delivery, Education, and Counseling. 2 Units.**

Techniques and models used in the nutrition intervention step of the nutrition care process. Investigates food/nutrient provision, education (assessment to evaluation), counseling (theoretical basis/approach and strategies); as well as coordination of nutrition care.

**DTCS 544. Medical Nutrition Therapy II. 5 Units.**

Basic biochemical and pathophysiologic processes that necessitate dietary modifications in the clinical management of the patient with pulmonary disease—including cystic fibrosis; digestive disorders; disorders of the liver, biliary system, and pancreas; alcoholism; renal disease; solid-organ transplantation; sepsis/trauma; metabolic disorders; and neurologic disorders—including spinal cord injury and stroke. Continues nutrition assessment, patient interviewing, and counseling. Applies enteral and parenteral nutrition support when indicated in the clinical management of patients with these conditions. Introduces preparation of an in-depth case study. Graduate level project will be required. Per week: lecture 3 hours, practicum 6 hours.

**DTCS 545. Nutrition Care Management. 4 Units.**

Applies classical management theories and current application in the delivery of nutrition care; applies continuous quality management, staffing decision making, operations analysis, business planning, quantitative decision making, and productivity-management techniques to enhance the delivery of nutrition care. Includes reimbursement for nutrition services, servant leadership, case management, and entrepreneurship. Major paper due at end of quarter.

**DTCS 554. Advanced Medical Nutrition Therapy. 3 Units.**

Uses case-study approach to apply critical care nutrition to complex medical conditions. Interprets and synthesizes decision information regarding fluid and electrolyte balance, acid-base balance, vital signs, ICU and surgical history, and drug-nutrient interactions. Focuses on problem-based evaluation. Develops and analyzes a clinical case study. Emphasizes geriatric care and the special needs of this population.

**DTCS 564. Topics in Vegetarian Nutrition. 2-3 Units.**

A look at the origins and growth of the vegetarian movement, exploring the various types of vegetarian diets and their impact on the health of the human body and the environment. Studies menu planning guidelines for states of health and disease. A major paper on one of the vegetarian topics required for the additional unit.

**DTCS 566. Food Chemistry and Experimental Foods. 4 Units.**

Chemical, physical, and biological changes of food in processing and preservation. Experimentation in recipe development and improving the nutritional quality of food.

**DTCS 574. Advanced Food Systems Management. 3 Units.**

Develops competencies in total quality management; quality control; production planning, including forecasting production demand; linear programming; program evaluation and review technique (PERT); productivity management, including line balancing; financial management, including economics; food and labor cost control; budgeting project; and financial analysis of operations. Per week: lecture 3 hours, practicum three hours.

**DTCS 575. Food Systems Management. 4 Units.**

Develops administrative skills in effective management of food systems. Qualitative and quantitative standards, budget development and analysis, labor-management relations, computer-assisted information system.

**DTCS 576. Exercise Physiology in Medical Nutrition Therapy. 3 Units.**

Develops leadership in the development and presentation of exercise programs. Includes exercise-physiology training, acute and chronic effects of exercise, simple assessment of fitness, role of exercise in prevention of common health problems, and management of selected risk factors. Discusses endurance, strength, flexibility, and aerobic exercises. Laboratory included.

**DTCS 579. Capstone Course in Nutrition Care Management. 3 Units.**

Develops a systems viewpoint of advanced management skills and application of technology. Advanced application of operations management in nutrition care management; development and application of high ethical standards in all aspects of the profession—including patient care, purchasing, and human-resource management. Delivery of food in emergency or crisis situations. Identification of trends that affect the operation of the department—including sustainable food supplies, organic foods, and modified foods.

**DTCS 584. Contemporary Issues in the Dietetic Profession. 4 Units.**

Investigates nutrition trends in the public arena. Reviews current nutrition topics in popular literature, with evaluation of health implications using peer-reviewed evidence.

**DTCS 585. Operations Management in Food and Nutrition Services. 4 Units.**

Develops conceptual skills in operation of a food or nutrition service using quantitative decision making, forecasting, planning tools, development of quality standards and control mechanisms, job design, layout, work measurement, inventory control, and information systems.

**DTCS 589. Capstone Course in Nutrition and Dietetics. 3 Units.**

Develops a systems viewpoint of advanced medical nutrition therapy, management skills, and application of technology. Advanced application of operations management in nutrition care; development and application of high ethical standards in all aspects of the profession—including patient care; and human-resource management. Identifies trends that affect the operation of the department.

**DTCS 599. Nutrition and Dietetics Independent Study. 1-5 Units.**

Project or paper to be submitted on a topic of current interest in an area of nutrition and dietetics. Regular meetings provide the student with guidance and evaluation. Elected on the basis of need or interest.

**DTCS 605. Nutrition Seminar. 1 Unit.**

Study and discussion of current topics in nutrition. Requires a major paper, including meta-analysis of literature and presentation of a nutrition topic.

**DTCS 694. Research. 1-8 Units.**

Independent research for doctoral degree candidates and qualified master's degree students on problems currently being studied in the department, or in other department(s) with which they collaborate. Research program arranged with faculty member(s) involved. Minimum of 100 hours required for each unit of credit. Written report required.

**DTCS 696. Nutrition Care-Management Project. 6 Units.**

Develops a nutrition care-management project.

**DTCS 777. Food Systems Management Affiliation. 6 Units.**

Five weeks (200 hours) of supervised experience in food systems management in health care or school food service. May be repeated for additional credit. Prerequisite: DTCS 575.

**DTCS 778. Clinical Nutrition Affiliation. 6,12 Units.**

Student applies knowledge and skills in clinical facilities as s/he works with a staff dietitian and confers with supervisor to develop and enhance advanced-level professional competence. Student completes a major project relating to medical nutrition therapy. For 6 units, minimum of five weeks (200 clock hours); for 12 units, minimum of ten weeks (400 clock hours). May be repeated for additional credit.

**DTCS 795. Nutrition and Dietetics Graduate Practicum. 12 Units.**

Supervised professional practice in medical nutrition therapy, community nutrition, and food systems management. Professional experiences in health care, public health centers, and food production facilities. Performance review and assessment, written weekly reports of learning achieved, and review. May be repeated for additional units. Ten weeks (400 clock hours) during the summer term.

## Emergency Medical Care (EMMC)

### Courses

**EMMC 217. Community Emergency Response Team I. 1 Unit.**

Theory and practice of the community emergency response team role. Addresses disaster preparedness, fire suppression, disaster medical care, search and rescue, crisis psychology, response to terrorism, and team organization and administration. Requires completion of skills laboratory.

**EMMC 301. Pathophysiology in Emergency Care I. 3 Units.**

Develops understanding of human anatomy and physiology to integrate pathophysiology, disease mechanisms, and dysfunction within an emergency medicine framework. Emphasizes integration of organ systems ranging from cardiac, vascular, respiratory, gastrointestinal, and genitourinary; along with specific mechanisms—such as injury, inflammation, and infection— that highlight pathology in medical patients.

**EMMC 302. Pathophysiology in Emergency Care II. 3 Units.**

Advances knowledge and integration of pathophysiology within emergency medicine by adding additional organ systems and approaches to disease mechanisms. Emphasizes integration of neurology, endocrine, musculoskeletal, and multisystem areas with a focus on injury and inflammation in trauma patients.

**EMMC 303. Pathophysiology in Emergency Care III. 2 Units.**

Focuses on critical thinking, conceptual knowledge, and application of the foundational principles of pathophysiology. Emphasizes recognition of common disease states, integration of the disease mechanisms and process, and presentation of case reflections to summarize pathology in patients presenting with medical or traumatic complaints.

**EMMC 308. Pharmacology. 3 Units.**

General overview of pharmacology, including pharmacokinetics, pharmacodynamics, and therapeutics of drugs. Basic definitions, sources of information, classification of drugs, and principles and mechanisms of drug actions. Emphasizes prehospital drug categories.

**EMMC 314. ECG Interpretation and Analysis. 2 Units.**

Develops basic ECG interpretation skills. Focuses on anatomy and physiology, underlying pathophysiology, and basic rhythm recognition. Overview of related treatments. Emphasizes skills needed by bedside practitioner to differentiate between benign and life-threatening dysrhythmias.

**EMMC 315. Cardiology. 3 Units.**

Assists the health care provider to develop assessment skills and to increase knowledge of medical management of the patient with acute and chronic cardiovascular disorders. Focuses on anatomy and physiology, underlying pathophysiology, advanced history taking and physical assessment, cardiovascular pharmacology, electrical modalities, cardiac diagnostic testing, and current research. Emphasizes the emergency care of patients with myocardial infarction and trauma to the cardiovascular system. Assignment includes interaction with cardiac patients and observation of diagnostic studies in the clinical setting.

**EMMC 316. 12-Lead ECG Interpretation. 2 Units.**

Designed for health care providers who are familiar with basic ECG monitoring and are seeking to learn principles of application and interpretation of the 12-lead system. Emphasizes recognition of the acute myocardial infarction. Additional topics include identifying axis deviation, acute ischemic conditions, electrolyte imbalances, bundle-branch block, and infarct impostors. Practical application of information to bedside care of cardiac patients, emphasizing patient assessment, data collection, and use of the 12-lead to guide rapid intervention. Certificate issued upon successful completion of the course.

**EMMC 317. Community Emergency Response Team Development and Instruction. 2 Units.**

Development of sustainable community emergency response team (CERT) programs. Review of core CERT knowledge and competencies, and instructional techniques in disaster preparedness, fire suppression, disaster medical care, search and rescue, crisis psychology, response to terrorism, and team organization and administration. Discussion of adult learning theories and skills instruction. Meets federal/state criteria to become a CERT trainer. Prerequisite: EMMC 217 or equivalent CERT Basic certification.

**EMMC 325. Current Issues in Emergency Medical Care. 2 Units.**

Seminar-style discussion on current issues and controversies in emergency medicine. May include topics such as prehospital use of thrombolytic therapy; managed care; primary-care, advanced scope paramedic practice, etc.

**EMMC 331. Theories of Emergency Medical Services I. 3 Units.**

Introduces prehospital medical services. Roles and responsibilities of paramedics and EMTs. EMS systems design, constraints, and operating problems. EMS environment and scene issues. Medical-legal issues. History and current state of prehospital care and medical oversight.

**EMMC 332. Theories of Emergency Medical Services II. 3 Units.**

Investigates the dimensions of emergency medical services. Influence of environment on oxygen delivery. Develops paradigms for EMS. Decision making in the constrained environment. Stress models and role theories. Discusses EMS as sequential environments from public health to critical care.

**EMMC 389. Junior Seminars. 0.5-1 Units.**

Discusses issues of professionalism and career development in the whole person context; written, oral, and electronic communication; writing and research skills; use of computer resources.

**EMMC 425. Instruction and Curriculum Design in Emergency Services. 3 Units.**

Methods of effective instruction and curriculum design for adult learners. Discusses classroom-management techniques and instructional presentation in public education, in-service and continuing education, college classroom, clinical teaching, conferences, and individual guidance. Applies curriculum design theories to development of instructional units and objectives, evaluation procedures, and assessment tools. Introduces learning-experience design, appropriate technology selection, learner-centered handout/syllabus development, and cultivation of respect for diversity in learning.

**EMMC 429. Psychosocial Models and Interventions. 3 Units.**

Major models of stress, crisis, and psychological trauma; and how they relate to health-care providers. Psychosocial reactions and responses of populations, individuals, and care providers to societal disruption and trauma, medical emergencies, and death and dying. Applies principles for suicide intervention, critical incident debriefings, and death notification. Roles of psychiatrists, psychologists, social workers, family therapists, and chaplains. Methods of providing temporary, adequate psychological care for individuals in psychosocial crisis.

**EMMC 435. Disasters, WMD, and Terrorism. 3 Units.**

Introduces EMS response involving large-scale natural disasters and weapons of mass destruction (WMD). Explores prehospital and hospital treatment. Evaluates current issues facing EMS personnel. Crisis and consequence management, theories of terrorism response, and state and federal resources. Discusses interagency roles, overview of social and psychological aspects, policy development and the media, comparison of response protocols of disaster versus terrorist incidents.

**EMMC 436. Trauma and Surgical Care. 3 Units.**

Emergency evaluation, assessment, and care of the trauma patient. Prehospital resuscitation, stabilization, and rapid transport. Overview of traumatic injuries, multisystem trauma, surgical management, and care of the trauma patient. Principles of care of the patient after stabilization and surgery. Discusses kinematics, emerging trends in trauma care, trauma centers, and injury-prevention programs.

**EMMC 445. Perinatal and Pediatric Care. 3 Units.**

Emergency evaluation and care of the perinatal and pediatric patient. Cardiac, gastrointestinal, hematologic, renal, and metabolic conditions and treatment. Discusses appropriate versus inappropriate child development and behavior, including developmental stages, temperaments, feeding disorders, sleep disorders, mentally challenged, and attention deficit. Psychosocial aspects of pediatric, child, and adolescent psychiatric disorders.

**EMMC 446. Physical Diagnosis. 3 Units.**

Systemic review of assessment techniques utilized in patient assessment. Emphasizes assessment of major body systems. Overview of physical examination techniques and interpretation of findings. Lecture, reading, and discussion of case.

**EMMC 447. Geriatrics and Aging. 3 Units.**

A forum for discussing current trends in aging and for identifying the needs of an older population. Discusses psychological and social changes in the older adult. Physiologic process of aging and the medical considerations unique to age. Management of geriatric trauma, medical emergencies, and the impact of chronic diseases. Establishing a social response to aging and viable health care-delivery models for older adults.

**EMMC 448. Advanced Physical Diagnosis and Critical Care. 3 Units.**

Advanced assessment techniques utilized in management of critical care patient. Emphasizes interpretation of laboratory tests, chest radiographs, arterial blood gases, and other tests used to evaluate the patient. Theories of mechanical ventilation and oxygen therapy. Administration of aerosol treatments, gases, and gas mixtures. Operation of transport ventilators and intravenous pumps and infusion devices.

**EMMC 451. Health Care Management for Prehospital Providers. 2 Units.**

Basic principles of management and how they relate to EMS systems. Federal, state, and local authority for EMS delivery and services, resources for and constraints of EMS systems, relationship to and impact on public safety and health care-delivery systems, interface of public and private organizations, current and future issues.

**EMMC 452. Seminars in EMS Management I. 2 Units.**

Management theories applied to EMS management and practice. Public/private sector integration, public/media relations, government relations, stress management, management/leadership-skills development, decision making, performance improvement.

**EMMC 453. Seminars in EMS Management II. 2 Units.**

Further applies management theories to EMS management and practice. The quality management process and its relationship to continuous learning, promoting organizational/system change, evaluating effectiveness of performance-improvement projects, strategic planning, and integration of EMS with public safety and public health.

**EMMC 464. Ethics and Leadership in Emergency Services. 2 Units.**

Examines the theory and conceptual framework to view and practice ethical leadership as a collective enterprise. Explores emerging paradigms of leadership. Clarifies and contrasts differing approaches to leadership and leadership development. Compares and contrasts the situational approach of the processes of administration, management, and leadership. Utilizes learner-designated activities to develop a personal philosophy of leadership, assess individual characteristics, and relate those strengths to a leadership situation.

**EMMC 471. Senior Project I. 2 Units.**

Project developed, implemented, and evaluated by students for in-depth experience in area of choice. May include research; community projects; and/or education, management, or clinical affiliations. Students work under direct supervision of assigned faculty mentor.

**EMMC 472. Senior Project II. 2 Units.**

Continues project developed in EMMC 471.

**EMMC 484. Legal Issues in Health Care. 2 Units.**

Introduces the legal system as it pertains to health-care professionals. Concepts of malpractice, litigation, consent for and refusal of medical treatment, advanced directives, and patient confidentiality. Discusses employment issues, including discrimination and sexual harassment. Develops health and safety programs per OSHA regulations, risk management, legal issues in vehicle operations and equipment, and EMS and law-enforcement interactions.

**EMMC 489. Senior Seminars. 1 Unit.**

Discusses issues of scholarship, professionalism, portfolio development and refinement, short- and long-term goal setting, and development of resume/curriculum vitae.

**EMMC 498. Special Topics. 1-4 Units.**

Special topics in emergency medical care.

**EMMC 499. Special Topics Laboratory/Clinical Practicum. 1-8 Units.**

Special topics in emergency medical care laboratory and clinical practicum.

## Emergency Medicine (EMDN)

### Courses

#### **EMDN 821. Emergency Medicine Clerkship. 1.5-3 Units.**

Focuses on management of the undifferentiated or emergent patient presentation. Exposes students to areas unique to emergency medicine, such as the emergency medical system. Utilizes bedside teaching, lectures, online/independent learning, and simulation to instruct the student in distinguishing emergent vs nonemergent presentations in the following patient categories: altered mental status, abdominal pain, chest pain, respiratory distress/shortness of breath, shock, syncope, trauma, and fever.

#### **EMDN 891. Emergency Medicine Elective. 1.5-27 Units.**

Two-week or four-week rotation of four eight-hour emergency department (ED) shifts weekly. Shifts include a variety of Loma Linda University Community Hospital ED, Loma Linda University Medical Center ED, Loma Linda University Children's Hospital ED shifts (pediatric side); and an administrative shift—including time in the radio room, on the triage desk, and with the transport nurse. Didactic sessions include attendance at emergency medicine residency conferences and grand rounds, and one-on-one learning experience with the senior administrative resident each Monday morning. Also included are a hands-on suture laboratory, EKG reading tutorial, and case studies in reading common emergency radiographs.

## Emergency Preparedness and Response (EMPR)

### Courses

#### **EMPR 524. Local and State Emergency Preparedness and Response. 3 Units.**

Utilizes a case-study approach to examine the actions and interventions of public health practitioners and emergency managers applied to multiple phases of a disaster. Emphasizes development of an operational understanding of the emergency support functions that have local and regional application, as well as of public health emergencies faced by local communities.

#### **EMPR 525. National and International Emergency Preparedness and Response. 3 Units.**

Utilizes a case-study approach to examine the actions and interventions of public health practitioners and emergency managers in multiple phases of a disaster. Emphasizes development of an operational understanding of the emergency support functions that have national and global application, as well as the public health emergencies faced by global communities.

#### **EMPR 526. Public Health Issues in Emergency Preparedness and Response. 3 Units.**

Examines the critical public health considerations and environmental health issues of concern in an emergency, disaster, or complex humanitarian emergency. Covers public health responsibilities of assessment, water and food, shelter, sanitation, and prevention of communicable diseases. Utilizes case studies and a table-top exercise to provide practical application of the principles presented in the class.

#### **EMPR 540. Seminars in Emergency Preparedness and Response. 3 Units.**

Utilizes current events and case studies to illustrate current issues in emergency preparedness and response. Guided discussions on infectious disease, isolation, and quarantine; WMDs; biosurveillance and medical countermeasures; surge capacity and medical evacuation; psychosocial impacts; role of technology. Emphasizes situational analysis, public relations, and risk communication.

## Endodontics (ENDN)

### Courses

#### **ENDN 534. Endodontic Treatment Conference. 1-2 Units.**

Evaluates and discusses diagnosis, treatment planning, prognosis, and outcome of endodontic treatment cases. Repeated registrations required to fulfill the total units.

#### **ENDN 601. Principles of Endodontics. 2 Units.**

Comprehensive study of various aspects of endodontics. Repeated registrations required to fulfill the total units.

#### **ENDN 604. Literature Seminar in Endodontics. 2 Units.**

Reviews literature pertaining to the principles and practice of endodontics. Repeated registrations required to fulfill total units.

#### **ENDN 654. Practice Teaching in Endodontics. 1 Unit.**

Supervised teaching in the endodontic preclinical laboratory and predoctoral clinic. Repeated registrations required to fulfill total units.

#### **ENDN 657. Written/Oral Board Review Course for the American Board of Endodontics. 2 Units.**

Weekly lecture series that exposes advanced specialty students to the crucial content and format of the American Board of Endodontics (ABE) examination. Assists students with preparing for and taking the required written portion of the examination prior to completion of the endodontics program, and exposes them to the oral examination that is part of the board certification process for the endodontics profession.

#### **ENDN 697A. Research. 1 Unit.**

Student identifies a research project, prepares a protocol, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities.

#### **ENDN 697B. Research. 1 Unit.**

Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

#### **ENDN 697C. Research. 1 Unit.**

Student completes research project, holds a public presentation of research, and submits a publishable paper to his/her research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

#### **ENDN 698. Thesis. 1 Unit.**

#### **ENDN 725. Clinical Practice in Endodontics. 1-8 Units.**

Provides practice and experience in all aspects of endodontics. Emphasizes obtaining experience in treating complex endodontic cases. Repeated registrations required to fulfill total units.

#### **ENDN 726. Clinical Practice of Implant Dentistry in Endodontics. 1,2 Unit.**

Clinical experience in the diagnosis and treatment of patients who may benefit from implant dentistry therapy. Repeated registrations required to complete total units.

#### **ENDN 831. Endodontics I. 1 Unit.**

Didactic course provides foundational knowledge to prepare the student to manage patients with diseases of pulpal origin.

**ENDN 832. Endodontics II. 2 Units.**

Preliminary laboratory course that introduces basic skills necessary to perform endodontic treatment on permanent teeth with uncomplicated root canal systems. IDP students complete 2 units over the D3 Spring and Summer quarters before a final grade is given.

**ENDN 834. Endodontics III. 1 Unit.**

Didactic course that contains essential information on various topics in endodontics and elevates the students' diagnostic and treatment-planning skills.

**ENDN 835. Endodontics IV. 1 Unit.**

Secondary laboratory course that reinforces prior basic skills taught in ENDN 832, and introduces additional skills necessary to perform endodontic treatment on uncomplicated permanent teeth using advances in technology.

**ENDN 875. Endodontics Clinic. 1 Unit.**

Endodontic clinical experience provides students with the opportunity to manage patients with endodontic disease through diagnosis, treatment of uncomplicated endodontic conditions, referral of complicated problems, and evaluation of treatment outcomes.

## English (ENGL)

### Courses

**ENGL 300. Writing Seminar for Health-Care Professionals. 2 Units.**

Teaches students to develop the essay for research-oriented papers. Focuses on paragraph and essay development.

## Environmental Health (ENVH)

### Courses

**ENVH 414. Introduction to Environmental Health. 3 Units.**

Introduces an overview of the major areas of environmental health, such as ecology, environmental law, and population concerns; environmental diseases and toxins; food, water, and air quality; radiation; noise; and solid and hazardous waste.

**ENVH 468. Water Quality Assurance. 3 Units.**

Principles and processes involved in providing safe and adequate water supplies. Water-source development, quantity and quality assurance, source and system design, and inspection parameters. Protection of water sources from contamination; and the abatement of, and correction techniques applied to, degraded water quality. Potable water supplies, fresh and saline bodies of water, and municipal liquid-waste disposal. Prerequisite: Program prerequisite courses; or written consent of program advisor.

**ENVH 509. Principles of Environmental Health. 3 Units.**

Rural and urban environmental factors that affect human-health status, enjoyment of the quality of life, and human survival. Focuses within a framework of air, water, food quality, residential environments, industrial sites, recreational patterns, and environmental risk avoidance. Stresses prevention of disease and promotion of healthful environments. Not applicable toward a major in environmental health.

**ENVH 515. Food Quality Assurance. 3 Units.**

Principles and techniques of quality assurance for food preparation and prevention of food-borne diseases. Sanitary and safe preparation, storage, transportation, and handling of foodstuffs and products—both commercially and residentially. Criteria and practical methodology of inspection and surveillance techniques, facilities design, and plan checking. Food degradation, contamination, additives, and toxicants. Performance criteria for food handlers, with application to environmental techniques in education, enforcement, and consultation. Field trips. Prerequisite: Program prerequisite courses or written consent of program advisor.

**ENVH 525. Special Topics in Environmental and Occupational Health. 1-4 Units.**

Lecture and discussion on a current topic in environmental and occupational health. May be repeated for a maximum of 4 units applicable to degree program.

**ENVH 558. Global Environmental Health. 2 Units.**

Global implications of human impact on terrestrial, atmospheric, and marine environments. Considers dilution and dispersion of pollutants, climatic changes, endangered species, desertification, deforestation, vehicle emissions, free-trade agreements, renewable resources, and export of hazardous industry to developing nations. Impact of political, economic, and cultural factors on present and future mitigation strategies.

**ENVH 566. Outdoor Air Quality and Human Health. 3 Units.**

Sources and characteristics of air pollutants and their effects on humans and human environment. Methods used in sampling of pollutants, controls, and abatement of air-quality standards violations. Prerequisite: Program prerequisite courses; or written consent of program advisor.

**ENVH 567. Hazardous Materials and Solid-waste Management. 3 Units.**

Production, collection, transportation, treatment, recycling, and disposal of solid wastes and hazardous materials. Toxic effects and hazard-producing characteristics of these materials; and the process of disposal-site design, siting, and operation. Prerequisite: Program prerequisite courses; or written consent of program advisor.

**ENVH 568. Water Quality Assurance. 3 Units.**

Principles and processes involved in providing safe and adequate water supplies. Water-source development, quantity and quality assurance, source and system design, and inspection parameters. Protection of water sources from contamination; and the abatement of, and correction techniques applied to, degraded water quality. Potable water supplies, fresh and saline bodies of water, and municipal liquid-waste disposal. Prerequisite: Program prerequisite courses; or written consent of program advisor.

**ENVH 569. Environmental Sampling and Analysis. 4 Units.**

Practical laboratory experience that serves as an introduction to techniques used in measurement and evaluation of environmental health problems. Techniques pertinent to air, water, and food sanitation. Occupational stressors and radiological health. Prerequisite: Program prerequisite courses; or written consent of program advisor.

**ENVH 575. Indoor Air Quality. 3 Units.**

Social and technical factors associated with nonindustrial, indoor air-quality issues. Ventilation, source assessment, complaint investigations, control measures, sanitation, building design, enforcement criteria, and case studies. Prerequisite: Microbiology or consent of instructor.

**ENVH 581. Principles of Industrial Hygiene. 3 Units.**

Introductory course in industrial hygiene. Industrial/occupational health, hygiene and safety, philosophy, legislation, and regulation. Prerequisite: Program prerequisite courses; or written consent of program advisor.

**ENVH 586. Environmental Health Administration. 3 Units.**

Introduces the administration and management of organizations involved in environmental health within the context of the health-care system. Provides an overview of regulatory and policy issues, applicable statutes, and emerging management systems.

**ENVH 587. Environmental Toxicology. 3 Units.**

Principles and mechanisms of toxicology as applied to environmentally encountered toxic agents. Toxicants of current public health importance and their pathologic effect on representative tissues and organs. Dose-response relationships; hazard and risk assessment; and determination of toxicity of environmental carcinogens, teratogens, mutagens, pesticides, metals, plastics, and organic solvents. Prerequisite: Program prerequisite courses; or written consent of program advisor.

**ENVH 589. Environmental Risk Assessment. 3 Units.**

Principles and methods of risk assessment associated with human exposure to toxic chemicals and other environmental hazards. Quantitative risk-assessment methodologies and approaches. Ecological risk assessment; risk management issues involved in taking appropriate public health action; risk communication, acceptability, and perception; and informational resources.

**ENVH 605. Seminar in Environmental and Occupational Health. 1 Unit.**

Areas of current interest. May be repeated for additional credit.

**ENVH 694. Research. 1-14 Units.**

Independent research on problems currently receiving study in the department. Research program arranged with faculty member(s) involved. Minimum of thirty hours required for each unit of credit. Limited to qualified master's degree students. Prerequisite: Consent of instructor responsible for supervision and of program advisor.

**ENVH 696. Directed Study/Special Project. 1-4 Units.**

Individual arrangements for advanced students to study under the guidance of a program faculty member. May include readings, literature reviews, or other special projects. Minimum of thirty hours required for each unit of credit. A maximum of 4 units applicable to any master's degree program. Prerequisite: Consent of instructor responsible for supervision and of program advisor.

## Environmental Sciences (ENVS)

### Courses

**ENVS 401. Earth System Science and Global Change. 4 Units.**

A systems-level approach to understanding environmental issues. Explores the dynamic biogeophysical processes in the atmosphere, biosphere, geosphere, hydrosphere, and sociosphere. Focuses on acquiring an interdisciplinary understanding of the basic principles and concepts of earth system science and the human dimensions of global environmental change.

**ENVS 434. The Environmental Context of Community Health. 3 Units.**

Studies the biological, ecological, and human environmental factors of a region; and of community health and how environmental factors affect it. Students engage local communities, learn about local ecology and health issues, and participate in ongoing projects that build on community assets and address the key needs. Includes dialogue with community partners as they consider interventions to improve the health of their communities, along with possible implementation strategies. Initial meeting on Loma Linda University campus, followed by three weeks of on-site environmental and community health study in a developing country.

**ENVS 455. Environmental Law and Regulation. 4 Units.**

Introduces local, state, federal, and global laws and policies regarding the use, ownership, protection, and regulation of natural resources. Emphasizes understanding of the decision-making process behind the rights and limits of private, public, and governmental parties when utilizing or protecting natural resources.

**ENVS 485. Seminar in Environmental Sciences. 0.5 Units.**

Selected topics dealing with recent developments. May be repeated for additional credit.

**ENVS 487. Internship in Environmental Sciences. 4,8 Units.**

Working under the joint supervision of a faculty member and an off-campus sponsor, student develops an environmental sciences academic component within the internship. Student also participates directly in the maintenance or conservation of the environment. May be repeated for additional credit for up to 8 units. Prerequisite: Internship and registration approval by a faculty member in the Department of Earth and Biological Sciences.

**ENVS 488. Topics in Environmental Sciences. 1-4 Units.**

Reviews current knowledge in specified areas of environmental sciences. Registration indicates specific topic to be studied. May be repeated for additional credit. Offered on demand.

**ENVS 495. Special Projects in Environmental Sciences. 1-4 Units.**

Special project in the field, laboratory, or library under the direction of a faculty member. May be repeated for additional credit.

**ENVS 497. Undergraduate Research. 1-4 Units.**

Original investigation and/or literature study pursued under the direction of a faculty member. May be repeated for additional credit.

**ENVS 534. The Environmental Context of Community Health. 3 Units.**

Studies the biological, ecological, and human environmental factors of a region; and of community health and how environmental factors affect it. Students engage local communities, learn about local ecology and health issues, and participate in ongoing projects that build on community assets and address the key needs. Includes dialogue with community partners as they consider interventions to improve the health of their communities, along with possible implementation strategies. Initial meeting on Loma Linda University campus, followed by on site environmental and community health study in a developing country.

**ENVS 555. Environmental Law and Policy. 4 Units.**

Introduces local, state, federal, and global environmental laws and policies. Emphasizes understanding of the decision-making process behind the rights and limits of private, public, and governmental parties when utilizing or protecting natural resources.

## Epidemiology (EPDM)



## Courses

### EPDM 414. Introduction to Epidemiology. 3 Units.

Methods and strategies used to investigate distribution, determinants, and prevention of disease in human populations. Disease classification, measures of disease frequency and relative effect, and methods used to isolate effects. Assessments of environmental conditions, lifestyles, and other determinants of disease. Interpretation of results and statistical associations. Critical evaluation of scientific literature. Student presents personal literature study. Laboratory included. Prerequisite or concurrent: STAT 414.

### EPDM 509. Principles of Epidemiology. 3 Units.

Outlines the principles and methods used to investigate the distribution, determinants, and prevention strategies for disease in human populations. Major topics include: measures of disease frequency; measures of effect; measures of potential impact; comparison and contrast of study designs; methods to identify and control confounding; methods to improve validity, information, and selection bias; methods to assess causation, evaluate statistical significance, evaluate screening for latent disease, and interpret results. Laboratory included. Prerequisite or Concurrent\*: STAT 509 or STAT 521\*; AHCJ 472 or AHCJ 572; or consent of instructor.

### EPDM 510. Epidemiologic Methods I. 3 Units.

First course in a three-course epidemiologic methods sequence. Covers causation, study design, validity, confounding, and interaction. Includes causal inference; basic study designs (descriptive and analytic designs, age-cohort-period effects, ecologic studies); disease frequency measures; exposure-disease associations measures, validity (information bias, selection bias, internal and external validity, duration ratio bias, point prevalence complement ratio bias, bias in screening, publication bias); methods for correcting for bias (selection ratios, correction for measurement error, introduction to calibration studies); methods of assessment of validity and reliability (i.e., correlations, Bland-Altman plot, intraclass correlation, coefficient of variability, percent agreement, kappa, sensitivity analysis); advanced topics on confounding, interaction, stratification, and adjustment. Includes problem sets, analysis of epidemiologic data (SAS & R), and case studies based on reports from epidemiology journals. Prerequisite: EPDM 509; STAT 521; or consent of instructor.

### EPDM 511. Epidemiologic Methods II. 3 Units.

Second course in the epidemiologic methods sequence. Advanced study designs and multivariable modeling of exposure-disease relationships. Focuses on hybrid designs (nested case control, case cohort, and case crossover) and incomplete designs (proportion, ecologic, spatial studies). Multivariable modeling modules introduce generalized linear models (emphasizing linear, logistic, and Poisson) and maximum likelihood theory. Model-building approach includes causal diagrams, methods of variable selection and specification, testing for confounding and interaction, and trend testing. Multivariable modeling of prospective cohort study data with Cox proportional hazard modeling includes coverage of survival analysis concepts (nonparametric survival analysis, life tables, hazard and survival functions). Models nonproportional hazards in a survival analysis. Includes exercises that focus on writing up and presenting the findings from multivariable modeling for submission to biomedical journals; as well as problem sets, data analysis (SAS & R), case studies based on reports from the epidemiology journals, and written reports. Prerequisite: EPDM 510; STAT 522; or consent of instructor.

### EPDM 512. Epidemiologic Methods III. 3 Units.

Third course in the epidemiologic methods sequence. Uses case studies of material from the preceding courses to provide experience analyzing epidemiologic data. Covers advanced methods of epidemiologic investigation, including advanced causal inference, spline regression, measurement error correction, multiple imputation, complex survey design and analysis (stratified multistage cluster designs), and meta-analysis. Final module includes power and sample size calculations for the regression models covered during the course sequence. Includes readings (textbook and recent journal articles on epidemiologic methods); data analysis in a computer laboratory setting using SAS, R, and SUDAAN; and case studies based on reports from epidemiology journals. Prerequisites: EPDM 511, STAT 522; or consent of instructor.

### EPDM 515. Clinical Trials. 3 Units.

Theory and practice of intervention studies, including community and clinical trials. Course includes components of a trial protocol, different types of trial design, analysis methods, and ethical considerations. Prerequisite: EPDM 509; STAT 509 or STAT 521.

### EPDM 525. Special Topics in Epidemiology. 1-4 Units.

Lecture and discussion on a current topic in epidemiology. May be repeated for a maximum of 4 units applicable to degree program. Prerequisite or concurrent: EPDM 509.

### EPDM 544. Epidemiology of Infectious Disease. 3 Units.

Introduces the fundamental epidemiologic concepts, methods, and principles in the study of infectious diseases of public health significance. Emphasizes "old" diseases that remain real or potential problems; diseases with changing ecology due to the development of drug/vector resistance and advances in treatment, immunizations, and other preventive/control measures; and emerging and re-emerging diseases that have increasingly become problems through the evolution of modern society. Discusses the role of surveillance systems in infection control in varied settings. Explores the potential of developing appropriate public health interventions in the context of prevention, control, and possibly eradication programs. Prerequisite or Concurrent: EPDM 509.

### EPDM 555. Epidemiologic Methods in Outcomes Research and Continuous Quality Improvement. 3 Units.

Epidemiologic methods of outcomes research and continuous quality-improvement techniques in medical care processes. Medical care as a process, use of control charts in process improvement, measurement of quality of care, and patient satisfaction with medical care. Cost benefit, cost effectiveness, cost utility, and decision-tree analysis applied to medical care and public health. Laboratory includes: demonstration of process control charts, flow charts, Pareto diagram, decision tree, and data scanning. Prerequisite: EPDM 509 or EPDM 510.

### EPDM 565. Epidemiology of Cancer. 3 Units.

Critically reviews epidemiology of the major causes of cancer occurrence and death in developed nations, including anatomic (ICD-9 and ICD-0-2/3) and morphologic/pathogenic (ICD-0-2/3) classifications schemes. Emphasizes research and health-promotion issues that relate to control and prevention of cancer. Topics include pathology vocabulary; multistage model of carcinogenesis; sources of cancer data; validity and value of population measures of cancer; magnitude of the cancer problem; trends in cancer frequency, incidence, mortality, and survival; surveillance objectives and methods; consistent risk and protective factors for major cancer types; the role of infectious diseases in cancer etiology and progression; nutrition and cancer; screening objectives, recommendations, and controversies; and interactions between environmental and genetic characteristics in cancer causation. Prerequisite: EPDM 509.

**EPDM 566. Epidemiology of Cardiovascular Disease. 3 Units.**

Descriptive epidemiology of the major cardiovascular diseases, including: myocardial infarction, sudden death, angina pectoris, hypertension, and stroke. Acquaintance with experimental designs and analytic techniques commonly used in cardiovascular epidemiology. Experimental and epidemiological evidence relating risk factors such as diet, smoking, blood lipids, blood pressure, and exercise to cardiovascular diseases. Acquaintance with the design and results of the major intervention studies. Prerequisite: EPDM 509.

**EPDM 567. Epidemiology of Aging. 3 Units.**

Global demographic trends, determinants, and measures of population-age structure. Health, morbidity, disability, and mortality; comprehension of morbidity and mortality; mechanisms, biomarkers, and genetics of aging. Aging research: surveys, clinical trials, and ethics. Chronic conditions/diseases (i.e., dementia, musculoskeletal conditions, osteoporosis, obesity, diabetes, cardiovascular disease); risk factors (i.e., diet, smoking, physical activity); and prevention. Economic aspects, drug use. Laboratory includes critical evaluation of current literature reports. Prerequisite or concurrent: EPDM 509 or EPDM 510; STAT 509 or STAT 521.

**EPDM 588. Environmental and Occupational Epidemiology. 3 Units.**

Evaluates epidemiologic principles and methodologic approaches used in the assessment of environmental exposure, selection of applicable study designs, and determination of analytic methods used in the investigation of environmental health problems within populations. Epidemiologic analysis of selected and controversial environmental exposures that impact significantly on public health practice and on disease morbidity and mortality outcomes. Prerequisite: EPDM 509 or EPDM 510; STAT 509 or STAT 521.

**EPDM 605. Seminar in Epidemiology. 1 Unit.**

Presentations and discussions of topics of current interest in epidemiology and statistics. Doctoral students work in groups on topics selected at the beginning of the quarter. Requires a written report and oral presentation at the completion of a project. Seminar facilitates maximal interaction among doctoral students and faculty to facilitate professional development. Students required to enroll Fall Quarter each year they are in the program, but attendance and participation are required Fall, Winter, and Spring quarters.

**EPDM 606. Doctoral Seminar in Epidemiology. 1 Unit.**

Presentation and discussion of topics of current interest in epidemiology and statistics. Groups work on topics selected at the beginning of the quarter. Requires a written report and oral presentation at the completion of a project. Opportunity for maximal interaction among doctoral students and faculty to facilitate professional development. Students enroll Fall, Winter and Spring quarters during years 1, 2, and 3 of the program to complete a minimum of 9 units; and are strongly encouraged to enroll through the remaining years in the program.

**EPDM 625. Special Topics in Epidemiology. 1-3 Units.**

Lecture and discussion on a current topic in epidemiology. May be repeated for a maximum of 6 units applicable to degree program. Recommended for doctoral students. Prerequisite: EPDM 509.

**EPDM 635A. Epidemiological Studies of Seventh-day Adventists A. 1 Unit.**

Background, objectives, methodologies, results, and public health implications of most epidemiological studies conducted on Seventh-day Adventists worldwide, but especially in California. Data on the health behaviors and health/disease experience of this low-risk population. Discussion of potential biases and other issues. Prerequisite or concurrent: EPDM 509.

**EPDM 635B. Epidemiological Studies of Seventh-day Adventists B. 1 Unit.**

Discusses methodological issues pertinent to studies of Adventists, including the evidence for the longevity of California Adventists. Student critically evaluates current literature on epidemiologic studies of Adventists—including a thorough discussion of lifestyle, selection, and survival hypotheses—and presents findings during a discussion session. Student writes a scholarly paper on one topic relevant to epidemiologic studies among Adventists. Prerequisite or concurrent: EPDM 635A.

**EPDM 685. Preliminary Research Experience. 2 Units.**

Experience gained in various aspects of research under the guidance of a faculty member and by participation in an ongoing project. Must be completed prior to beginning dissertation research project. Limited to doctoral degree students.

**EPDM 694. Research. 1-14 Units.**

Independent epidemiologic research program arranged with faculty member(s) involved. Written report and oral presentation required. Prerequisite: Consent of instructor responsible for supervision and of academic advisor.

**EPDM 697. Dissertation Proposal. 1-10 Units.**

Student develops the written dissertation proposal. Doctoral dissertation committee chairman works with the student on mutually agreed-upon objectives. Evaluation based on the accomplishment of these objectives. Culminates in a written and oral dissertation proposal defense and advancement to candidacy. Doctoral students only. Successful completion of comprehensive exams.

**EPDM 698. Dissertation. 1-14 Units.**

Based on the doctoral research study, student writes a dissertation in submitted-paper format, submits the individual manuscripts to scientific journals, and responds to reviewers' comments. Prerequisite: EPDM 697 and advancement to candidacy.

**EPDM 699A. Applied Research. 1 Unit.**

Independent epidemiologic research. Research program arranged with faculty member(s) involved. Written report and oral presentation required.

**EPDM 699B. Applied Research. 1 Unit.**

Independent epidemiologic research. Research program arranged with faculty member(s) involved. Written report and oral presentation required.

**EPDM 699C. Applied Research. 1 Unit.**

Independent epidemiologic research. Research program arranged with faculty member(s) involved. Written report and oral presentation required.

**EPDM 699D. Applied Research. 1 Unit.**

Independent epidemiologic research. Research program arranged with faculty member(s) involved. Written report and oral presentation required.

## Family Medicine (FMDN)

## Courses

### **FMDN 599. Directed Elective Study. 1.5-18 Units.**

### **FMDN 701. Family Medicine Clerkship. 1.5-6 Units.**

A four-week rotation that teaches the concepts and practice of family-centered primary health care. Provides a useful introduction for students entering family medicine and other primary care specialties; and helps students entering other specialties apply these principles in their chosen fields and better understand the role of the family physicians with whom they interact. Teaches students to assess patients with common problems like fatigue, chest pain, and abdominal pain; to provide basic diagnosis and treatment for several specific clinical entities, including hypertension and diabetes; to recognize psychosocial problems, such as depression and anxiety; and to practice integrative and whole person care by assessing the strengths and stresses of patients in the context of their family, community, support systems, and spiritual life.

### **FMDN 821. Family Medicine Subinternship. 1.5-6 Units.**

A four-week rotation during which the senior subintern participates as a member of the family medicine inpatient service team. Provides experience in managing hospitalized patients and hospital follow-up, with emphasis on increasing decision-making skills. Increases students' knowledge about acute illnesses and treatment, and familiarizes students with management of patients over the period of transition from the inpatient to the outpatient setting.

### **FMDN 891. Family Medicine Elective (General Family Medicine). 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of family medicine, such as outpatient clinics, palliative medicine, sports medicine, research, etc.

## Family Studies (FMST)

### Courses

### **FMST 504. Advanced Family Studies. 4 Units.**

A critical survey of the research and theory growing out of the fields of family studies and family sociology. Provides students with a background on the social and historical factors that form the contexts within which families are defined and function. Students make application of course material to the practice of marriage and family therapy.

### **FMST 505. Social Research Methods: Quantitative. 3 Units.**

Analyzes current social research methods. Practice in the use of techniques. Scientific method. Prerequisite: Introductory course in statistics as an undergraduate research-methods course.

### **FMST 506. Advanced Social Research Methods. 3 Units.**

Qualitative methodology. Prepares students to undertake research projects using the intensive interview method of qualitative research. Practical and epistemological issues and problems in qualitative research explored in a workshop format.

### **FMST 514. Cross-cultural Counseling and Family Values. 2 Units.**

Structure and function, changing patterns, future in urban society. Relationship of changes in society to widespread family problems. Student becomes familiar with a wide range of social and ethnic backgrounds—including but not limited to people of color, Asians, Native Americans, and Hispanics.

### **FMST 515. Professional Issues in Family Life Education. 3 Units.**

Surveys the professional practice of family life education, examines the legal and ethical issues that govern the practice of family life education, investigates the major policies and legal codes that govern family behavior in the United States and other countries, evaluates strategies for professional development in the field, and delineates boundaries regarding the scope of practice in this field and in family therapy.

### **FMST 518. Advanced Theories in Child Development. 3 Units.**

Examines child development from the perspectives of family systems, symbolic interactionism, structural functionalism, family development, social construction, and others. Investigates theories and stages of development—from birth through adolescence—from classical and contemporary literature in the physical, cognitive, language, social, emotional, and moral development domains.

### **FMST 519. Teaching in Higher Education. 2 Units.**

Discusses theory, techniques, and processes in the teaching of MFT, including an examination of didactic and experiential techniques.

### **FMST 524. Family Resource Management. 2 Units.**

Challenges of health-care costs, child care, reorganizing and downsizing organizations, managing cultural diversity, and equal employment opportunity. Responding to needs of families and employees through consistent and effective planning so that people become more productive and more satisfied with their lives at work and at home.

### **FMST 526. Marriage and the Family. 3 Units.**

Studies the family from perspectives of psychology, anthropology, biology, history, politics, and religion. Investigates the major movements or moving forces in society that have influenced families living in the United States and elsewhere. Evaluates the important contemporary issues in families and presents theories of family functioning that inform therapeutic and educational interventions by professionals.

### **FMST 528. Parenting. 2 Units.**

Principles and practices relating to parent-child relationships. Emphasizes family roles, communication, conflict resolution, values development, and parenting-skill development.

### **FMST 529. Family Life Education. 3 Units.**

Systematic comparative analysis of the historical development, theoretical perspectives, types of programs, and research in family-life studies.

### **FMST 534. Family Life Education Module 1. 3 Units.**

Covers content, critical thinking, and application of issues related to laws and ethics in the practice of family life education, family law, and public policy matters in the United States of America and around the world; and substantive areas in the marriage and family literature. Prepares family life educators with content required for certification as family life educators and related family life professionals.

### **FMST 535. Family Life Education Module 2. 3 Units.**

Treats content, critical thinking, and application of issues in family life education, parent education and guidance, and family resource management that are important to the knowledge base of family life educators and related family life professionals.

### **FMST 601. Statistics I. 4 Units.**

Introduces regression analysis and analysis of variance (ANOVA), with emphasis on hypothesis-testing and the development of general models that partition overall variability. Topics covered include simple and multiple regression, one-way and factorial, repeated-measures of ANOVA, and analysis of covariance. Evaluation and assumptions of nonparametric alternatives.

**FMST 602. Statistics II. 4 Units.**

Broad introduction using linear (matrix) algebra to maximize likelihood estimation generally, using several important multivariate statistical techniques, including but not limited to multivariate analysis of variance, multivariate regression, path analysis, and structural equations causal modeling, log-linear models, and time series analysis; also evaluates alternatives to maximum likelihood estimation. Prerequisite: MFTH 601 or FMST 601.

**FMST 603. Statistics III. 4 Units.**

An advanced course in multivariate statistics that includes topics such as multidimensional scaling, cluster analysis, factor analysis, path analysis, structural equations modeling, log-linear modeling, time-series analysis, and hierarchical linear models. Focuses on understanding these advanced techniques and their application to data analysis. Prerequisite: MFTH 602 or FMST 602.

**FMST 604. Advanced Qualitative Methods. 4 Units.**

An overview of qualitative methods and their application to research of marriage and family therapy. Includes an examination of ethnographics, naturalistic inquiry, phenomenological research, the grounded theory approach, and narrative inquiry.

**FMST 605. Advanced Quantitative Methods. 4 Units.**

An advanced overview of quantitative research methods in marriage and family therapy, including experiments and quasi-experiments, survey methodology, and outcome studies.

**FMST 608. Analysis and Presentation Issues in Research. 3 Units.**

Brings together and integrates material from the previous research classes. Deals with the ethics of research, and with questions of reliability and validity in both quantitative and qualitative methods. Emphasizes problems of coherently and succinctly presenting research results in proposals, posters, brief reports, and articles.

**FMST 668. Qualitative Research Practicum. 2 Units.**

Provides students with practical experience in conducting and evaluating qualitative research. Emphasizes methods of analysis and presentation of the research. Students review a manuscript that is ready for submission to an academic journal and critically analyze the work of others.

**FMST 684. Doctoral Seminar. 1 Unit.**

Students develop and refine their dissertation proposals through presentation and discussion with faculty and other students in a workshop format. Dissertation proposal is an expected outcome of this series of courses.

**FMST 694. Directed Study: Family Studies. 1-3 Units.****FMST 695. Internship in Family Studies. 1-4 Units.****FMST 696B. Advanced Topics in Family Studies: Family Resource Management. 3 Units.**

Directed study in family resource management.

**FMST 696C. Advanced Topics in Family Studies: Family Life Education. 3 Units.**

Directed study in family life education.

**FMST 696D. Advanced Topics in Family Studies: Child Development in Family Context. 3 Units.**

Directed study in child development in family context.

**FMST 696E. Advanced Topics in Family Studies: Divorce and Remarriage. 3 Units.**

Directed study in divorce and remarriage.

**FMST 696F. Advanced Topics in Family Studies: Marriage and the Family. 3 Units.**

Directed study in marriage and the family.

**FMST 697. Research. 1-6 Units.**

Independent research relating to marital and family therapy, under the direction of a faculty advisor.

**FMST 698. Project or Thesis. 3 Units.****FMST 699. Dissertation Research. 1-20 Units.**

Completes independent research contributing to the field of family studies. Prerequisite: Advancement to doctoral candidacy.

## Geology (GEOL)

### Courses

**GEOL 204. Physical Geology. 4 Units.**

Introductory geology course that provides the student with a broad picture of geological processes operating on and within the earth. Introduction to minerals, sedimentary and igneous rocks, and fossils. Weathering, earthquakes, volcanism, erosion and sedimentation, and plate tectonics. Three class hours, one three-hour laboratory or field trip per week.

**GEOL 316. Mineralogy. 4 Units.**

Studies minerals, including: crystallography and crystal chemistry, phase diagrams, and systematic classification. Mineral identification based on hand sample, optical, and other analytical techniques. Three class hours and one three-hour laboratory or field trip per week.

**GEOL 317. Igneous and Metamorphic Petrology. 4 Units.**

Systematically studies igneous and metamorphic rocks, including: classification by petrography and geochemical methods; application of one-, two-, and three-component phase diagrams; and models of petrogenesis. Three class hours and one three-hour laboratory or field trip per week.

**GEOL 416. Sedimentology and Stratigraphy. 6 Units.**

Interprets the sedimentary rock record through a study of rock types, depositional processes, and models. Studies stratigraphic nomenclature and approaches to correlation on local, regional, and/or global scales. Laboratory analysis of primary and diagenetic mineralogy, textures, and sedimentary structures in clastic and carbonate rocks. Field descriptions of sedimentary rocks, structures, and sequences; and field experience in interpreting depositional processes and stratigraphic relationships.

**GEOL 424. Structural Geology. 4 Units.**

Theory of stress and strain, and examination of rock deformation in a framework of plate tectonics. Includes problems and applications. Three class hours—with required full-day and half-day field trips—and one three-hour laboratory or field trip per week.

**GEOL 426. Invertebrate Paleontology. 4 Units.**

Structure, classification, ecology, and distribution of selected fossil invertebrate groups. Principles and methods involved in the study and analysis of invertebrate fossils. Three class hours and one three-hour laboratory per week.

**GEOL 427. Vertebrate Paleontology. 4 Units.**

Systematics, biology, stratigraphic distribution, and biogeography of fossil vertebrates.

**GEOL 431. Geochemistry. 4 Units.**

Chemical concepts and their geochemical applications in areas of interest in elementary geology. Prerequisite: College chemistry; or consent of instructor.

**GEOL 434. Introduction to GIS for the Natural Sciences (2). 2 Units.**

Principles and practice of GIS data acquisition, data editing, map making, and geodatabase management. Recommended for students beginning a research project.

**GEOL 435. GIS Spatial Analysis for the Natural Sciences (3). 3 Units.**

Advanced analysis of GIS data; statistical analysis, geographic analysis of spatial data, and methods of displaying, editing, and modeling spatial data using ArcGIS and related GIS tools. Recommended for students who have research data in hand to analyze.

**GEOL 443. Historical Geology. 4 Units.**

Introduces earth history with in-depth examination of the stratigraphic record of rocks and fossils. Three class hours and one three-hour laboratory per week.

**GEOL 444. Paleobotany. 4 Units.**

Fossil plants; their morphology, paleoecology, taphonomy, classification, and stratigraphic distribution. Analyzes floral trends in the fossil record. Three class hours and one three-hour laboratory or field trip per week.

**GEOL 455. Modern Carbonate Depositional Systems. 3 Units.**

Examines modern and Pleistocene carbonate systems in the field, using these environments as models for understanding sediment production, facies development, and early diagenesis for many ancient carbonates. Presentations and readings on specific environments combined with field descriptions, mapping, analysis, and reports. Requires rigorous hiking and snorkeling in shallow water.

**GEOL 456. Field Methods of Geologic Mapping. 4 Units.**

Advanced geologic mapping of complex areas, with interpretation of their history; includes mapping of igneous, metamorphic, and sedimentary rocks. Experience in preparation of geologic reports of each mapped locality.

**GEOL 465. Hydrogeology. 4 Units.**

Theory and geology of groundwater occurrence and flow, the relation of ground water to surface water, and the potential distribution of ground water by graphical and analytical methods. Three class hours and one three-hour laboratory per week.

**GEOL 475. Philosophy of Science and Origins. 4 Units.**

Concepts in the history and philosophy of science, and application of these principles in analyzing current scientific trends.

**GEOL 484. Readings in Geology. 1-4 Units.**

Reviews literature in a specific area of geology. Students make presentations from the literature and submit current papers dealing with the assigned topic.

**GEOL 485. Seminar in Geology. 0.5 Units.**

Selected topics dealing with recent developments.

**GEOL 486. Research and Experimental Design. 2 Units.**

Concepts, methods, and tools of research—including experimental design and data analysis.

**GEOL 487. Field Geology Studies. 1-6 Units.**

Special field study trips lasting one or more weeks. Student involvement required, including field presentations and fieldwork assignments, such as the measurement and analysis of sedimentary sections, facies profiling, paleontologic excavation, mapping, or other geological or paleontology field activity. One unit of credit per week. May be repeated for additional credit.

**GEOL 488. Topics in Geology. 1-4 Units.**

Reviews current knowledge in specified areas of the earth sciences. Registration should indicate the specific topic to be studied. May be repeated for additional credit. Offered on demand.

**GEOL 489. Readings in Paleontology. 1-4 Units.****GEOL 495. Special Projects in Geology. 1-4 Units.**

Special project in the field, laboratory, museum, or library under the direction of a faculty member. Registration indicates the specific field of the project.

**GEOL 497. Undergraduate Research. 1-4 Units.**

Original investigation and/or literature study pursued under the direction of a faculty member. May be repeated for additional credit.

**GEOL 512. Invertebrate Paleontology. 4 Units.**

Structure, classification, ecology, and distribution of selected fossil invertebrate groups. Considers principles and methods involved in the study and analysis of invertebrate fossils. Per week: Class three hours, plus one three-hour laboratory. Additional work required beyond GEOL 426.

**GEOL 513. Vertebrate Paleontology. 4 Units.**

Fossil vertebrates, with emphasis on the origins of major groups. Systematics, biology, and biogeography of ancient vertebrates. Per week: class three hours, plus one three-hour laboratory. Additional work required beyond GEOL 427.

**GEOL 514. Paleobotany. 4 Units.**

Fossil plants, their morphology, paleoecology, taphonomy, classification, and stratigraphic distribution. Analyzes floral trends in the fossil record. Per week: three class hours and one three-hour laboratory or field trip. Additional work required beyond GEOL 444.

**GEOL 516. Sedimentology and Stratigraphy. 6 Units.**

Interprets the sedimentary rock record through a study of rock types, depositional processes, and models. Studies stratigraphic nomenclature and approaches to correlation on local, regional, and/or global scales. Laboratory analysis of primary and diagenetic mineralogy, textures, and sedimentary structures in clastic and carbonate rocks. Field descriptions of sedimentary rocks, structures, and sequences; and field experience in interpreting depositional processes and stratigraphic relationships. Additional work required beyond GEOL 416.

**GEOL 517. Modern Carbonate Depositional Systems. 3 Units.**

Examines modern and Pleistocene carbonate systems in the field, using these environments as models for understanding sediment production, facies development, and early diagenesis for many ancient carbonates. Presentations and readings on specific environments combines with field descriptions, mapping, analysis, and reports. Requires rigorous hiking and snorkeling in shallow water. Additional work required beyond GEOL 455.

**GEOL 518. Earth Structure, Process, and History. 4 Units.**

Study of geological processes and the resulting geological record. Introduces minerals and rocks, sedimentary and igneous processes, fossils, plate tectonics, geological history, and models of earth history. Student prepares a teaching module on the topic. Open only to students in the M.S. degree program in natural sciences. Per week: class three class hours, one three-hour laboratory or field trip.

**GEOL 526. Introduction to GIS for the Natural Sciences. 2 Units.**

Principles and practice of GIS data acquisition, data editing, map making, and geodatabase management. Recommended for students beginning a research project.

**GEOL 535. GIS Spatial Analysis for the Natural Sciences. 3 Units.**

Advanced analysis of GIS data; statistical analysis, geographic analysis of spatial data, and methods of displaying, editing, and modeling spatial data using ArcGIS and related GIS tools. Recommended for students who have research data in hand to analyze.

**GEOL 545. Taphonomy. 4 Units.**

Processes that affect an organism from death until its final burial and fossilization, and utilization of this information in reconstructing ancient assemblages of organisms. Three class hours per week. One laboratory per week to study, describe, and interpret fossil assemblages of vertebrates, invertebrates, and microfossils.

**GEOL 554. Limnogeology. 4 Units.**

Ancient lake deposits, including their sedimentologic, paleontologic, mineralogic, geochemical, and stratigraphic characteristics. Investigates as analogs the depositional processes occurring in modern lakes. Laboratory and several extended field trips.

**GEOL 555. Carbonate Geology. 4 Units.**

Advanced look at the geology of carbonate rocks, including petrology; depositional environments; and overview of current topics of research. Laboratory experience in the analysis of carbonate rocks and rock sequences. Field trip to an ancient carbonate sequence.

**GEOL 556. Paleoenvironments. 3 Units.**

Applies paleontologic, sedimentologic, and geochemical data and methods to interpretation of past sedimentary environments, with emphasis on organism-sediment relationships. Investigates as analogs processes, sediments, and organisms in modern depositional environments.

**GEOL 557. Paleoenvironments Field Trip. 1 Unit.**

Field experience intended as a follow up to GEOL 556 Paleoenvironments. Consists of a ten-day field trip to selected locations representing a broad spectrum of sedimentary environments.

**GEOL 558. Philosophy of Science. 4 Units.**

Selected topics in the history and philosophy of science, and application of these principles in analyzing contemporary scientific trends.

**GEOL 559. Philosophy of Science and Origins. 1 Unit.**

Studies selected topics in the history and philosophy of science, and applies these principles in analyzing current scientific trends. Provides an advanced update in the topic for students who have had a similar course at the undergraduate level.

**GEOL 565. Analysis of Sedimentary Rocks. 4 Units.**

Provides exposure to a range of analytical tools used to answer questions in sedimentary geology. Emphasizes three instruments—optical microscope, x-ray diffractometer, and scanning electron microscope—and introduces other analytical approaches. Participants will use case studies to develop skills in project design, collection of quantitative data, and evaluating existing datasets.

**GEOL 566. Sedimentary Processes. 4 Units.**

Advanced methods and principles of sedimentology, with emphasis on analysis and interpretation of sedimentary structures and the processes that produced them. Discusses in detail sedimentary facies, depositional environments, chemogenic and biogenic sedimentation, and postdepositional diagenetic processes. Research or project paper required. Three class hours and one three-hour laboratory or field trip per week, and several extended field trips.

**GEOL 567. Stratigraphy and Basin Analysis. 4 Units.**

Advanced methods of stratigraphy and basin analysis, including facies analysis, depositional systems, sequence stratigraphy, paleogeography, and basin modeling. Research or project paper required. Three class hours and one laboratory or field trip per week, and two extended field trips.

**GEOL 575. Hydrogeology. 4 Units.**

Theory and geology of groundwater occurrence and flow, the relation of groundwater to surface water, and the potential distribution of groundwater by graphical and analytical methods. Three class hours and one three-hour laboratory per week.

**GEOL 588. Topics in Geology. 1-4 Units.**

Reviews current knowledge in specified areas of the earth sciences. When registering, the student must indicate specific topic to be studied. May be repeated for additional credit. Offered on demand.

**GEOL 594. Readings in Geology. 1-4 Units.**

Reviews the literature in a specific area of geology. Students make presentations from the literature and submit current papers dealing with the assigned topic.

**GEOL 595. Readings in Limnogeology. 1 Unit.**

Readings and analysis of current and classic scientific literature dealing with modern and ancient lake environments—including geochemistry, sedimentology, biology and paleontology, and related subjects. Activities include student presentations of papers, discussion, and research proposals and reports. One extended, multiday field trip required.

**GEOL 607. Seminar in Geology. 0.5 Units.**

Selected topics dealing with recent developments.

**GEOL 616. Research and Experimental Design. 2 Units.**

Concepts, methods, and tools of research—including experimental design and data analysis.

**GEOL 617. Proposal Writing and Grantsmanship. 2 Units.**

Skills and practice of effective proposal writing, and strategies for locating and obtaining research grants.

**GEOL 618. Writing for Publication. 1 Unit.**

Explores the mechanics and processes of preparing, submitting, revising, and resubmitting a manuscript for publication in a peer-reviewed journal. Designed for students who are well along in the process of writing their first manuscript for publication. Prepares students to handle the manuscript revision process when the manuscript is returned from reviewers, as well as the final stage of resubmission to the journal.

**GEOL 658. Advanced Philosophy of Science readings (2). 2 Units.**

Reading and discussion of selected references in the philosophy of science, and the application of these concepts in the practice of scientific research and interpretation, including their influence on scientific study of origins. Best taken near the end of a student's graduate program. Two-hour class session per week.

**GEOL 695. Special Projects in Geology. 1-4 Units.**

Special project in the field, laboratory, museum, or library under the direction of a faculty member. Registration indicates the specific field of the project.

**GEOL 697. Research. 1-8 Units.****GEOL 698. Thesis Research. 1-8 Units.**

Credit for research and for writing the master's thesis. Grade received does not indicate whether thesis is completed and approved.

**GEOL 699. Dissertation Research. 1-8 Units.**

Credit for research and for writing the doctoral dissertation. Grade received does not indicate whether dissertation is completed and approved.

## Gerontology (GERO)

## Courses

### **GERO 515. Diversity and Aging. 3 Units.**

Assists students in understanding the complexity of variables related to the aging process. Examines ethnicity, gender, social class, and culture within the context of the physical, mental, social, political, and financial effects of aging.

### **GERO 599. Directed Study/Special Project. 1-4 Units.**

Limited to matriculating master's degree in gerontology students who wish to pursue independent investigations in criminal justice practice or policy under the direction of a department faculty member.

### **GERO 615. Economics and Management Issues of Older Adult Services. 4 Units.**

Acquaints students with economic and management issues and their impact on social policies that direct older adult services. Uses descriptions of economic and management issues to analyze system impact on social policies related to the older adult population. Students learn how to meet the challenges inherent in a dynamic and rapidly changing environment and develop skills and competencies for meeting future challenges and bridging the gap between theory and practice.

### **GERO 617. Bio-psycho-social-spiritual Theories of Aging. 4 Units.**

An interdisciplinary team-taught learning experience that provides an integrative understanding of the bio-psycho-social-spiritual aspects and theories of aging, and the impact of these on older adults and their families.

### **GERO 654A. Therapeutic Interventions with Older Adults I. 3 Units.**

Provides an intensive examination of clinical issues related to social work practice with older adults and their families. Students gain increased understanding of the developmental tasks of later life; and the needs, strengths, and diversity of empowered and active older adults. Prepares students to examine and implement evidenced-based interventions at the clinical level with an understanding of how organizational and community-level factors can influence interventions and outcomes. Gives attention to issues related to culturally competent practice and the interplay of race, ethnicity, and culture.

### **GERO 654B. Therapeutic Interventions with Older Adults II. 3 Units.**

Provides students with knowledge and skills related to working with frail and vulnerable older adults. Reviews mental disorders as they are uniquely characterized in late adulthood, emphasizing assessment. Addresses loss and institutionalization, adjustment problems related to illness, cultural variations related to illness, advanced directives, alcohol and substance abuse, sleep disorders, and barriers to quality care.

### **GERO 697. Research. 2-4 Units.**

Supports students choosing to complete the thesis option. Provides research matriculation in the collection and analysis of data for the thesis. Students required to register for two quarters, or a total of 4 units.

### **GERO 698. Thesis. 2 Units.**

The culminating portion of the student's independent research, under the direction of the research advisor. Students register for class during the quarter in which they defend their research and submit their final document to the department and to the School of Behavioral Health.

### **GERO 757A. Professional Practicum and Seminar. 3 Units.**

Students complete 3 units of professional practicum during each quarter. Each 3 units require 160 hours of practicum and 20 hours of seminar.

### **GERO 757B. Professional Practicum and Seminar. 3 Units.**

Students complete 3 units of professional practicum during each quarter. Each 3 units require 160 hours of practicum and 20 hours of seminar.

### **GERO 757C. Professional Practicum and Seminar. 3 Units.**

Experiential learning in gerontology settings. Students placed at practicum sites that serve geriatric clients. Students must satisfactorily complete 160 practicum hours and 20 hours of concurrent seminar.

### **GERO 787. Advanced Professional Practicum and Seminar. 4 Units.**

Experiential learning in advanced gerontology practice. Students must satisfactorily complete 200 practicum hours and 20 hours of concurrent seminar.

## Global Health (GLBH)

### Courses

#### **GLBH 516. HIV/AIDS: Implications for Public Health. 3 Units.**

Historical, epidemiological, and public health aspects of HIV/AIDS. Viral, immunologic, laboratory, and clinical manifestations associated with HIV/AIDS. Approaches to preventing/controlling the epidemic. Socioeconomic, political, and health impact of HIV/AIDS; and the related implications in terms of legal, ethical, and health-care management issues. Laboratory/field work earned by the student's active participation and involvement in a variety of field-based activities, such as: clinic-intake interviews, analysis of existing epidemiologic databases, grant writing, health education, and hospice care.

#### **GLBH 517. Cultural Issues in Health Care. 3 Units.**

Critical analysis of broad sociocultural and political forces that impact health and health-care access and delivery both domestically and internationally. Through a seminar-style learning environment, students increase their awareness of how culture informs the understanding and experience of health and illness. Introduces students to assessment of race relations and ethnocentric beliefs and attitudes that contribute to the gap between marginal populations and health-care providers, and that teach strategies of sociocultural change within the context of power and privilege.

#### **GLBH 524. Cultural Competence and Health Disparities. 2 Units.**

Introduces and examines diversity and cultural responsiveness in public health and health care. Examines the roles played by population diversity, health professions diversity, and cultural responsiveness in addressing and eliminating health and health-care disparities in both national and global health. Discusses the historic context of social inequities impacting health and health care; and the roles played by biological inheritance, race and ethnicity identifiers, socioeconomic, socioenvironment, and health-care beliefs and behavior in health-care services delivery. Introduces cultural competency in public health and tenets for developing and applying cultural awareness in the field. Explores culture—defined as the values and beliefs that generate patterned behaviors, expectations, and world view—and its role in accessing, utilizing, and delivering positive outcomes in health care.

#### **GLBH 545. Integrated Community Development. 4 Units.**

Analyzes issues, challenges, resources, and strategies in implementing and managing integrated community development and health projects. Focuses on basic development needs of rural and urban communities. Taught from the perspectives of anthropology, sociology, agriculture, economic development, and public health. The final course in the GLBH core curriculum. Restricted to students in the major. Prerequisite: GLBH 564, GLBH 565, GLBH 566, GLBH 567, GLBH 568, GLBH 569.

**GLBH 550. Women in Development. 3 Units.**

Global epidemiological profile of women in terms of educational patterns, economic productivity, social status, and mortality and morbidity patterns. Risks to physical and psychosocial health. National and international legal and regulatory issues and programs to promote access to health care, economic productivity, and the health of women.

**GLBH 561. Epidemiology of Tobacco Use and Control I. 3 Units.**

A module-based course (the first of a three-part series) that presents a comprehensive overview of the tobacco pandemic and provides a foundation for understanding global/national tobacco-prevention and -control issues and strategies. Explores the epidemiology of this growing public health challenge and its significant impact on societal health and economics. Examines the underlying principles governing the multi-sectoral and multidisciplinary approaches developed as part of the coordinated public health response (within the context of the WHO Framework Convention on Tobacco Control). Introduces basic techniques of monitoring, surveillance, and evaluation as used in tobacco-prevention/control programs.

**GLBH 562. Epidemiology of Tobacco Use and Control II. 3 Units.**

Explores the theoretical foundation for tobacco control. Considers the impact of tobacco-control policy and legislative and regulatory measures on prevalence, initiation, and cessation of tobacco use. Compares the effect of socioeconomic status variables on measures of smoking behavior among racial/ethnic groups. Reviews validity studies in tobacco use. Explores clustering of tobacco use with other drugs, other risk behavior, and psychiatric disorders. Estimates sensitivity and specificity of individual and environmental factors that influence the susceptibility of individuals to tobacco dependence. Includes issues such as counteracting the tobacco industry and forming effective partnerships in tobacco control; monitoring, surveillance, evaluation, and reporting of tobacco use and control; and developing a national plan of action for tobacco control.

**GLBH 564. Fundamentals of Community Health and Development I. 2 Units.**

Utilizing an experiential, evidence-based model of learning and building on the global health competencies as defined by the Association of Schools of Public Health (ASPH), this three-part course series focuses on improving the health, safety, and well-being of all people in local and global settings by promoting wellness; preventing avoidable disease, disabilities, and deaths; and eliminating social and health disparities. Students conduct population-based analyses that include the assessment and examination of health determinants, practices, and solutions to improve the quality of life for all people—especially the vulnerable and disadvantaged. Emphasizes the basic framework within which global health is conducted; analyzes health problems at a macrolevel by conducting comprehensive social, epidemiological, and ecological assessments of basic issues that affect the health of families and individuals; and enhances understanding of current and future global threats to health.

**GLBH 565. Interventions in Community Health and Development I. 3 Units.**

Utilizing an experiential, evidence-based model of learning, and building on the public health competencies as defined by the Association of Schools of Public Health (ASPH), this three-part course series focuses on selected methodological techniques and skills applicable in the planning, implementation, and evaluation of primary health-care programs that serve to improve the health, safety, and well-being of all people in local and global settings by promoting wellness; preventing avoidable disease, disabilities, and deaths; and eliminating social and health disparities. Introduces the theoretical foundations and practical applications of program planning, implementation, and evaluation of sustainable public health programs. Students have an opportunity to practice these skills both in the classroom and in local community settings as part of their structured service learning projects. By the end of this course, students will demonstrate capacity to develop reciprocal, collaborative relationships with community and academic partners; use a program-planning model and create a program theory to guide in the process of assessing community needs; use social and behavioral theories/models to guide the creation of tools used to collect qualitative and quantitative data in identifying individual and group assets and needs; conduct systematic literature reviews; develop and present a project-specific, detailed implementation proposal both orally and in written format.

**GLBH 566. Fundamentals of Community Health and Development II. 2 Units.**

Utilizing an experiential, evidence-based model of learning, and building on the global health competencies as defined by the Association of Schools of Public Health (ASPH), this three-part course series focuses on improving the health, safety, and well-being of all people in local and global settings by promoting wellness; preventing avoidable disease, disabilities, and deaths; and eliminating social and health disparities. Students conduct population-based analyses that include assessment and examination of health determinants, practices, and solutions to improve the quality of life for all people—especially the vulnerable and disadvantaged. Emphasizes the role of public health policy and advocacy in addressing global health challenges. Prerequisite: GLBH 564.

**GLBH 567. Interventions in Community Health and Development II. 3 Units.**

Utilizing an experiential, evidence-based model of learning, and building on the public health competencies as defined by the Association of Schools of Public Health (ASPH), this three-part course series focuses on selected methodological techniques and skills applicable in the planning, implementation, and evaluation of primary health-care programs that serve to improve the health, safety, and well-being of all people in local and global settings by promoting wellness; preventing avoidable disease, disabilities, and deaths; and eliminating social and health disparities. Focuses on the theoretical foundations and practical applications of program planning, implementation, and evaluation of sustainable public health programs. Students have an opportunity to practice these skills both in the classroom and in local community settings as part of their structured service learning projects. By the end of this course, students demonstrate capacity to create a program theory and logical framework to provide a conceptual and practical foundation for formulating measurable process, impact, and outcome objectives and indicators; designing implementation methods; developing a monitoring and evaluation plan; constructing a timeline, budget, and work plan; and preparing a scope of work/terms of reference document. Students develop an operational understanding by implementing the proposed intervention; collecting relevant implementation; monitoring and evaluating data; and presenting a report both orally and in written format. Prerequisite: GLBH 565.



**GLBH 568. Fundamentals of Community Health and Development III. 2 Units.**

Utilizing an experiential, evidence-based model of learning and building on the global health competencies as defined by the Association of Schools of Public Health (ASPH), this three-part course series focuses on improving the health, safety, and well-being of all people in local and global settings by promoting wellness; preventing avoidable disease, disabilities, and deaths; and eliminating social and health disparities. Students conduct population-based analyses that include the assessment and examination of health determinants, practices, and solutions to improve the quality of life for all people—especially the vulnerable and disadvantaged. Focuses on the application of global research methods in response to global health concerns. Prerequisite: GLBH 564, GLBH 566.

**GLBH 569. Interventions in Community Health and Development III. 3 Units.**

Utilizing an experiential, evidence-based model of learning, and building on the public health competencies as defined by the Association of Schools of Public Health (ASPH), this three-part course series focuses on selected methodological techniques and skills applicable in the planning, implementation, and evaluation of primary health-care programs that serve to improve the health, safety, and well-being of all people in local and global settings by promoting wellness; preventing avoidable disease, disabilities, and deaths; and eliminating social and health disparities. Focuses on the theoretical foundations and practical applications of program planning, implementation, and evaluation of sustainable public health programs. Students have an opportunity to practice these skills both in the classroom and in local community settings as part of their structured service learning projects. Course culminates with a series of workshops that reinforce the skills learned throughout the course series. Students demonstrate capacity to analyze qualitative and quantitative data gathered from the service learning project; report research/evaluation results through peer-reviewed channels; present intervention results orally and in written format; prepare and submit the results of an external evaluation both orally and in written format; synthesize the lessons learned from the service learning project; and discuss how skills acquired during the series could be used to address global health challenges and inequities. Prerequisite: GLBH 565, GLBH 567.

**GLBH 584. Special Topics in Global Health. 1-3 Units.**

Lectures and discussions on a current topic in global health. May be repeated for a maximum of 3 units applicable to degree program.

**GLBH 605. Seminar in Global Health. 1 Unit.**

Issues, trends, organizational structure, and practice of international public health. Issues impacting global health, the structure and functions of government and NGOs in the delivery of public health services, and preparation to practice international health. Selected guest lecturers and student participation.

**GLBH 700. MIP-Peace Corps Field Practicum. 0 Units.**

Designed for students who must maintain continuous registration in the School of Public Health as a condition of the twenty-seven month Peace Corps field practicum that is part of their master's degree program.

**GLBH 797. MIP Residency in Global Health. 12 Units.**

Individual, guided study in operational field practice, under faculty supervision. Limited to graduate students in the INTH Master's Internationalist Program (M.P.H./MIP) whose projects have been approved by their committee.

**Courses****GRDN 514. Introduction to Biomedical Research. 4 Units.**

Provides basic information necessary to develop a research proposal. Focuses on applied statistics, as well as proposal writing—which emphasizes critical evaluation of the literature, proposal design, and proposal methodology. Culminates in an approved research proposal suitable for submission to the departmental Research Guidance Committee (RGC). Lectures, seminars.

**GRDN 535. Clinical Oral Pathology. 2 Units.**

Differential diagnosis of oral disease. Includes epidemiology, etiology, clinical, radiographic, and/or microscopic features. Management of oral diseases.

**GRDN 601. Practice Management. 2 Units.**

Prepares student for specialty practice. Concepts of employment, records, incorporating, insurance, and practice planning.

**GRDN 609. Professional Ethics. 2 Units.**

Provides students with a theological and philosophical framework for professional ethics. Topics include individual rights, autonomy, informed consent, and responsibilities of the professional person in the dental field, as well as in society as a whole.

**GRDN 622. Biomedical Science I. 2 Units.**

Advanced, course offered every other year (alternating with GRDN 623) during Autumn Quarter. Course content includes applied oral bacteriology, immunology, topics in oral medicine, applied pharmacology, and orofacial pain. Students expected to have prior basic knowledge in the various topic areas.

**GRDN 623. Biomedical Science II. 4,5 Units.**

Advanced, two-quarter course offered every other year (alternating with GRDN 622) during Autumn and Winter Quarters. Course content includes cell biology, applied oral pathology, biology of hard tissues, physiology, and biochemistry. Students expected to have basic knowledge in the various topic areas.

**GRDN 632. Basic Microsurgery Techniques. 2 Units.**

An integrated, forty-hour laboratory course tailored to the needs of the individual student. Principles and application of microscope operator and use, microinstrumentation, microdissection, micromanipulation, and microsuturing techniques. Performance of various microvascular and microneural repair procedures.

**Gynecology and Obstetrics (GYOB)****Graduate Dentistry (GRDN)**

## Courses

### **GYOB 599. Gynecology and Obstetrics Directed Study. 1.5-18 Units.**

#### **GYOB 701. Gynecology and Obstetrics Clerkship. 1.5-9 Units.**

A six-week course that focuses on normal obstetrics, high-risk obstetrics, women's health, reproduction, birth control, gynecological cancers, and gynecological pathology. Provides students opportunities to actively participate in patient examinations, procedures, deliveries, and surgeries. Utilizes lectures, online independent learning, bedside teaching, small-group conferences, and skills laboratories; as well as simulation to instruct students in performing gynecological and obstetrical examinations and in identifying normal findings and abnormal findings in the following patient categories: obstetrics—normal obstetric patients, abnormal labor, preterm labor, postdate pregnancies, abnormal fetal growth, placental abnormalities, premature rupture of membranes, gestational diabetes, preeclampsia, and pregnant patients with preexisting health problems; gynecology—patients presenting for health maintenance, menopause, birth control, sterilization, sexually transmitted diseases, abnormal uterine bleeding, gynecological pathology, urinary incontinence, pelvic organ prolapse, and gynecological cancers.

#### **GYOB 891. Gynecology and Obstetrics Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of gynecology and obstetrics, such as benign gynecology, high-risk obstetrics, lactation, oncology, research, etc.

## Health Administration (HADM)

### Courses

#### **HADM 501. Health Policy and Leadership Seminar. 1 Unit.**

An orientation seminar designed for the first or second quarter of the M.P.H. degree in health policy and leadership. Identifies the expectations of the degree, raises awareness and understanding of academic standards, and promotes cohort and professional loyalty.

#### **HADM 505. Managerial Statistics and Epidemiology for Healthcare. 4 Units.**

Overview of basic statistical and epidemiological concepts and tools, with the objective of showing how they can be used to improve management decisions in the health sector. Includes interpretation and analysis of statistical associations, and distribution and understanding and applying determinants of health events and disease outcomes in human populations.

#### **HADM 506. Principles of Health-Care Finance. 3 Units.**

Covers the different forms of business organizations and their impact on taxes and cash flows, health insurance and payments to providers, time value of money, financial risk and required rate of return, debt and equity financing, and leasing.

#### **HADM 507. Principles of Accounting in Health Care. 3 Units.**

Overview of the accounting cycle, balance sheets, income statements, basic accounting principles, ethics, internal controls, accounting for assets, current liabilities, and stockholder's equity. Course can be waived by students who have taken an upper division accounting course prior to enrolling at this University from an accredited four-year university. Prerequisite: Accounting course or consent of instructor.

#### **HADM 509. Principles of Health Policy and Management. 3 Units.**

Introduces concepts of the health policy process and factors that impact health and access to health care, including but not limited to organizing, financing, and delivering health services. Familiarizes students with concepts of the health policy process, emphasizing the leadership and management skills necessary to navigate the necessary changes in the current health system and to demonstrate understanding of the policy development process.

#### **HADM 510. Health Policy Analysis and Synthesis. 3 Units.**

Introduces major approaches for understanding the health policy process. Explores how to identify and analyze the forces and interests involved in health policy issues, including stakeholder analysis. Examines how to write a policy brief and describes various techniques of advocating for health policy change.

#### **HADM 514. Health-Care Economics. 3 Units.**

Uses analytical tools of economics to describe the behavior of various agents in the health-care industry, including providers and patients, third party payers, the government, and the pharmaceutical industry. Explores the importance of health-care labor markets; analyzes the issue of equity, efficiency, and costs; and explores differences between health-care systems around the world.

#### **HADM 525. Special Topics. 1-4 Units.**

Lecture and discussion on a current topic in health policy and management or leadership. May be repeated for a maximum of 8 units applicable to degree program.

#### **HADM 528. Organizational Behavior in Health Care. 3 Units.**

Focuses on understanding, predicting, and influencing human behavior in an organization. Students gain experience using practical individual and group case studies and reading/researching organizational behavior books and topics that facilitate thinking through problems/issues and finding solutions as leaders, managers, and employees in organizations.

#### **HADM 529. Health-Care Negotiations and Conflict Resolution. 3 Units.**

Diagnoses the complex, competing issues among different social, political, and economic initiatives promoted by both liberals and conservatives. Focuses on and emphasizes shared interests and fears of individuals and entities promoting competing policies, which leads to a more productive negotiation process and makes conflict resolution more attainable.

#### **HADM 534. Health-Care Law. 3 Units.**

Examines health care as a highly regulated industry, providing students with an understanding of the vast range of legal issues facing health-care practitioners and administrators. Gives particular attention to topics in regulatory compliance, medical malpractice, health-care contracting, and employment law.

#### **HADM 536. Health Policy Communications. 3 Units.**

Strategies for advancing health policy messages. Identifies various forms of public communication and provides techniques for communicating effectively with the mass media and stakeholders in the health system. Focus on critical thinking in addition to oral and written communication.

#### **HADM 542. Managerial Accounting for Health-Care Organizations. 3 Units.**

Financial data used in decision making. Cost behavior, activity-based costing, cost allocation, product costing and pricing, operational budgets, capital budgeting, and behavioral aspects of control. Prerequisite: HADM 507; One course in financial accounting, or consent of instructor.

**HADM 545. Government Policy and Health Disparities. 3 Units.**

Overview of health disparities in framing health policy discussions. Examines the federal government's use of funding and regulation to influence health-care delivery in the United States. Reviews the role of state and local governments in developing and implementing health policy. Explores how research is used in documenting disparities and evaluating interventions.

**HADM 546. Attaining Philanthropic Support: Fundamentals of Fundraising. 2 Units.**

Provides an overview of working in the nonprofit sector postgraduation, and the essentials of how to fund raise—especially from private sources such as individuals, foundations and corporations, and other entities. Addresses the technical, methodological, relational, and ethical principles that undergird fund-raising.

**HADM 555. Health-Care Delivery Systems. 4 Units.**

Reviews current trends in health-care financing; integrated delivery systems; managed care, as well as some focus on health-care operations, including: billing, coding, pricing, utilization review, case management, and systems. Reviews and discusses current events and research relating to the health-care system structure throughout the world and relative to U.S. health-care policy.

**HADM 559. Health-Care Marketing. 3 Units.**

Applies marketing concepts to health care delivery systems. Emphasizes a strategic market-management approach for developing or evaluating strategies and programs for a health care organization.

**HADM 564. Health-Care Finance. 3 Units.**

Covers the cost of capital and capital structure, capital budgeting, project risk analysis, financial condition analysis and forecasting. Additional topics: revenue cycle and current account management, business combinations and valuation, and financial risk management.

**HADM 574. Managing Human Resources in Health-Care Organizations. 3 Units.**

Purposefully explores how the strategic management of human resources creates value and delivers results in health care. Addresses an emerging human-resource paradigm, in addition to focusing on the traditional perspectives of human resources that center around the personnel function.

**HADM 575. Management Information Systems in Health Care. 3 Units.**

Systems theory and application in the design and operation of integrated management information systems in a health-care setting. Examines hardware, software, and human interfaces.

**HADM 577. Governance for Non-Profit Excellence. 3 Units.**

Individuals who plan their careers for the non-profit world and their entities require knowledge on how to provide excellent leadership in their organizational settings. Topics included in this course include the differential roles of volunteer board members and agency executives and their staffs, nominating and recruiting board members, legal and other policies affecting board members, agendas, minutes and board manuals, crisis and conflict management, managing volunteers, visioning and long range planning, non-profit accountabilities, meetings and consensus building. Learning outcomes will derive from this content.

**HADM 578. Foundations of Fund Development. 3 Units.**

Reviews the fundamental art and science of fund-raising approaches. Includes the psychology of fund raising, donor motivation, a comprehensive fund-raising plan, what research in fund-raising teaches, annual funds and direct mail, major gift development, grant development, role playing the "ask" process, planned giving and capital campaigns, selecting appropriate individuals to staff development offices, proposal and case statement development, gift stewardship, and software-driven accountabilities and reporting.

**HADM 579. Legal Issues in Nonprofit Management and Policy. 3 Units.**

Provides a review and understanding of legal issues that particularly pertain to nonprofit organizations, including: responsibilities assumed by boards of directors; accountabilities pertaining to the IRS and other local, state and federal government entities; the nature of financial accountability intrinsic to the nonprofit sector; and ethical constructs that apply to nonprofit organizations.

**HADM 580. Foundations of Leadership. 3 Units.**

Provides a general introduction to the literature of leadership and management, especially as they apply to managing nonprofit organizations. Focuses particularly on the competencies, skills, responsibilities, and expectations of managers and leaders (in their differentiated roles) as found within current theoretical and practice frameworks.

**HADM 581. Orientation for Leadership I: Vision and Understanding. 4 Units.**

The first in the series designed to provide an orientation for leadership. Student evaluates personal skills and understanding of leadership while creating a personal vision of his or her role in leadership for the future.

**HADM 582. Orientation for Leadership II: Exploring the Nature of Leadership. 4 Units.**

The second in the series designed to provide an orientation for leadership. Focuses on the definition and scope of leadership, the qualities of leadership, and various leadership styles. Explores the nature of leadership within both the individual and organizational context. May be taken concurrently with HADM 581 or HADM 583.

**HADM 583. Orientation for Leadership III: Setting a New Direction. 4 Units.**

Builds on the work completed in HADM 581. Under the guidance of an assigned advisor, students create either a personal development plan or an academic plan to be submitted as part of the admission requirement for the doctoral leadership degree. Prerequisite: HADM 581.

**HADM 584. Current Topics in Health Policy and Leadership. 1 Unit.**

Lectures and discussion on current issues in leadership. Specific content varies from quarter to quarter. May be repeated for additional credit.

**HADM 585. Policy Development for a Twenty-First Century Health System. 3 Units.**

Addresses the unique application of leadership theory and best practice to the field of public health, health care, and related areas.

**HADM 586. Building Healthy Communities: Integrative Health Policy. 3 Units.**

Examines the public health system, how health policy is developed, and the diverse stakeholders involved in the process. Examines effective partnerships with government agencies, the private sector, nongovernmental organizations, communities, and social entrepreneurs. Explores and analyzes in depth how these partnerships have worked together to make positive health improvements through effective policies will be explored.

**HADM 587. Health Policy and Research. 3 Units.**

Provides students with the skills needed to translate research into policy and practice. Examines how research impacts public health and health policies. Students explore the relationship between statistics, research, and public policy and understanding policy development and the politics that informs public health policy. Focuses on collaboration with government agencies and community groups in evaluating outcomes associated with changing policies at the institution, community, and state levels.

**HADM 588. Leadership, Policy, and Environmental Change. 3 Units.**

Examines public health approaches to improve health through environmental and policy change. Explores theoretical and practical applications of legislative advocacy in the area of health policy.

**HADM 589. Advanced Practice in Leadership. 1-4 Units.**

While working closely with leadership specialists, student observes, demonstrates, evaluates specific leadership styles, and explores alternative approaches. Permission of instructor required. May be repeated for a total of 8 units.

**HADM 595. Leadership—Past, Present, and Future. 3 Units.**

An in-depth study of the historical and theoretical foundations of leadership, exploring a wide range of sources across time and culture. Emphasizes major theories influencing the current understanding of leadership and its relationship to management. Prerequisite: HADM 582 or equivalent.

**HADM 601. Health Systems-Operations Management. 3 Units.**

Uses quantitative methods to analyze and improve business processes within a health-care organization. Includes decision-making models, forecasting, linear programming, inventory models, queuing theory, project management, facility location and layout, and quality control.

**HADM 604. Health Systems Strategic Planning. 3 Units.**

Describes the strategic planning process and examines the tools needed to analyze the external factors and internal capabilities as they relate to a particular organization. An overview on how to develop a vision, mission, goals, objectives and a control mechanism will be provided as well as insight on how best to implement developed strategy as it relates to human resource management, marketing and finance. The ability to consider the business, demographic, cultural, political and regulatory implication of decisions that improve long-term success and the viability of an organization will also be examined.

**HADM 605. Health-Care Quality Management. 3 Units.**

Focuses on quality systems that include developing clear mission or vision, setting measurable strategic quality goals, deploying goals for action by identifying specific activities to be done, and controlling results. Analysis of quality process in health care historically, with emphasis on key strategies for success.

**HADM 614. Research Design and Practice I. 3 Units.**

Introduces research methods, including ethnography. Examines literature for information on processes, and provides field experience for participation observations, interviewing, and the discovery of theory. Includes ethical consideration and the development of a research proposal.

**HADM 615. Research Design and Practice II. 3 Units.**

Planning and conducting a research project. Advanced analysis of appropriate research design for research and development of a publishable research paper for a peer-review journal. Prerequisites: HADM 614.

**HADM 620. Health Policy Theories and Concepts. 4 Units.**

Introduces students to a selection of material on key theories, writers, and conceptual frameworks that influence contemporary health policy analysis and development. Discusses American political thought and reviews the evolution of health policy in the U.S., theories of justice, and implications for public health policy. Teaches students to explain the role of ethics and values in developing a framework for health policy.

**HADM 625. Health Policy Advocacy and Civic Engagement. 4 Units.**

Matches students with health or social service, health policy, and social justice agencies and coalitions to provide in-depth knowledge of agenda setting, power analysis, legislative research, and legislative advocacy in relation to specific health issues. Emphasizes the impact of the political process. Develops skills associated with community organizing and civic engagement for policy advocacy and communicating effectively using traditional and innovative strategies, including but not limited to mass and social media. Focuses on oral and written communication, such as policy briefs and op-eds.

**HADM 685. Preliminary Research Experience. 3 Units.**

Experience gained in various aspects of research under the guidance of a faculty member and by participation in an ongoing project. Must be completed prior to beginning the dissertation research project.

**HADM 689. Graduate Seminar in Leadership. 2 Units.**

While working under the direction of a department faculty member, student applies leadership theory to specific situations and evaluates the effectiveness of such interventions. Limited to doctoral students. Permission of instructor required. May be repeated for a total of 8 units.

**HADM 690. Health-Care Management Capstone. 3 Units.**

A capstone course that completes the M.B.A. degree program. Integrates the core and cross-cutting health care management competencies, resulting in a learning experience that combines health care perspectives, theories, skills, and tools in an applied format. Final products—derived through case studies, guest lectures, and literature review—include a comprehensive strategic plan that incorporates all the elements of a business plan designed specifically for a health care organization.

**HADM 697. Dissertation Proposal. 1-10 Units.**

Doctoral student develops a dissertation proposal and works in collaboration with the research adviser on mutually agreed-upon objectives that will provide the basis for evaluation. Culminates in a dissertation proposal. Prerequisite: Successful completion of comprehensive exams.

**HADM 698. Dissertation. 1-8 Units.**

Doctoral student prepares dissertation manuscript presenting results of the research study. Prerequisite: HADM 697 and advancement to candidacy.

**HADM 699. Applied Research. 1-4 Units.**

Assignment to private, government, international, or voluntary health agency or other approved organization where practical application of the materials studied on campus is made under the guidance of the department faculty and the organization involved. Research project that includes substantial analysis of data and discussion of results. Written report and oral presentation required. Prerequisite: Consent of department advisor and of instructors responsible for supervision.

**HADM 724A. Health-Care Administration Practicum. 2 Units.**

Provides practical training for students in the M.B.A. degree program. Affords students an experiential learning opportunity to develop critical skills for a career in health-care administration. Practicum instructor works closely with these organizations to monitor student progress. Student placement based on skill sets, interests, and organizational needs. Requires 100 hours and final deliverables, such as: paper, evaluations, and presentation, dependent on the cumulative number of practicum hours completed to date by the end of the quarter.

**HADM 724B. Health-Care Administration Practicum. 4 Units.**

Provides practical training for students in the M.B.A. degree program. Affords students an experiential learning opportunity to develop critical skills for a career in health-care administration. Practicum instructor works closely with these organizations to monitor student progress. Student placement based on skill sets, interests, and organizational needs. Requires 200 hours and final deliverables, such as: paper, evaluations, and presentation, dependent on the cumulative number of practicum hours completed to date by the end of the quarter.

**HADM 724C. Health-Care Administration Practicum. 6 Units.**

Provides practical training for students in the M.B.A. degree program. Affords students an experiential learning opportunity to develop critical skills for a career in health-care administration. Practicum instructor works closely with these organizations to monitor student progress. Student placement based on skill sets, interests, and organizational needs. Requires 300 hours and final deliverables, such as: paper, evaluations, and presentation, dependent on the cumulative number of practicum hours completed to date by the end of the quarter.

**HADM 724D. Health-Care Administration Practicum. 8 Units.**

Provides practical training for students in the M.B.A. degree program. Affords students an experiential learning opportunity to develop critical skills for a career in health-care administration. Practicum instructor works closely with these organizations to monitor student progress. Student placement based on skill sets, interests, and organizational needs. Requires 400 hours and final deliverables, such as: paper, evaluations, and presentation—dependent on the cumulative number of practicum hours completed to date by the end of the quarter.

## Health Care Administration (HCAD)

### Courses

**HCAD 305. Health-Care Communication. 3 Units.**

Basic communication applications of health-care organizations. Communication theory, language, oral reporting, conducting meetings and conferences, interpersonal techniques of listening and interviewing, nonverbal communication, crises management, and public relations and multicultural as well as ethical considerations.

**HCAD 328. Health-Care Organizational Behavior. 3 Units.**

Applies behavioral-science concepts to understanding individual and group behavior in health-care organizations. Topics include: attitude formation, perceptual processes, motivation, job design, reward systems, leadership, group processes, organizational structure and design.

**HCAD 336. Legal Environment of Health Care. 3 Units.**

Laws regulating health care covering legal institutions, constitutional considerations, business torts and crimes, contracts, personal property, uniform commercial code, sales, commercial paper, secured transactions, creditors' rights, and bankruptcy; agency; business organizations, limited and general partnerships, corporations; and government regulations.

**HCAD 359. Health-Care Marketing. 3 Units.**

Surveys major marketing topics, including consumer behavior, product, pricing, placement, and promotions.

**HCAD 374. Health-Care Human Resources. 3 Units.**

Purposefully explores how the strategic management of human resources creates value and delivers results in health care. Addresses an emerging human-resource paradigm in addition to focusing on the traditional perspectives of human resources that center around the personal function.

**HCAD 375. Health-Care Information Systems. 3 Units.**

Challenges students to explore various health care information systems and emerging technologies by addressing organizational needs, requests for proposals (RFPs), policies and procedures, education, quality assurance, and governance.

**HCAD 401. Health-Care Operations Management. 3 Units.**

Explains quantitative methods used to analyze and improve organizational processes within a health care organization. Decision analysis, break-even analysis, materials management, linear programming, queuing theory, quality management, network modeling, and game theory.

**HCAD 409. Principles of Health-Care Administration. 3 Units.**

Introduction to the administration of organizations within the context of the economic, regulatory, and financial constraints of the health-care delivery system. Areas covered include: concepts of organizational management; the management functions (planning, decision making, organizing, staffing, directing, and controlling); budgeting; committees and teams; adaptation, motivation, and conflict management; authority, leadership, supervision; and human resource management.

**HCAD 414. Sustainability for Health-Care Management. 3 Units.**

Approaches health care management by focusing on health-care sustainability guidelines that reflect the intrinsic relationship between delivering quality health care and the ecological health of the community. Examines social trends and drivers of sustainable health systems and explores various approaches for health care providers and systems to become better stewards of the environment. Studies the relationship between hospital design, sustainability initiatives, and quality of care.

**HCAD 417. GIS for Health-Care Management. 3 Units.**

Explores geographic information system (GIS) methods as a means of introducing students to key issues faced by managers responsible for health-care systems in government or private sector organizations. Focuses on the emerging concept of "geodesign"—that is, the use of geotechnologies to find optimal solutions to geospatially defined issues in health-care management. Introduces the fundamentals of mapping, spatial query, pattern analysis, and spatial statistics; and emphasizes methods for modeling key processes in health care—including suitability, movement, and interaction. In collaboration with a GIS analyst, students examine case studies that emphasize business and community health-care support sectors. Students also participate in projects highlighting effective sustainability practices to assure healthy initiatives that influence the overall health climate of their community.

**HCAD 418. Essentials of Project Management for Health Care Managers. 3 Units.**

Introduces students to key issues faced by health-care systems managers in government or private sector organizations. Explores the essentials of project management. Focuses on the concepts of project life cycle and organization—initiation and planning, executing, controlling, and closing responsibilities; as well as engaging people within the project. Teaches students to use the essentials of project management in everyday activities to find optimal solutions within health-care management issues. Select project experiences include evolving methodologies in project management (Agile, Six Sigma, and risk management projects). Students examine case studies that emphasize health-care organization project management techniques and concepts; and participate in projects that highlight effective sustainability practices, ensure healthy initiatives, and influence the overall effective performance of the health-care organization.

**HCAD 446. Accounting for Health-Care Managers. 3 Units.**

An introductory course that covers the accounting cycle, balance sheet, income statement, basic accounting principles, ethics, internal control, accounting for assets, current liabilities, and stockholder's equity.

**HCAD 464. Health-Care Finance. 3 Units.**

An introductory course that covers time value of money, valuation, risk and rates of return, financial analysis, financial forecasting, working capital management, capital budgeting, cost of capital, and long-term financing.

**HCAD 465. Health-Care Financial Management. 3 Units.**

Focuses on accounting and financial management principles and concepts relevant to department-level management of health services organizations. Explores the financial environment in which health-care organizations operate.

**HCAD 498. Health-Care Policy and Strategy. 3 Units.**

Strategic planning process and tools needed to analyze external factors and internal capabilities as they relate to particular organizations. Development of vision, mission, goals, objectives, and control mechanisms. Provides insight into best practices for implementing developed strategy as it relates to the human resource management, marketing, and finance departments.

**HCAD 499. Directed Study. 1-4 Units.**

Student individually arranges to study under the guidance of a program faculty member. Project or paper to be submitted on a topic of current interest in an area related to health-care management. Regular meetings provide the student with guidance and evaluation. Activities may also include readings, literature review, or other special or research projects. A maximum of 4 units is applicable to any degree program.

## Health Geoinformatics (HGIS)

### Courses

**HGIS 421. Cartography and Map Design. 3 Units.**

Cartographic principles and guidelines, including geodesy, map projections, coordinate and locational systems, scale and distance, direction, vertical factors, mapping methods and techniques, and graphic representation of Earth patterns. Provides the foundation for understanding advanced geospatial technologies, including GIS, remote sensing, and global positioning systems.

**HGIS 422. Principles of Geographic Information Systems. 4 Units.**

Comprehensive overview of the concepts, functions, applications, technologies, and trends pertaining to automated geographic information systems (GIS). Framework for understanding the design, development, implementation, and management of GIS. Topics include: GIS hardware and software considerations, data resources, technical issues and applications in GIS.

**HGIS 423. Practical Issues in GIS. 4 Units.**

Key tasks and issues faced by GIS managers and practitioners responsible for implementing and managing health GIS systems in government or private sector organizations. Presents sound principles and approaches for GIS implementation, as well as project management and organizational issues, to provide the necessary foundation of information on alternatives and pitfalls. Main topics include: GIS needs assessment, software/hardware considerations, financial and staffing requirements, project scope delineation, project planning and control, pilot projects.

**HGIS 424. Desktop GIS Software Applications. 4 Units.**

Introduces state-of-the-art, PC-based GIS applications. Student acquires the conceptual knowledge as well as the hands-on experience needed to optimally utilize available functions within desktop GIS technology for display, editing, analysis, and presentation of spatial and thematic data. Focuses on ArcView GIS and its analytical extensions.

**HGIS 434. Advanced GIS Software Applications. 3 Units.**

Comprehensive overview of the concepts, functions, skills, applications, technologies, and trends of modern remote sensing in environmental and health data acquisition and analysis; as well as applications in related public health issues. Topics include GIS-based image interpretation and data generation, satellite remote sensing, introduction to IDRISI Kilimanjaro and ERDAS Imagine; as well as other modeling tools, such as ArcGIS Modler, Stella, ArcPAD, GPS, CARTALink, etc.

**HGIS 435. Sources, Capture, and Integration of GIS Data. 3 Units.**

Provides overview of some of the technologies and methods used in capturing, processing, integrating, and displaying GIS data. Topics include: global positioning systems, satellite digital imagery, image processing, aerial photography, digital orthophotography, GIS applications for the World Wide Web, and GIS data sources on the Internet. Fundamentals of conceptual and physical design, construction, currency, and integrity of geospatial databases.

**HGIS 436. Spatial Analysis with GIS. 4 Units.**

Focuses on GIS functionality suited for modeling and analyzing complex spatial relationships. Basic functions for the selective retrieval of spatial information and the computation or mapping of statistical summaries. Advanced quantitative methods of spatial statistics for analyzing different data feature types and data structures, and investigating patterns in spatial data. Main topics include: feature manipulation, distance measurement, spatial overlay, proximity analysis, spatial correlation analysis, point pattern analysis, spatial interaction, surface analysis, network analysis, grid analysis, and spatial modeling within GIS.

**HGIS 437. GIS in Public Health. 2 Units.**

Reviews GIS methods and analytical techniques with potential for improving public health research and practice. Fields of public health considered individually. Identifies specific GIS approaches and techniques. Considers specific disciplines, including: epidemiology, health promotion, international health/development, health care administration, environmental health and contamination, and emergency management. Current applications of GIS technology and methods at the international, national, and local levels. Prerequisite: HGIS 436.

**HGIS 438. Introduction to Web GIS. 4 Units.**

Introduces basic Web-based techniques, design and publication of maps, and geographic analysis through the Internet. Students learn to design Web maps and implement geographic analysis via the Internet. Includes lectures, laboratory exercises, and a final project. Discusses understanding REST Web services, building geospatial mashup applications, optimizing Web map services, creating and using geoprocessing Web services, and mobile GIS. Students develop and present an Internet mapping service to the class using application of their choice.

**HGIS 498. Health Geographics Senior Project. 2,4 Units.**

Three-quarter senior research or applications project conducted during the student's final academic year. Student demonstrates mastery of spatial analysis skills by assessing relevant public and oral presentations. May be repeated for additional credit. Must have a total of 12 units. Paper and oral presentation required during final quarter of registration.

**HGIS 499. Directed Study/Special Project. 1-4 Units.**

Individual arrangements for undergraduate, upper division students to study under the guidance of a program faculty member. May include readings, literature review, or other special projects. Minimum of thirty hours required for each unit of credit. A maximum of 4 units applicable to any undergraduate degree program.

**HGIS 521. Cartography and Map Design. 2 Units.**

Map design and content, design procedures, production techniques, color selection, use of text, creation of visual hierarchy and visual balance. Explores thematic and general mapping with use of GIS data for mapping purposes. Discusses ArcGIS software. Map critiquing. Provides the foundation for understanding advanced geospatial technology, including GIS, remote sensing, and global positioning systems.

**HGIS 522. Principles of Geographic Information Systems and Science. 3 Units.**

Comprehensive overview of the concepts, functions, applications, technologies, and trends pertaining to automated geographic information systems (GIS). Topics include: GIS hardware and software considerations, data resources, technical issues and applications in GIS.

**HGIS 523. Practical Issues in GIS. 3 Units.**

Key tasks and issues faced by GIS managers and practitioners responsible for implementing and managing health GIS systems in government or private sector organizations. Presents sound principles and approaches for GIS implementation, as well as project management and organizational issues, to provide the necessary foundation of information on alternatives and pitfalls. Main topics include: GIS needs assessment, software/hardware considerations, financial and staffing requirements, project scope delineation, project planning and control, pilot projects.

**HGIS 524. GIS Software Applications and Methods. 3 Units.**

Project-oriented course introduces state-of-the-art, PC-based GIS technology and applications. Provides the conceptual knowledge and hands-on experience needed to optimally utilize available functions within desktop GIS technology for modeling, displaying, editing, analyzing, and presenting spatial and thematic data. Focuses on ArcGIS and its analytical extensions, as well as Leica Geosystems ERDAS Imagine.

**HGIS 526. Seminar in Geographic Information Systems. 1 Unit.**

Covers various aspects of GIS technology and its applications to health that might otherwise be excluded from the usual and customary health geoinformatics academic curriculum. Topics of interest include metadata creation and management, health geoinformatics spatial data infrastructure, data interoperability, and mobile mapping technology. Presenters with specific expertise invited to cover areas of interest.

**HGIS 527. Geospatial Technologies for Emergency Preparedness and Management. 3 Units.**

Applies geospatial data, tools, and methods to preparedness and emergency management. Examines the current status of the use of geospatial data, tools, and infrastructure in preparedness and disaster management. Explores approaches for the effective integration of existing geospatial tools into the framework of emergency preparedness and management; strategies for improving geospatial decision support in this field; and various other issues related to data availability, security, and policies. Emphasizes technology application. Prerequisite: HGIS 524; prior knowledge of GIS.

**HGIS 535. Integration of Geospatial Data in GIS. 3 Units.**

Surveys capturing, processing, integrating, and displaying GIS data. Focuses on public health applications of global positioning systems, satellite digital imagery, image processing, aerial photography, digital orthophotography, GIS applications for the World Wide Web, and GIS data sources on the Internet.

**HGIS 536. Spatial Analytic Techniques and GIS. 3 Units.**

Modeling and analyzing complex spatial relationships through GIS technology. Selective retrieval of spatial information and computation or mapping of statistical summaries. Advanced methods of analysis using spatial statistics.

**HGIS 537. Health Care Geographics. 2 Units.**

GIS in health services research and the health-care sector. Introduces GIS-based methods of mapping, modeling, and analyzing issues, such as patients' access to health care and services, locating new medical facilities and health services, delineating medical service areas and consumer markets. Presents emerging applications of GIS to the scale of individual facilities and the mapping of the human body itself.

**HGIS 538. Introduction to Web GIS. 3 Units.**

Introduces basic Web-based techniques, design and publication of maps, and geographic analysis through the Internet. Students learn how to design Web maps and implement geographic analysis via the Internet. Includes lectures, laboratory exercises, and a final project. Emphasizes understanding of REST Web services, building geospatial mashup applications, optimizing Web map services, creating and using geoprocessing Web services, and mobile GIS.

**HGIS 539. GIS Applications in Environmental Health. 2,3 Units.**

GIS display, modeling, and analysis of environmental hazards/toxicants, as well as population's exposure to environmental contaminants. Includes geography and modeling of hazard sources, hazard surveillance, spatial characterization/modeling of contamination and GIS-enhanced risk assessment/management. Considers the use of GIS for managing public health safety problems. Presents current applications of GIS in environmental health and disaster/emergency response. Third unit requires additional GIS project that includes substantial analysis of environment data and discussions of results through written and oral presentation. Prerequisite: HGIS 524 or HGIS 536; or consent of instructor.

**HGIS 546. Introduction to Spatial Epidemiology. 2 Units.**

Provides overview of GIS-based mapping and statistical methods for describing, displaying, quantifying, and modeling spatial variations in disease, especially with respect to exposures at the small-area scale. Main topics include disease mapping, analysis of spatial clustering of health events, disease surveillance, and ecological modeling. Presents currently implemented spatial epidemiologic applications at the international, national, and local levels.

**HGIS 547. GIS for Public Health Practice. 3 Units.**

Community health assessment and planning, chronic disease prevention, public health, health disparities analysis, and immunization.

**HGIS 549. Remote Sensing Applications in the Health Services. 3 Units.**

Comprehensive overview of the concepts, functions, skills, applications, technologies, and trends of modern remote sensing in environmental and health data acquisition and analysis, as well as applications in related public health issues. Topics include GIS-based image interpretation and data generation, satellite remote sensing, remote sensing applications, and case studies in public health. Software tools used include introduction to IDRISI Kilimanjaro and ERDAS Imagine; as well as other modeling tools such as ArcGIS, STELLA, ArcPAD, GPS, CartaLinx, etc.

**HGIS 555. Advanced Remote Sensing Application and Systems Modeling in Health and Earth Science. 3 Units.**

Introduces systems science as both a conceptual approach to analysis and as a methodology for enhancing research and application within the environment, health, and earth systems. Provides students with fundamental knowledge of dynamic modeling tools, particularly focused on using STELLA and iThink (from Isee Systems); as well as other tools that integrate spatial and nonspatial datasets, e.g., ArcModeler, Geode, TerraVIVA, Netweaver, and various SAS tools, etc. Applies systems thinking and analysis to specific interdisciplinary issues within public health and other applied sciences.

**HGIS 557. Geographical Techniques for Health and Environmental Analysis. 3 Units.**

Geographic tools for graphic display and spatial analysis of domestic and international health, epidemiological health services, and environmental health problems and issues. Uses of geographic information systems (GIS), desktop mapping, medical geographical applications, and geocoded, computerized databases in health and environmental planning, decision making, and research.

## Health Informatics (HLIF)

### Courses

**HLIF 510. Health-Care Information Systems. 4 Units.**

Development and diffusion of current and futuristic information systems in health-care organizations. Explores an array of systems, from modular applications to enterprise-wide systems. Encompasses the concepts of EHR, PHR, HIE, regulatory movements, system architecture, system theory, and strategic planning for information systems. Course includes weekly laboratory (2-4 hours) focused on demonstrating competency with Microsoft Excel.

**HLIF 515. The U.S. Health-Care System. 3 Units.**

Overview and analysis of health-care delivery in the United States, including the history of health-care institutions, accrediting bodies, organizations that provide health care, regulations, standards, reimbursement methods used, and the professionals who provide services. Research and analysis of historical health-care models/regulations proposed or utilized in the United States and other countries, current system regulations proposed or being utilized in the United States and other countries, and reflection by the student as to future models that may improve the current system and delivery of health care in the United States.

**HLIF 520. Data Management: Modeling and Development. 3 Units.**

Explores the concepts of data and the criticality of appropriate data management to successfully model, develop, and implement health-care information systems. Specific topics include database management, data integrity, knowledge management, data mining, data integration, data visualization, data architecture, and data warehousing.

**HLIF 525. Management of Healthcare Data and Information. 2 Units.**

“Investigates and analyzes standardization movements and reimbursement systems in health informatics. Topics addressed include SDOs, HL7, federal standardization, ANSI, UMLS, EDI, SNOMED CT, and revenue cycle management.”.

**HLIF 530. Data Analytics and Decision Support. 3 Units.**

“Studies various data sources available for healthcare data analytics, along with direct application of software tools and techniques to extract, transform, analyze, visualize healthcare data. Review of strategies supporting decision support and knowledge management.”.

**HLIF 532. Financial Management in Health Care. 2 Units.**

Study of economics and financial management in health-care organizations. Analyses of economic market impacts, various health-care payment mechanisms, ratio analysis, cost-benefit analysis, operational and capital budgeting, and investment strategies.

**HLIF 540. Leadership Perspectives and Practice. 3 Units.**

Examines organizational culture and the various structures, designs, and models as they relate to leadership. Specific topics include change management, personnel management, governance, ethics, group dynamics, and human factor in health informatics.

**HLIF 545. System Design, Implementation, and Management. 3 Units.**

Study of the fundamentals of the system development life cycle (SDLC) —including system analysis assessment, techniques and tools, system design/development strategies, system implementation and operations, and system evaluation.

**HLIF 548. Human Computer Interactions. 2 Units.**

Critical analysis of the cognitive science and human factors related to EHRs, PHRs, and consumer informatics. Topics addressed include user needs, application design concepts, patient empowerment, and human-computer interaction.

**HLIF 555. Health-care Vendor and Project Management. 2 Units.**

Investigates contemporary health-care information systems vendor offerings and effective techniques for establishing effective vendor relationships. Topics include request for information, request for proposals, contract negotiations, and project management.



**HLIF 560. Policy Development for Privacy and Security in Health-Care Systems. 3 Units.**

Study of the regulatory, social, and ethical issues of privacy and security in health care information systems. Topics covered include HIPAA, breach legislation/reporting requirements, security requirements/defenses, business continuity planning, and other regulatory issues related to privacy and security.

**HLIF 565. Technical Structures in Health Informatics. 3 Units.**

Examines the principles of computer science as related to the development and diffusion of technology supporting health-care information systems. Topics covered include technical infrastructure support of the following: business continuity, daily operations, wireless communication, security, EDI/HIE, networking protocols, system integration, programming languages, and system integration issues. Introduces students to computer programming and software development.

**HLIF 570. Professional Portfolio. 1 Unit.**

Development of a professional e-portfolio that includes a personal video of introduction, the development of personal and professional goals, resume and cover letter writing, major projects completed from each course and from previous work experience, career mapping, reaction papers in response to the University's core values, publications completed, and other items as developed during the program.

**HLIF 574. Capstone I: Project and Special Topics in Health Informatics. 1 Unit.**

Student works independently on a business plan—either with an assigned facility or a theoretical business opportunity—to select, implement, and optimally utilize information technology on an effective solution. Student subsequently prepares and presents a complete business plan (project charter) that draws from all previous curriculum course work and includes, but is not limited to, the following elements: analysis of business and system need; articulation of project goals, assumptions, dependencies; delineation of project scope and stakeholders; specification of deliverables that measure success; preparation of complete budget; establishment of timeline; and project management strategies.

**HLIF 575. Capstone: Project and Special Topics in Health Informatics. 2 Units.**

Student works independently on a business plan, either with an assigned facility or a theoretical business opportunity, to select, implement, and optimally utilize information technology on an effective solution. Student subsequently prepares and presents a complete business plan (project charter) that draws from all previous curriculum course work and includes, but is not limited to, the following elements: analysis of business and system need; articulation of project goals, assumptions, dependencies; delineation of project scope and stakeholders; specification of deliverables that measure success; preparation of complete budget; establishment of timeline; and project management strategies.

**HLIF 580. Health-Care Policy. 2 Units.**

Analysis of current health-care policy development at a local, regional, state, and national levels. Includes review and critical analysis of proposed policy and contemporary forces impacting various policy agendas.

**HLIF 584. Professional Practicum and Seminar for Health Informatics. 2 Units.**

Experiential learning in health informatics. Students must satisfactorily complete 110 practicum hours. Second year standing in MSHI program; successful completion of all curriculum courses for the first 6 quarters of the program.

**HLIF 599. Health Informatics Independent Study. 1-4 Units.**

Student submits a project or paper on a topic of current interest in an area of health information administration. Regular meetings to provide the student with guidance and evaluation. Elected on the basis of need or interest. May be repeated.

## Health Information Administration (HLIN)

### Courses

**HLIN 301. Introduction to Health Data Management. 4 Units.**

Introduces scope, functions, and administration of health information management as a profession, including professional organizations, professional certifications, and the profession's code of ethics. Overview of documentation content and structure of paper, hybrid, and electronic health records. Requirements of accrediting, certifying, and licensing entities that guide the creation of patient health-data collection, with emphasis on acute care settings. Surveys functions within a health information management department.

**HLIN 303. Basic Coding Principles and Techniques I. 3 Units.**

Principles and conventions for covering ICD-10-CM and ICD-10-PCS coding techniques by body system and disease process, including: endocrine, nutritional, metabolic, blood, parasitic disease, immunity disorders, respiratory, digestive, sense organs, nervous systems, and infectious diseases. Basic coding techniques for diagnoses, surgical procedures, and other reasons for health-care encounters.

**HLIN 304. Basic Coding Principles and Techniques II. 3 Units.**

Principles and conventions for covering ICD-10-CM and ICD-10-PCS coding techniques by body system and disease process, including: genitourinary, neoplasms, mental disorders, skin and subcutaneous tissue, musculoskeletal, muscular tissue, congenital anomalies, injuries, poisonings, burns, and complications of pregnancy and childbirth. Basic coding techniques for diagnoses, surgical procedures, and other reasons for health-care encounters.

**HLIN 305. Health-Care Statistical Applications. 3 Units.**

Problem-solving approach to health-care statistical applications and data presentation. Introduces research statistics. Laboratory sessions include instruction in the use of Microsoft Excel for data presentation and analysis.

**HLIN 308. Introduction to Data Analytics. 4 Units.**

Introduces data management, collection, analysis, and uses in health care. Concepts of transforming data into information, data analytic techniques, and data presentation. Uses software tools for the manipulation, analysis, and presentation of data. Introduces basic health-care statistical techniques.

**HLIN 325. Pharmacology for Health Information Administration. 2 Units.**

Provides understanding of pharmacology as required for medical record analysis, audits, and other related studies. Basic definitions, sources of information, and classification of drugs.

**HLIN 361. Professional Practice Experience I. 1 Unit.**

Supervised experience in health information departments and other areas of health care or health-related facilities. Includes applied laboratory assignments for health information administration professional courses.

**HLIN 362. Professional Practice Experience II. 1 Unit.**

Supervised experience in health information departments and other areas of health care or health-related facilities. Includes applied laboratory assignments for HIIM professional courses.

**HLIN 365. Professional Practice Experience III. 1 Unit.**

Supervised clinical experience in a health facility or health-related organization, with simulated laboratory experiences and assignments, during the Spring Quarter of the junior year. Written and oral reports of experience. Prerequisite: Successful completion of required fall quarter courses, enrollment in or completion of required winter courses, and enrollment in required spring quarter courses; or permission of department chair.

**HLIN 395. Professional Practice Experience I—Junior Affiliation. 3 Units.**

Three-week supervised clinical experience in a health facility or health-related organization at the end of the junior year. Written and oral reports of experience, with classroom discussion. Not required of registered health information technologists (RHITs). Prerequisite: Completion of junior-year courses and laboratory assignments; or permission of the department chair.

**HLIN 401. Survey of Health Systems Management. 4 Units.**

The science of information and its applications to management and patient care in the health-care industry. Information systems concepts, theories, technologies, and models; as well as an in-depth review of information system creation and adaptation. General systems concepts in health-care: analysis, design, implementation, and maintenance. Strategies for the successful management of information systems in an integrated or interfaced environment, with emphasis on health information applications. Future trends in information system elements presented in conjunction with analysis of these trends in the health record profession. Major term project includes the development of database specifications, inputs, outputs, implementation schedules, and maintenance plans.

**HLIN 404. Clinical Terminologies and Vocabularies. 2 Units.**

Clinical terminologies, code sets, classifications systems, and nomenclatures as used in the electronic health record.

**HLIN 407. Financial Management for Health Information Management. 2 Units.**

Budget variance analysis, analysis of cost components, operating statements, and productivity related to a department budget. Examines financial accounting systems, financial evaluation ratios, and reports. Cost benefits realization preparation.

**HLIN 408. Reimbursement for Health Care. 2 Units.**

Financial aspects of health care involving prospective reimbursement systems, analysis of various health-care reimbursement schemes, and financial disbursements. Management issues in reimbursement using DRGs, APCs, and other prospective payment systems. Strategies and techniques for successful revenue cycle management.

**HLIN 421. Survey of Health Systems Management--Applied. 5 Units.**

Applies information systems theory to the development of effective health-care facility systems for electronic patient records. Data-management strategies, including data integrity, architecture, quality, extrapolation, and standardization. Data and system security in all environments. Examines state and national attempts toward data and system interoperability across the care continuum. Discusses necessary administrative strategies for successful implementation of EHRs. Major term project includes research, analysis, and presentation of a contemporary issue in information systems that impacts the practice of information management in health care.

**HLIN 432. Database Management. 3 Units.**

Theories and steps of database development using Microsoft Access. Design and construct relationships, forms, advanced queries with SQL, reports, and macros. Requires a project creating a database for the business needs in health care.

**HLIN 441. Legal Aspects of Health Information Administration I. 2 Units.**

Basic principles of law related to the health care field. Overview of the legal system and the court system in the United States, including alternative dispute resolution. Civil procedure and the elements of evidence. Examines tort law and various types of negligence. Analyzes the elements of improper disclosure. Components of the legal health record; compares confidentiality, privacy, and security. Differentiates between the law and ethics. Examines advance directives. Elements of risk management as it relates to medical documentation and incident reports. Analyzes various types of consents.

**HLIN 442. Legal Aspects of Health Information Administration II. 3 Units.**

Compares federal and state laws regarding access and disclosure of patient information, including application of the preemption rule. Release of general, mental health, substance abuse, and HIV patient documentation. Release of information in response to subpoenas, court orders, and search warrants. Introduces the contents of the Health Insurance Portability and Accountability Act (HIPAA), with in-depth emphasis on the privacy section. Components of the Health Information Technology for Economic and Clinical Health Act (HITECH Act). Examines security breaches. Overview of medical identity theft. Elements of reporting requirements. Assignment pertaining to the Federal Register.

**HLIN 444. Corporate Compliance in Health Care. 3 Units.**

Practical application of the guiding principles of corporate compliance in health care organizations. Analyzes standards and policies established by the Center for Medicare and Medicaid Services. Studies in-depth Joint Commission on Accreditation of Health Care Organization, Health Insurance Portability and Accountability Act (HIPAA), qui tam laws, and fiscal intermediaries—emphasizing business ethics and integrity. Includes the process of institutional audits. Includes Clinical Documentation Improvement Theory as it relates to health care.

**HLIN 445. Coding Seminar. 2 Units.**

Advanced coding concepts and comprehensive review of all health-care coding systems. Current procedural terminology (CPT) at the beginning and intermediate levels. Reviews the federally supervised coding auditing process, including state and federal coding and billing regulations, chargemaster maintenance, coding ethics, coding quality, and coding compliance. Various code sets and terminologies used in health-care systems. Overview of E & M coding. Prerequisite: HLIN 304; or equivalent.

**HLIN 451. Quality Improvement in Health Care. 3 Units.**

Quality improvement methodology. Data retrieval, display, and follow-up for various sectors of health care. Mechanisms for promoting facility-wide participation in achieving optimum patient care, as delineated in medical staff-information management, accreditation, and government standards. Risk management as an integral facet of quality improvement. Relationship to corporate compliance.

**HLIN 462. Professional Practice Experience IV. 1 Unit.**

Supervised experience in health information departments and other areas of health care or health-related facilities, with emphasis on management. Includes applied laboratory assignments for HIIM professional courses.

**HLIN 463. Professional Practice Experience V. 1 Unit.**

Supervised experience in health information departments and other areas of health care or health-related facilities, with emphasis on management. Includes applied laboratory assignments for HIIM professional courses.

**HLIN 475. Research Methods in Health Information Management. 3 Units.**

Introduces the scientific method in research. Focuses on the major steps of the research process as these steps relate to research report evaluation, proposal writing, literature review, development of conceptual framework, identification of variables, statement of hypotheses, research design, and analysis and presentation of data. Common research design and assessment of risk in epidemiologic studies.

**HLIN 483. Alternative Delivery Systems in Health Care. 4 Units.**

Focuses on aspects of health information management in delivery systems other than acute care, and their interrelationships. Health record content, format, regulatory and accreditation requirements, the role of the HIM professional, data collection/reporting, risk management, utilization management, and quality improvement areas. Long-term care, hospital-based ambulatory care, free-standing ambulatory care, hospice, home health care, dialysis treatment centers, veterinary medicine, consulting, correctional facilities, mental health care, substance abuse, dental care, rehabilitation and managed care organizations.

**HLIN 484. Current Topics in Health Information Administration. 3 Units.**

Focuses on career planning, management skills, and professional development. Health information management professionals working in various health-care settings share their knowledge and experience with students. Includes preparation exercises for the national credentialing examination.

**HLIN 493. Health Information Management I. 4 Units.**

Introduces basic management functions, philosophies, principles, and tools of health-care management. Emphasizes management theory, management tools, and application. Specific topics include: planning, organizing, controlling, management by objective, problem solving and decision making, and group dynamics.

**HLIN 494. Health Information Management II. 4 Units.**

Advanced management study of topics relevant to the HIM profession. Topics include: ergonomics and workplace design; transcription management; individual and organizational productivity; project management; attracting, developing, and maintaining a workforce; innovation and change management; federal labor legislation; ethical and social responsibility in management; disaster preparedness and entrepreneurship. Six-to-eight hour administration management laboratory addresses contemporary administrative management strategies, strategic planning, business planning, and employee relations at the administrative level. Organizational, interrelational, and managerial functions and concepts in the health care setting. Laboratory assignments include, but are not limited to, management case studies, Visio software training, and office layout development using Visio software.

**HLIN 495. Professional Practice Experience Senior Affiliation. 3 Units.**

Directed experience at an approved health care or health-related facility. Applies skills and knowledge to management. Written and oral reports of experience, with classroom discussion. International experience may be available.

**HLIN 496. Project Management. 2 Units.**

Project management as related to health information systems and data management.

**HLIN 499. Health Information Administration Independent Study. 1-4 Units.**

Student submits a project or paper on a topic of current interest in an area of health information administration. Regular meetings to provide the student with guidance and evaluation. Elected on the basis of need or interest. May be repeated.

## Health Professions Education (HPED)

### Courses

**HPED 504. Pedagogy and Technology. 3 Units.**

Teaching and learning theories adapted to technology. Explores learning management systems. Overview of instructional design.

**HPED 517. History and Philosophy of Adventist Medical and Health Education. 3 Units.**

Explores the essence of Loma Linda University and the Seventh-day Adventist philosophy of medical and health education as found in the writings of Ellen G. White and others. Discusses the core values of LLU and the science and promotion of healthy lifestyles and health-care delivery.

**HPED 525. Education Theory for the Health Professional. 3 Units.**

Overview of education theories relevant to andragogy and education of health professionals. Also explores theories of online teaching and learning.

**HPED 535. Current Issues in Health Professions Education. 3 Units.**

Explores education foundations and trends in the different health professions. Reviews historic transitions and issues currently impacting the professions.

**HPED 551. Masters Thesis I. 3 Units.**

Selection of research topic, evaluation of current literature on the subject, and construction of data collection instrument. Students can select this option in lieu of the HPED Capstone Project 1. Prerequisites: completion of the core courses in the MS degree program in Health Professions Education, and in consultation with the program director.

**HPED 552. Master's Thesis II. 3 Units.**

Collection of data using approved instrument, analysis of results, discussion, and documentation of findings according to thesis format. Prerequisites: Successful completion of HPED 551 Master's Thesis I and consent of program director.

**HPED 561. Leadership in the Health Professions I. 3 Units.**

Inventory and assessment of personal leadership skills and strengths in a faith-based context.

**HPED 562. Leadership in the Health Professions II. 3 Units.**

Overview of theories of leadership as applied to academic and health professions contexts. Study of leadership characteristics of significant individuals. Prerequisite: HPED 561 Leadership in the Health Professions I.

**HPED 573. Readings in Academic Leadership. 3 Units.**

Dynamics of leadership in an academic environment. Explores and discusses the historical and current natures of academic leadership.

**HPED 581. Capstone Project in Health Professions Education I. 3 Units.**

Students address and present a substantial issue related to their professional area of interest, as well as design and implement a scholarly approach towards its resolution. Emphasizes the design, literature review, and needs assessment of the project. A thesis option available for students requiring a directed research study.

**HPED 582. Capstone Project in Health Professions Education II. 3 Units.**

Continues HPED 581. Students present their findings, emphasizing data collection, implementation, and evaluation of their project. A thesis option available for students who require a directed research study. Prerequisite: HPED 581.

**HPED 595. Special Projects. 1-6 Units.**

Individual arrangements for graduate students to explore relevant areas under the guidance of a faculty mentor. May include readings, literature reviews, research projects, and specialized professional development. Minimum of thirty hours required for each unit of credit.

## Health Promotion and Education (HPRO)

### Courses

**HPRO 500. Stress Management. 2 Units.**

Covers aspects of stress as it relates to health. Addresses definitions of stress, emphasizing the potential effect of stress on physical and mental diseases. Presents coping mechanisms, e.g., cognitive behavior therapy, music therapy, spirituality, and several other techniques. Presented in a service-learning format in which students are in direct contact with the community applying stress-prevention and coping strategies.

**HPRO 501. Human Anatomy and Physiology I. 6 Units.**

Systematic investigation of the form and function of human biological systems. Laboratory included. Limited to doctoral degree students.

**HPRO 502. Human Anatomy and Physiology II. 6 Units.**

Continues HPRO 501. Systematically investigates the form and function of human biological systems. Laboratory included. Limited to doctoral degree students.

**HPRO 509. Principles of Health Behavior. 3 Units.**

Introduces key health behavior-change theories and psychosocial determinants of health behaviors. Provides an overview of motivation, stress and coping, addiction, culture, and religion as related to health behavior. Laboratory emphasizes communication, leadership, and group process activities.

**HPRO 515. Mind-Body Interactions and Health Outcomes. 4 Units.**

Studies the effect of the neurological system on physical health, with a focus on psychoneuro-immunology. Summarizes scientific disciplines that study brain, immune system, and health behavior interactions that provide the healthcare professional with an integrative understanding of lifestyle, whole person care for immune system function and wellness. Prerequisite: Anatomy and physiology, biochemistry.

**HPRO 519. Pharmacology. 3 Units.**

Basic and clinical pharmacology. Emphasizes drugs of concern to health promotion specialists. Principles of drug addiction, drug receptors and pharmacodynamics, pharmacokinetics, and practical uses for drugs. Prerequisite: Anatomy and physiology, general chemistry, organic chemistry, biochemistry.

**HPRO 523. Maternal/Child Health: Policy and Programs. 3 Units.**

Examines national and global public health policy, initiatives, and programs targeting childbearing women, as well as infants and children. Explores selected issues—such as poverty, access to and utilization of health care, violence, and perinatal chemical exposure—within socioeconomic, political, and ethical frameworks. Emphasizes interdisciplinary delivery of services within a public health setting.

**HPRO 524. Child and Adolescent Health. 3 Units.**

Studies developmental and health problems unique to the child and adolescent periods of life. Focuses on special needs and public health programs designed to reach children and adolescents. Gives attention to special problems, such as social adaptation, juvenile delinquency, drug abuse, suicide, adolescent pregnancy.

**HPRO 526. Lifestyle Diseases and Risk Reduction. 3 Units.**

Discusses current lifestyle diseases, including: cardiovascular, metabolic, communicable, and nutritional. Concepts regarding risk factors, screening approaches, and risk reduction, with impact on specific health parameters. Prerequisite: Anatomy and physiology; or consent of instructor.

**HPRO 527. Obesity and Disordered Eating. 3 Units.**

Explores causes and development of obesity, principles of weight management, and relapse prevention. Includes discussion of the causes and treatment of anorexia nervosa and bulimia.

**HPRO 529. Preventive and Therapeutic Interventions in Chronic Disease. 4 Units.**

Specific preventive care techniques dealing with lifestyle and chronic disease in the clinical environment. Multidisciplinary lifestyle interventions in the prevention and treatment of dyslipidemia, diabetes, hypertension, osteoporosis, sleep disorders, and other chronic conditions. Uses case studies and role playing to explore interventions in a variety of clinical scenarios.

**HPRO 530. Fundamentals of Research in Health Behavior and Health Education. 3 Units.**

Introduces research in the behavioral health sciences and health education. Helps students apply appropriate research principles and techniques in health education. Provides an overview of the philosophy and methods of science—including causal inference, developing research questions and testing hypotheses, and identifying appropriate data collection techniques. Emphasizes development of a practical understanding of why, when, and how to use research methods; and how to become an informed reader of scientific research articles and reports. Addresses experimental methods, surveys, and quantitative research designs. Covers other topics, including assessments of reliability, validity, measurement, and research ethics.

**HPRO 531. Pathology of Human Systems I. 3 Units.**

Fundamental mechanisms of disease, including degenerative changes and physical and chemical injury. Reviews diseases by organ system: endocrine, biliary, hepatic, respiratory, digestive, urogenital, skeletal, and central nervous. Limited to doctoral degree students.

**HPRO 532. Pathology of Human Systems II. 3 Units.**

Introduces micropathological organisms. Surveys tissue changes in infectious diseases. Growth disorders, including: basic genetic problems and neoplasia; cardiovascular, circulatory, and inflammatory systems. Limited to doctoral degree students. Prerequisite: HPRO 531.

**HPRO 534A. Research Methods. 2 Units.**

Philosophy of scientific research, sources of research invalidity, quantitative and qualitative literature review techniques, setting research goals and objectives, quasi-experimental and experimental design, research ethics. Requires presentation and critique of published research and literature review. Taken over the course of two quarters for a total of 4 units (HPRO 534A, 2 units Winter Quarter; and HPRO 534B, 2 units Spring Quarter). Doctoral students only. Prerequisite: STAT 509.

**HPRO 534B. Research Methods. 2 Units.**

Philosophy of scientific research, sources of research invalidity, quantitative and qualitative literature review techniques, setting research goals and objectives, quasi-experimental and experimental design, research ethics. Requires presentation and critique of published research and literature review. Taken over the course of two quarters for a total of 4 units (HPRO 534A, 2 units Winter Quarter; and HPRO 534B, 2 units Spring Quarter). Doctoral students only. Prerequisite: HPRO 534A.

**HPRO 535. Health Education Administration and Leadership. 3 Units.**

Analyzes the managerial and leadership roles of the health education specialist in both public and private health organizations. Emphasizes organizational structure and health communication; as well as managing, supervising, marketing, decision making, and other administrative roles.

**HPRO 536. Program Planning and Evaluation. 2 Units.**

Introductory course that utilizes the planning cycle to address public health problems. Analyzes trends in health-care planning. Applies planning cycle to selected topics. Provides overview of evaluation design, methodology, and instrument development for health education programs. Laboratory included.

**HPRO 537A. Community Programs Laboratory—A. 2 Units.**

The first of a three-quarter sequence for health promotion and education (HPRO) majors; a stand-alone laboratory for other majors. Students operationalize qualitative research methods in a laboratory environment by conducting observational assessments, windshield surveys, and personal interviews; participating in focus groups; and compiling secondary data for completing a community-needs assessment. HPRO students use their data to plan a health education intervention for their target/priority population during Winter Quarter; during Spring Quarter they implement and evaluate their programs.

**HPRO 537B. Community Programs Laboratory—B. 2 Units.**

Student designs marketing and evaluation plans for community-based health education program. Implements and evaluates programs developed during HPRO 537A.

**HPRO 537C. Community Programs Laboratory—C. 1 Unit.**

Students continue their marketing plan while implementing and evaluating their programs in the community. Students write a plan for program sustainability with community organizations as stakeholders.

**HPRO 538. Health Education Program Development and Evaluation. 3 Units.**

Uses program-planning theories and models with diagnostic techniques to design, deliver, and evaluate health promotion and education programs in a variety of settings: community, occupational, educational, and health care. Presents steps in the health educational planning process, which involves: 1) conducting social, epidemiological, behavioral, environmental, ecological, educational, administrative, and policy assessments; 2) writing goals and objectives; 3) selecting appropriate intervention strategies; 4) integrating and applying behavioral and educational theories to interventions; 5) enhancing instructional delivery and design skills; and 6) evaluating the educational process and reporting results.

**HPRO 539. Policy and Issues in Health Education. 3 Units.**

Examines and discusses policy issues, trends, and strategies relating to health education—including but not limited to HIV/AIDS, women's health, injury prevention and control, tobacco and other drug issues, and health issues in ethnically diverse populations. Provides opportunities to develop and improve presentation skills. Project included.

**HPRO 543. Writing for Health Professionals. 3 Units.**

Writing by health professionals for popular, lay, or professional publications. Student selects journal or magazine, writes query letter, and prepares abstract and manuscript in final form for submission. Includes preparation of camera-ready art. Preparation of two publishable papers. Limited to doctoral degree students.

**HPRO 544. Health Education Evaluation and Measurement. 3 Units.**

Student selects and develops health education and psychosocial measurement instruments, determines validity and reliability of evaluation tools, provides overview of data-collection methods and protocols, analyzes and interprets results, and communicates evaluation findings. Limited to doctoral degree students.

**HPRO 553. Addiction Theory and Program Development. 3 Units.**

Applies addiction process theory in a practical way to program development. Emphasizes alcohol, tobacco, and other drug (ATOD) problems, using case studies and extensive reading as part of a problem-solving approach. The epidemiological, pathological, physiological, psychological, and spiritual bases for prevention and treatment of addictions. Laboratory included.

**HPRO 556. High-Risk Infants and Children: Policy and Programs. 3 Units.**

Examines development of at-risk infants and children, and evaluates interventions that may modify cognitive and social outcomes. Takes into account medical risk factors, such as preterm birth, prenatal substance exposure, and respiratory distress; as well as social factors, such as gender and socioeconomic status. Critically analyzes the efficacy of early-intervention strategies, such as UNICEF's Baby Friendly Hospital Initiative, child survival strategies, and the Initiative for the Girl Child; as well as U.S.-based programs such as Head Start. Examines legal, regulatory, and ethical issues. Prerequisite: Physiology or consent of instructor.

**HPRO 559. Lactation Management. 3 Units.**

Analyzes the managerial and leadership roles of the health education specialist in both public and private health organizations. Emphasizes organizational structure and health communication; as well as managing, supervising, marketing, decision making, and other administrative roles.

**HPRO 565. Tobacco Use: Prevention and Interventions. 3 Units.**

The second part of a three-part, module-based course. Provides a comprehensive overview of the pathophysiology that underlies the health impact of tobacco use on individuals, families, and society; smoking behavior; pharmacodynamics of nicotine delivery; mechanisms of nicotine addiction, and most importantly, intervention methods (cessation and prevention). Includes individual, group, systems, and public intervention strategies; and provides the measures of efficacy for each. Incorporates terminology and concepts in epidemiology, anatomy, physiology, immunology, endocrinology, and biochemistry. Recommended that EPDM 561, 562 also be completed if HPRO 565 is taken as an elective.

**HPRO 567. Reproductive Health. 3 Units.**

Focuses on issues of reproductive health of women and men within the context of public health policy, community-based planning, and ethical decision making. Examines public health interventions at various points of the reproductive life cycle, including pubertal, preconceptional, and menopausal. Explores issues that affect health and fertility—including sexually transmitted diseases; reproductive tract infections; sexual violence, such as rape, incest, and genital mutilation; sexual trafficking; and nutritional and lifestyle issues impacting directly on reproductive health.

**HPRO 573. Exercise Physiology I. 3 Units.**

Basic preparation for development and leadership of exercise programs. Includes exercise physiology, training, acute and chronic effects of exercise, simple assessment of fitness, role of exercise in prevention of common health problems, and management of selected risk factors. Discusses endurance, strength, flexibility, and aerobic exercises. Laboratory included.

**HPRO 578. Exercise Physiology II. 3 Units.**

Physiologic basis of the normal body function during exercise. Emphasizes the training effects of aerobic exercise. Noninvasive laboratory methods of the study of the circulatory and respiratory systems. Laboratory included. Prerequisite: HPRO 573; and basic physiology.

**HPRO 586. Introduction to Preventive Care. 1 Unit.**

Provides overview of preventive care's role within public health. Orientation to doctoral program, with attention to professional portfolio preparation. Limited to doctoral degree students in preventive care.

**HPRO 587. Preventive Care Practice Management. 2 Units.**

Provides overview of issues and challenges in the operation of a preventive care practice. Emphasizes billing and reimbursement issues, and legal and ethical responsibilities of the preventive care specialist. Limited to doctoral degree students in preventive care.

**HPRO 588. Health Behavior Theory and Research. 4 Units.**

Analyzes in-depth factors contributing to decisions about health behavior. Theory and research relevant to individual, family, organization, and community behavior. Readings from original theorists and researchers on topics related to health behavior. Emphasizes development of critical-thinking skills, professional written work, and oral presentation. Application of theory to development of a basic research proposal. Limited to doctoral degree students. Prerequisite: HPRO 509; or equivalent. Consent of instructors for nondoctoral degree students.

**HPRO 589. Qualitative Research Methods. 3 Units.**

Applies qualitative methods to instrument design, sampling, and data collection. Focuses on public health issues, ethics, and theory-building. Supervised needs assessment in a selected community.

**HPRO 590. Worksite Wellness. 3 Units.**

Prepares students to enter the field of corporation wellness as leaders not only in developing, implementing, and evaluating wellness work-site programs; but also in decreasing the burden on corporation health, morale, budget, and performance caused by lifestyle-related diseases.

**HPRO 606. Motivational Interviewing. 2 Units.**

Introduces students to the effective methodology of motivational interviewing. Explores the techniques and theories associated with this treatment method. Covers in detail the skills needed to successfully motivate patients toward healthier lifestyles. Gives attention to practical information needed to be a successful health professional. Prerequisite: Minimum of 90 units of course work toward Dr.P.H. (preventive care) degree.

**HPRO 608. Advanced Seminar in Health Education. 2 Units.**

Studies current issues in health promotion and education from the standpoint of historical setting. Explores emerging challenges to professional preparation in health promotion and education, and the place of professional health educators in the practice of public health. Must be taken for a total of 6 units. Limited to health education doctoral degree students.

**HPRO 614. Seminar in Maternal and Child Health Practice. 3 Units.**

Analyzes issues, trends, and current practices affecting maternal and child health. Discussion and student participation. Limited to Track I maternal-child health practitioners.

**HPRO 685. Preliminary Research Experience. 2 Units.**

Experience gained in various aspects of research under the guidance of a faculty member and by participation in an ongoing project. Must be completed prior to beginning dissertation/research project. Limited to doctoral degree students.

**HPRO 696. Directed Study/Special Project. 1-4 Units.**

Individual arrangements for advanced students to study under the guidance of a program faculty member. May include reading, literature review, or other special projects. Minimum of thirty hours required for each unit of credit. A maximum of 4 units applicable to any master's degree program. Prerequisite: Consent of instructor and of program advisor.

**HPRO 697. Dissertation Proposal. 1-10 Units.**

Doctoral student develops the written dissertation proposal and collaborates with doctoral dissertation committee chair on mutually agreed-upon objectives, which will serve as the basis for evaluation. Culminates in a written and oral dissertation proposal defense and advancement to candidacy. Prerequisite: Successful completion of comprehensive exams.

**HPRO 698. Dissertation. 1-14 Units.**

Student prepares a manuscript presenting results of the doctoral research study. Limited to doctoral degree candidates. Prerequisite: Advancement to Candidacy.

**HPRO 704A. Internship. 2 Units.**

Training and supervised experience (minimum of 100 clock hours) with other health professionals in applied settings. Opportunity to work with individuals, families, and groups in assessing health and building relationships conducive to health-promoting behavior changes. Limited to doctoral (preventive care) degree students. May be repeated for a total of up to 12 units.

**HPRO 704B. Internship. 4 Units.**

Training and supervised experience (minimum of 200 clock hours) with other health professionals in applied settings. Opportunity to work with individuals, families, and groups in assessing health and building relationships conducive to health-promoting behavior changes. Limited to doctoral (preventive care) degree students. May be repeated for a total of up to 12 units.

**HPRO 704C. Internship. 6 Units.**

Training and supervised experience (minimum of 300 clock hours) with other health professionals in applied settings. Opportunity to work with individuals, families, and groups in assessing health and building relationships conducive to health-promoting behavior changes. Limited to doctoral (preventive care) degree students.

**HPRO 704D. Internship. 8 Units.**

Training and supervised experience with other health professionals in applied settings. Opportunity to work with individuals, families, and groups in assessing health and building relationships conducive to health-promoting behavior changes. Limited to doctoral (preventive care) degree students. A ten-week (40 hours/week) field internship.

## Implant Dentistry (IMPD)

### Courses

**IMPD 505. Patient Presentation Seminar. 1 Unit.**

Presents implant patient treatment, discusses alternate methods of rehabilitation and related literature. Repeated registrations required to fulfill the total units.

**IMPD 533. Applied Radiology for Implant Dentistry. 1.5 Unit.**

Gives the postdoctoral student fundamental aspects of radiology imaging as part of the diagnosis and treatment.

**IMPD 547. Implant Dentistry Grand Rounds. 1 Unit.**

Weekly review of surgeries scheduled for the upcoming week in order to facilitate successful outcomes. Includes analysis of challenges, latest recommendations, techniques for minimizing postoperative side effects, and implementation of strategic surgical procedures.

**IMPD 561. Dental Bioengineering. 2 Units.**

Studies the structures and properties of dental implant materials and implant prosthodontic superstructures.

**IMPD 585. Implant Prosthodontics. 2 Units.**

Gives the graduate student in implant dentistry in-depth didactic and clinical instruction in techniques and procedures related to the rehabilitation of patients with prosthodontic devices supported by dental implants. Advanced clinical and laboratory procedures, emphasizing implant restorations for completely and partially edentulous patients. Emphasizes attachments and superstructure design. Repeated registrations required to fulfill the total units.

**IMPD 601. Literature Review in Implant Dentistry. 2 Units.**

Reviews historical and/or fundamental implant dentistry literature. Repeated registrations required to fulfill the total units.

**IMPD 604. Current Literature Review in Implant Dentistry. 2 Units.**

Gives the postdoctoral students in implant dentistry a deeper understanding of the research and literature currently available. Repeated registrations required to fulfill the total units.

**IMPD 611. Introduction to Implant Dentistry. 2 Units.**

Overview of the clinical science of implant dentistry, including etiology, therapy, clinical methods, and record keeping.

**IMPD 612. Advanced Implant Dentistry. 2 Units.**

Provides postdoctoral students with the knowledge and techniques of advanced prosthodontic and implant procedures—notably those involved in sinus graft surgery, surgical repairs of implant defects, and the principles involved in immediate loading of implants.

**IMPD 631. Oral Implant Surgery. 1 Unit.**

Instruction in basic and advanced implant surgery principles. Repeated registrations required to fulfill the total units.

**IMPD 634. Diagnosis and Treatment Planning in Implant Dentistry. 1 Unit.**

Didactic and clinical aspects of diagnosis and treatment planning for patients with complex dental problems. Repeated registrations required to fulfill the total units.

**IMPD 637. Peri-Implant Histopathology. 1 Unit.**

Gives the postdoctoral student in implant dentistry a better understanding of the implant interface and biological changes that take place in the tissues surrounding dental implants following their placement.

**IMPD 654. Practice Teaching in Implant Dentistry. 1-3 Units.**

Teaching experience in implant prosthodontics and implant surgery.

**IMPD 696. Scholarly Activity in Implant Dentistry. 1 Unit.**

Selected didactic, clinical, and/or laboratory activity developed by the program director or a designated program faculty member. Primarily designed for students to fulfill the certificate requirements for scholarly activity/research in implant dentistry. Multiple registrations may be needed to complete these activities.

**IMPD 697A. Research. 1 Unit.**

Student identifies a research project, prepares a proposal, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities. This is a required course for the Master of Science (M.S.) and Master of Science in Dentistry (M.S.D.) degree tracks.

**IMPD 697B. Research. 1 Unit.**

Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

**IMPD 697C. Research. 1 Unit.**

Student completes research project, holds a public presentation of research, and submits a publishable paper to his/her research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

**IMPD 698. Thesis. 1-8 Units.****IMPD 725. Clinical Practice in Implant Dentistry. 4 Units.**

Experience in the clinical diagnosis and treatment of patients who may benefit from implant dentistry therapy. Repeated registrations required to fulfill total clock hours. A minimum of 120 clock hours per quarter. Repeated registrations required to fulfill total units.

**IMPD 726. Clinical Practice in Periodontics in Implant Dentistry. 2 Units.**

Clinical experience in the diagnosis and treatment of periodontal diseases. Repeated registrations required to fulfill total units. A minimum of sixty clock hours per quarter. Repeated registrations required to fulfill total units.

**IMPD 727. Clinical Practice of Prosthodontics in Implant Dentistry. 2 Units.**

Advanced clinical practice in the treatment of individuals with fixed, removable, maxillofacial, and implant prostheses. Repeated registrations required to fulfill total units. A minimum of sixty clock hours per quarter. Repeated registrations required to fulfill total units.

## Instructional Design and Media Technology (IDMT)

### Courses

**IDMT 521. Instructional Design I. 3 Units.**

Examines adult instructional theories and teaching approaches to increase student learning outcome success. Exposes students to latest instructional resources, techniques, and technology. Emphasizes communication during the design process and use of instructional theories and tools to communicate course content effectively.

**IDMT 522. Instructional Design II. 3 Units.**

Develops and applies strategies for instructional theory utilizing media, including making rational choices regarding technology and communication.

**IDMT 531. Host Systems and Authoring I. 3 Units.**

Provides a working knowledge of various online educational systems, as well as the basic approaches to and differences in creating courses within those systems. Not a programming course.

**IDMT 541. Digital Media Production I. 3 Units.**

Introduces students to the production process basics (editing, graphics, and animation) needed to create effective instructional modules. Students shoot, edit, and deliver a completed DVD and upload to the web a digital file of a completed instructional module. Along with hands-on learning of the entire process, students explore key concepts relating to visual learning and how to create and communicate effectively with visual images.

**IDMT 542. Digital Media Production II. 3 Units.**

Explores advanced production techniques (editing, graphics, and animation), emphasizing the production of an instructional video. Introduces shooting and editing techniques unique to creating interactive, instructional media. Students produce an online instructional video and an interactive educational module for a tablet. Prerequisite: IDMT 541.

**IDMT 561. Graphics I. 3 Units.**

Introduces students to Adobe Photoshop and exposes them to advanced graphic capabilities of editing software packages. Emphasizes exploration of layout techniques that maximize educational effectiveness. Prerequisite: IDMT 521, IDMT 541, IDMT 542.

**IDMT 564. Motion Graphics I. 3 Units.**

An Adobe After Effects introductory course. Students become proficient with the software, research various characteristics of visual learning, and create simple interactive motion graphics that can be included in an interactive educational module. Prerequisite: IDMT 521, IDMT 522, IDMT 541, IDMT 542.

**IDMT 571. Animation I. 3 Units.**

Introduces students to 2D and 3D animation software packages. Emphasizes proper animation techniques as specific software packages are learned. Students research existing education-focused animations.

**IDMT 581. Instructional Design and Media Technology Internship I. 3 Units.**

The first of two required internships that provides opportunity for students to work for a short time in areas that will provide practical experience. Encourages students to seek opportunities that emphasize the creative side of media production. Prerequisite: IDMT 521, IDMT 522, IDMT 541, IDMT 542.

**IDMT 582. Instructional Design and Media Technology Internship II. 3 Units.**

The second of two required internships. Encourages students to seek opportunities that specifically provide experience creating digital courses or working with community partners. Prerequisite: IDMT 521, IDMT 522, IDMT 541, IDMT 542, IDMT 518 and one IDMT elective.

## Integrated Biomedical Graduate Studies (IBGS)

### Courses

**IBGS 501. Biomedical Communication and Integrity. 2 Units.**

Improves students' scientific communication skills, as well as increases their awareness of proper ethical conduct in biomedical research. Teaches appropriate techniques for written and oral presentations; as well as ethics and standard practices for record keeping, data analysis, and authorship.

**IBGS 502. Biomedical Information and Statistics. 2 Units.**

Introduces students to the basics of statistical analysis in a relevant biomedical setting. Additionally, provides practical information on the use of database systems and software tools for data management and analysis.

**IBGS 503. Biomedical Grant Writing. 2 Units.**

Encompasses the process of writing a biomedical research grant from medical problem through final draft of an NIH-style research proposal. With guidance from the instructor, students design and write a research proposal that is ready for submission to the NIH. Familiarizes students with potential funding sources, the process of formulating a fundable research plan, and communicating that plan in an appropriate format.

**IBGS 511. Cellular Mechanisms and Integrated Systems I. 6 Units.**

The first quarter of a two-quarter sequence designed to give first-year graduate students an exposure to major core concepts of molecular and cellular biology.

**IBGS 512. Cellular Mechanisms and Integrated Systems II. 6 Units.**

The second quarter of a two-quarter sequence designed to give first-year graduate students an exposure to major core concepts of molecular and cellular biology.

**IBGS 513. Cellular Mechanisms and Integrated Systems III. 8 Units.**

The third quarter of a three-quarter sequence designed to give first-year graduate students a broad, integrated exposure to the molecular and cellular basis of modern human biology. Focuses on how cells and molecules work together to create functioning organs, ending with a treatment of genetic, lifestyle, and microbial contributions to human pathology. Prerequisite: IBGS 511, IBGS 512.

**IBGS 522. Cellular Mechanisms and Integrated Systems II Journal Club. 2 Units.**

A component of IBGS, taught in a journal-club format. Presents and discusses recent literature related to IBGS 512.



**IBGS 523. Cellular Mechanisms and Integrated Systems III Journal Club. 2 Units.**

Employs a journal-club format that explores contemporary topics of program-specific interest to class participants.

**IBGS 604. Introduction to Integrative Biology Presentation Seminar. 1 Unit.**

Students attend a series of research descriptions presented by graduate students.

**IBGS 605. Integrative Biology Presentation Seminar. 1 Unit.**

A seminar course that gives graduate students in the basic sciences an opportunity to practice oral presentations on current research or current literature covering the various aspects of regulatory and integrative biology as applied to molecules, cells, tissues, organs, systems, and microbes. Students and faculty participate in a discussion and critical evaluation of the presentation.

**IBGS 607. Integrated Biomedical Graduate Studies Seminar. 1 Unit.**

Weekly seminars presented by invited speakers in the biomedical sciences disciplines. Students required to register for course every quarter throughout their training.

**IBGS 696. Research Rotations. 1 Unit.**

Incorporates the research rotations to be completed before assignment to a dissertation or thesis laboratory.

## International Dentist Program/Clinics (IDPC)

### Courses

**IDPC 815. Clinical Orientation I - IDP. 2 Units.**

Introduces the electronic patient record, reviews radiology safety, discusses professional liability, and introduces clinical regulatory compliance in dentistry. Introduces partner activities involving data gathering, radiology, periodontic activities, and photography.

**IDPC 816. Clinical Orientation II - IDP. 1 Unit.**

Builds on IDPC 815. Continues instruction related to the electronic patient record; discusses patient-management techniques, treatment planning, and practice-management issues; discusses clinic policies and infection control. Discusses financial planning for patients, as well as quality assurance and improvement. Continues partner activities, interpretation of data, and case presentation—including periodontal diagnoses.

**IDPC 817. Clinical Orientation III - IDP. 1 Unit.**

Builds on IDPC 815 and IDPC 816. Continues instruction related to the electronic patient record, bridging the transition from preclinical to clinical experience. Discusses long-term assessment of care outcomes and professional relationships. Continues partner activities.

**IDPC 820. Preclinical Practicum. 1 Unit.**

Introduces patient care through observation and assisting. Continuous testing and assessing operative skills prior to direct patient treatment.

**IDPC 825. General Clinics. 15 Units.**

Includes direct patient care through rotations in urgent care, pediatric, service learning, and screening blocks. Requires registrations Autumn and Winter quarters of the IDP3 year to fulfill the total units.

**IDPC 835. General Clinics. 19 Units.**

Includes direct patient care through rotations in urgent care, pediatric, service learning, and screening blocks.

**IDPC 845. General Clinics - Direct Patient Care. 18 Units.**

Includes direct patient care.

## International Dentist Program/General (IDPG)

### Courses

**IDPG 700. Review of General Dentistry. 8-12 Units.**

Remedial course that reviews the basic skills in cavity preparation for alloys and aesthetic restorations, occlusion, and single-casting restorations.

**IDPG 718. Communication Basics for the International Student. 1 Unit.**

Student develops interpersonal competencies in the various professional communication roles expected of a dentist. Topics include team building, cross-cultural communication, dental fears and phobias, mental illness, and behavior change.

**IDPG 845. Evidence-Based Dentistry. 2 Units.**

Scientific methods in dental research. Includes critical evaluation of published articles, research design, statistical analysis, evaluation of results, design of research reports, extensive reviews of various topics.

## International Dentist Program/Oral Pathology (IDPO)

### Courses

**IDPO 534. Oral Medicine: Orofacial Pain and TMD. 2 Units.**

Differential diagnosis of orofacial and temporomandibular joint pain, including basic guidelines for initial therapy. Utilizes TMD patient cases for group and class discussions. Introduces diagnosis and treatment of neuropathic pain and headaches. Case presentations focus on nonodontogenic pain that presents as toothache and/or gingival pain. Offered Winter Quarter of odd-numbered years for IDP3 and IDP4 students.

**IDPO 535. Oral Pathology and Diagnosis. 3 Units.**

Graduate-level survey of pathology. Studies developmental, infectious, immunologic, neoplastic, and metabolic disorders of the head and neck. Includes epidemiology, etiology, clinical and/or radiographic features, microscopic features, and management of disease. Emphasizes differential diagnosis and management of dental lesions.

**IDPO 720. Oral and Maxillofacial Radiology for the IDP Program. 2 Units.**

Emphasizes the integral role played by the radiographic examination in the diagnostic process in dentistry, in conjunction with the clinical examination. Reinforces the basic principles of oral and maxillofacial radiology.

**IDPO 723. Patient Assessment and Data Management I. 2 Units.**

Introduces students to all portions of the comprehensive oral evaluation—including medical/dental history interview, patient examination, and data management. Introduces and uses the problem-orientated record in diagnosis and treatment planning. Includes supervised clinical experience with fellow students as patients. Student provides a comprehensive oral evaluation of a classmate, which provides the basis for a comprehensive treatment plan.

**IDPO 725. Patient Assessment and Data Management II. 2 Units.**

Builds on IDPO 723 by continuing physical evaluation, data collection, and the problem-oriented dental record. Supervised clinical experience with fellow students as "patients." Student develops a treatment plan and presents it to the patient. Continued computer-based treatment plan management.

**IDPO 726. Patient Diagnosis and Treatment Planning. 2 Units.**

Discusses treatment options in treatment planning, with case-based treatment planning exercises. Introduces computer-based treatment plan management.

**IDPO 728. Patient Diagnosis and Treatment Planning II. 2 Units.**

Additional concepts of diagnosis and treatment planning, treatment plan presentation, and patient consent. Indications and processes for limited and periodic evaluations. Case-based, small-group treatment planning exercises.

**IDPO 821. Clinical Management of the Older Adult. 1 Unit.**

Instruction in the multidisciplinary medical and dental assessment and management of older adults. Includes clinical experience in a multidisciplinary team setting.

**IDPO 826. Oral and Maxillofacial Surgery. 2 Units.**

Reviews oral and maxillofacial surgery—including medical history pharmacology, instrumentation, procedures, dental emergencies, and complications. Includes a laboratory component.

**IDPO 827. Oral and Maxillofacial Surgery. 2 Units.**

Sequential course following IDPO 826. Reviews oral and maxillofacial surgery—including preprosthetic surgery, dental alveolar surgery, implant surgery, oral trauma, maxillofacial trauma, and preoperative infections. Reviews medications in the treatment of dentally related diseases and their potential interaction with total patient care. Emphasizes local anesthesia and nitrous oxide theory and technique. Includes clinical partner practice in local anesthesia and nitrous oxide.

## International Dentist Program/ Periodontics and Pediatric Dentistry (IDPP)

### Courses

**IDPP 754. Fundamentals of Periodontics. 2 Units.**

Overview of clinical periodontics—including etiology of periodontal disease, oral hygiene instruction, scaling, root planing, antimicrobial therapy, and a variety of surgical concepts and techniques. Anticipated results of therapy, including options of surgical versus nonsurgical approaches. Includes a laboratory component.

**IDPP 755. Pediatric Dentistry Clinic—IDP. 1 Unit.**

Dental care of children in their primary, fixed, and young permanent dentition. Etiology of disease, prevention of oral disease, growth-and-development analysis, treatment planning, restorative procedures, and arch length control.

**IDPP 756. Pediatric Dentistry. 2 Units.**

Dental disease prevention (oral hygiene, diet, fluoride, pit and fissure sealants). Behavior management of the child dental patient. Diagnosis, treatment planning, and operative dentistry for children. Pediatric pulp therapy, dental arch-length management, local anesthesia and sedation for children. Medical aspects of pediatric dentistry.

**IDPP 756L. Pediatric Dentistry Laboratory. 1 Unit.**

Technique course that accompanies IDPP 756. Student performs operative procedures for amalgam and composite resin on simulated primary and young permanent teeth. Student performs pulpotomies on primary molar teeth and prepares primary teeth for stainless steel, open-faced stainless steel, and resin crowns. Fabricates unilateral and bilateral space maintainers.

**IDPP 759. Periodontal Therapy. 2 Units.**

Variation in periodontal diseases related to differing host conditions, including: age, hormones, habits, drugs, genetics, nutrition, stress, systemic disease, iatrogenic factors, trauma from occlusion, and endodontic interrelationships. Overview of surgical periodontal procedures and their roles, limitations, and effects. Surgery outcomes compared with short- and long-range effects of conservative therapy (with and without maintenance care, including effect of adjunctive chemical plaque control). Role of dental health-care providers in periodontal therapy. Special problems in periodontal care.

## International Dentist Program/ Restorative (IDPR)

### Courses

**IDPR 701. Operative Dentistry I. 2 Units.**

Reviews the basic principles and techniques used in cavity preparation and restoration of teeth with silver alloy. Lecture and laboratory course.

**IDPR 702. Operative Dentistry II. 2 Units.**

Extends basic principles and techniques of cavity preparation and restoration of teeth with aesthetic restorative materials. Studies the source, use, and manipulation of dental materials and their physical properties relative to dentistry. Lecture and laboratory course.

**IDPR 704. Introduction to Occlusion. 2 Units.**

Studies the temporomandibular joint, muscles of mastication, and the teeth in static and dynamic positions.

**IDPR 750. Dental Materials. 2 Units.**

Reviews current dental materials, with evidence-based dentistry.

**IDPR 761. Removable Prosthodontics I. 2 Units.**

Reviews the basic clinical and laboratory removable prosthodontic procedures involved in the fabrication of removable prosthesis. Includes a laboratory component.

**IDPR 762. Removable Prosthodontics II. 2 Units.**

Reviews the laboratory phases of diagnosing, planning treatment for CD, immediate CD, and relines. Includes a laboratory component.

**IDPR 763. Removable Prosthodontics III. 2 Units.**

Biomechanics of removable partial dentures and their design and fabrication. Diagnosis and treatment planning for removable partial dentures. Clinical and laboratory procedures and sequencing of treatment for removable partial and complete dentures. Lecture and laboratory course.

**IDPR 771. Fixed Prosthodontics I. 2 Units.**

Reviews basic tooth preparation for single-casting restorations, tissue management, impression techniques, and temporary restorations. Lecture and laboratory course.

**IDPR 772. Fixed Prosthodontics II. 2 Units.**

Reviews the basic design and fabrication of multiple unit fixed partial denture, tissue management, impression techniques, and temporary restorations—including single units and fixed partial dentures. Lecture and laboratory course.

**IDPR 773. Advanced Prosthodontics for IDP. 2 Units.**

Introduces CAD/CAM restoration and laser use in dentistry. Course includes a laboratory component.

**IDPR 801. Fixed Prosthodontics III. 2 Units.**

Indications, treatment planning, and design of partial coverage metal castings. Introduces additional techniques for fixed prosthodontics. Lecture and laboratory.

**IDPR 803. Operative Dentistry III. 2 Units.**

Indications, preparations, and placement of the direct and indirect veneer, atypical cast gold, posterior, partial-coverage porcelain restorations, and WREB-type restorations. Lecture and laboratory course.

**IDPR 854. Implant Dentistry for the IDP Student. 3 Units.**

Scientific and technical foundation for implant surgery and expansion of basic implant procedures. Postplacement care, long-term maintenance, and clinical complications associated with dental implants. Emphasizes restoration of single implants, multiple quadrant posterior implants, and over-denture implants. Lecture and laboratory course.

## Marital and Family Therapy (MFTH)

### Courses

**MFTH 501. Fundamentals of Supervision in Marital and Family Therapy. 3 Units.**

Research and theory regarding the supervision of marriage and family therapy trainees and interns. Can be used toward the requirements for certification as an AAMFT-approved supervisor.

**MFTH 502. Advanced Supervision in Marital and Family Therapy. 1 Unit.**

Mentoring of supervision of MFT trainees and interns in a clinical setting. Hours earned apply toward certification as an AAMFT-approved supervisor. Must complete 30 hours of supervision and 5 hours of supervision mentoring. Prerequisite or Corequisite: MFTH 501.

**MFTH 504. Advanced Theory in Marital and Family Therapy. 4 Units.**

Provides a metaperspective for analysis and development of the systemic-relational theories guiding the practice of marital and family therapy, with special focus on a relational perspective of the "self" and the consequent implications for research and practice. Students learn to contextualize and deconstruct the philosophical, religious, political, sociological, and ecosystemic notions that have influenced the field; to develop skills that will prepare them to contribute to the ongoing critique and development of MFT theory; and to apply theory to research. Emphasizes the ethical and social-contextual aspects of case conceptualization and implications for recovery-based practice.

**MFTH 505. Advanced Family Studies. 4 Units.**

A critical survey of the research and theory growing out of the fields of human development and family studies. Provides students with a background on the social and historical factors that form the context in which families are defined and function. Students apply course material to the practice of family life education and family therapy.

**MFTH 506. Foundations of Systemic Practice. 3 Units.**

Explores the philosophical underpinnings of systemic thought and their clinical application to the field of family therapy and the recovery processes in the treatment of mental health issues. Focuses on the role of recursive epistemology as it affects family patterns and provides methods for determining clinical interventions. Ideas critiqued through examination of contextual issues of ethnicity, power, and gender as they relate to the systemic paradigm; and the effects of these issues on family relationships and recovery from mental health symptoms.

**MFTH 507. Clinical 2—Social Constructionism and Postmodern Practices in MFT. 3 Units.**

Explores postmodern theories and clinical application to the field of family therapy. Focuses on models of therapy influenced by social constructionist thinking, with an emphasis on language and meaning as they relate to a relational understanding of mental health issues. Students learn to present issues in a way that demonstrates a sociocontextual understanding of individual symptoms and relationship concerns. Addresses solution-focused therapy that reflects a paradigm shift from a problem-centered approach to one of resilience. Introduces the narrative metaphor of Michael White and David Epston as a way of facilitating personal empowerment in the face of societal inequities and pathologizing discourses. Concludes with the collaborative language systems approach that emphasizes therapist as partner with clients in developing a resource-based approach to the recovery process. Prerequisite: Admission to a CFS doctoral program or MFAM 564.

**MFTH 508. Clinical 3—Larger and Multiple Systems in MFT Practice. 3 Units.**

Examines a multisystemic framework that includes biological, interpersonal, family, community, school, and organizational systems. Emphasizes the influence of contextual issues—such as gender, race, class, sexual orientation, and ethnicity—on emotion, behavior, and relationship patterns related to mental health and family issues in couples and family therapy practice.

**MFTH 509. Clinical Issues. 3 Units.**

Special topics related to systems/relational practice in marital and family therapy.

**MFTH 519. Teaching in Higher Education. 2 Units.**

Discusses theory, techniques, and processes in the teaching of MFT, including an examination of didactic and experiential techniques.

**MFTH 520. Practicum in Teaching. 3 Units.**

Provides the bridge between state-of-the-art pedagogical skills and the practical application of those skills in teaching in the classroom and other community settings. With a focus on teaching, students engage in curriculum planning, testing, course delivery in family science, and development of teaching and self-evaluation skills toward continuous quality improvement in the art and science of teaching.

**MFTH 521. E-Learning: Construction and Design. 2 Units.**

Responding to movement of universities toward technology-based instruction, prepares doctoral students to design and construct online and distance education curricula. Emphasizes utilization of Blackboard and Desire2Learn applications. Students create online course modules for undergraduate or master's-level instruction in a family or counseling-related field of study. Prerequisite: Prior teaching or teaching assistance experience. MFTH 519 recommended.

**MFTH 522. E-Learning: Delivery and Management. 2 Units.**

Provides students opportunity to manage an online course designed in E-Learning I via Blackboard. Emphasizes mastery of online course delivery and the creation of a virtual class community. Students responsible for all aspects of online course instruction, including maintenance of their course Web site, communicating with students, and assigning grades while under the mentorship of the instructor. Provides students with actual online teaching and virtual community maintenance experience that offers cutting-edge advances in the field of higher education, as well as enhances their marketability.

**MFTH 524. Administration in Marital and Family Therapy. 3 Units.**

Using the framework of mission-based management—which addresses the needs of communities and underserved populations—prepares marriage and family therapy doctoral students to manage human-service programs and agencies. Examines strategic planning and continuous quality improvement as methods for maintaining accountability to community stakeholders, creating organizational change, and building morale within the organization.

**MFTH 525. Advanced Marital and Family Therapy Assessment and Testing. 3 Units.**

Examines testing, diagnosis, and assessment in the practice of marital and family therapy. Emphasizes development of a comprehensive assessment model that integrates traditional models of mental health assessment with cybernetic, developmental, and interactional perspectives. Case material spans individual, couple, and family assessments in clinical and research settings. Students administer instruments and integrate findings into an overall systemic framework.

**MFTH 527. Advanced Legal and Ethical Issues. 3 Units.**

Reviews the AAMFT code of ethics and the California legal codes pertaining to the practice of marriage and family therapy. Develops skills and knowledge that assist student to be an expert witness and family mediator (therapeutic), and that help student understand how to work with the legal system.

**MFTH 528. Organizations: Structure, Process, and Behavior. 3 Units.**

Helps students understand how organizations operate and how different contingency factors can affect the choices managers make. Covers essential theories and concepts for managing in the twenty-first century. Treats behavioral processes with reference to organizational structure and design. Larger-systems theory and leadership skills.

**MFTH 534. Family Therapy and Medicine. 3 Units.**

Examines the interface of medical practice and family therapy in common medical family therapy settings. Explores understanding of the culture of medicine, including usual medical practices and procedures. Outlines adaptations of the medical model used by family therapists. Offers models for collaboration of medical family therapists with medical practitioners. Addresses behavioral health intervention strategies for families with health and wellness issues.

**MFTH 540. Medical Family Therapy. 3 Units.**

Provides an overview of medical family therapy and the theoretical models that can be applied to clinical work within medical settings. Addresses contextual issues that impact health of patients and family members. Includes personal and professional aspects of providing ethical, holistic, and collaborative clinical care in medical settings.

**MFTH 541. Medical Family Therapy Seminar 1. 1 Unit.**

In a workshop format incorporating presentation and discussion with faculty and peers, students develop their expertise in researching specific issues relevant to their practice. Focuses on evidence-based interventions and relevant psychotropic medications. Prerequisite or Concurrent: MFTH 540.

**MFTH 542. Medical Family Therapy Seminar 2. 1 Unit.**

In a workshop format that incorporates presentation and discussion with faculty and peers, students develop their understanding of the impact of spiritual practices on health, illness, grief, and loss. Focuses on culturally sensitive interventions.

**MFTH 543. Medical Family Therapy Seminar 3. 1 Unit.**

In a workshop format that incorporates presentation and discussion with faculty and peers, students enhance their professional development. Students learn to market their services to physicians and those in the health-care field, to network professionally, and to prepare for a job search.

**MFTH 544. Health and Illness in Families. 3 Units.**

Examines the biopsychosocial-spiritual aspects of illness and its impact on individuals, couples, and family systems across the lifespan. Reviews common diseases and relevant theories, assessments, and evidence-based interventions. Highlights the impact of contextual illness factors as they pertain to the patient, the family, and health-care team members.

**MFTH 545. Research and Practice with Couples and Families. 3 Units.**

A scholarly and critical review of the literature in family social science, with application of this literature to the practice of family life education and/or marital and family therapy. Students interact with the material to critically challenge historical approaches and develop new insights and understandings that would shape present and future practice of interventionists that work with families.

**MFTH 546. Advances in Family Sciences. 3 Units.**

Focuses on current issues, trends, and approaches in the field of family social science; and interacts with newer advances in the field resulting from changes in practice, sociocultural, political, and technological arenas. Presents professional practice as an evolving process for practitioners in the twenty-first century.

**MFTH 555. Organizational Development and Change. 3 Units.**

Helps students understand the application of behavioral and family science knowledge to improve organization performance and organization functioning. Discusses the process of planned change and the change process. Includes interpersonal and group processes such as T-groups, process consultations, and team building. Addresses conflict resolutions, organizational lifespan, leadership skills, and critical-incident stress debriefing.

**MFTH 556. Management Consulting and Professional Relations. 3 Units.**

Capstone course for the system consultation and professional relations concentration in the doctoral programs in the Department of Counseling and Family Sciences. Students integrate theories, knowledge, and skills from MFTH 528, 555, and 557. Assists students to apply expertise in organizational assessment, behavior, and change to practical and real life.

**MFTH 557. Organizational Assessment. 3 Units.**

How to make an assessment of an organizational system. Addresses data collection and analysis, outcome evaluation, and how to present assessment in a systemic manner.

**MFTH 564. Social Context of Health. 3 Units.**

Explores ways in which inequalities in health and illness are patterned by the social context (i.e., race, poverty, gender, etc.) and provides an overview of the mental and physical health-care system in the United States. Focuses on the social contextual and structural factors that affect individual and family health and resilience, and give rise to disparities in access and treatment within the health-care system. Topics covered include the history of medical family therapy and the health-care system; history of medical institutions in the U.S.; theoretical perspectives on health and illness; social inequality in health and illness; culture and health consequences of mental illness to individuals, families, and society; and mental health over the life course.

**MFTH 601. Statistics I. 4 Units.**

The first of a three-quarter sequence of statistics courses taught in the doctoral program in marital and family therapy. Focuses on understanding basic behavioral statistics as a foundation for MFTH 602 and other statistics-related classes. Topics include causality, levels of statistical measurement, frequencies distribution, measures of central tendency, dispersion, probability theory, normal distribution, and ANOVA. Laboratory sessions used to discuss problems encountered in the lectures and to refine student's statistical computing skills. Examples focus on family and mental health issues and clinical outcomes. Per week: 1 lecture, 1 laboratory.

**MFTH 602. Statistics II. 4 Units.**

The second of three statistics courses taught in the Ph.D. degree programs in marital and family therapy and family studies. Consists of lectures and computer laboratory sessions. MFTH/FMST 602 focuses on multivariate techniques. Topics include ANOVA, ANCOVA, MANOVA, MANCOVA, formulation and computation of multiple regression models using scalar and matrix algebra, multivariate analysis of variance, regression diagnostics and solutions, regression with categorical dependent variables. Computer laboratory sessions used to discuss problems encountered in the lectures and written assignments and to refine student's statistical computing skills. Provides experience with datasets that focus on outcomes affected by family and mental health issues.

**MFTH 603. Statistics III. 4 Units.**

Final course in a three-quarter sequence of statistics courses taught in the doctoral programs in marital and family therapy, as well as in family studies. Includes nonlinear regression models, logistic regression, discriminant analysis, path analysis, factor analysis, structural modeling; as well as brief discussion of social network analysis and multilevel modeling. Computer laboratory (and problem sets) sessions used to discuss problems encountered in the lectures and to refine student's statistical computing skills. Covers a range of related multivariate statistical analytical techniques as they relate to systemic issues. Per week: 2 lectures, 2 laboratories. Prerequisite: MFTH 602.

**MFTH 604. Advanced Qualitative Methods. 4 Units.**

Prepares doctoral students to conduct and evaluate qualitative research in marital and family therapy and family studies. Introduces students to a social constructionist critique of research and teaches them to think broadly about research paradigms and design—considering questions such as the researcher's role and relationship to the research process, objectivity, reflexivity, credibility, and the construction of knowledge. Students examine various qualitative methodologies—including grounded theory, ethnography, phenomenology, narrative and conversation analysis, and participatory-based action research. Students engage in a grounded theory research project relevant to family processes and/or clinical practice.

**MFTH 605. Advanced Quantitative Methods. 4 Units.**

Focuses on survey research design and data analysis, as well as experimental and quasi-experimental design—and their application to marriage and family therapy/family studies. Topics include questionnaire and item design, measurement, sampling designs, research idea development, relational hypotheses formation, survey planning and management, systemic clinical data measurement, logic of analysis, and problems of statistical interpretation. Critically examines threats to internal and external validity, as well as control of plausible alternative hypotheses.

**MFTH 606. Issues in MFT Research. 4 Units.**

Addresses current issues in marriage and family therapy (MFT) research as a basis for on-going inquiry and program development in the field. Emphasizes research history, trends in the field, and evidence-based approaches to recovery. Focuses on the process of designing, implementing, and disseminating research to support the field of MFT.

**MFTH 607. Scholarly Skills. 1 Unit.**

Orients counseling and family sciences doctoral degree students to the use of bibliographic search engines and databases for writing critical literature reviews. Provides instruction regarding search terms unique to specific databases, as well as on use of the EndNote software program to begin developing a bibliographic database for class projects, qualifying examinations, research papers, DMFT projects, and dissertations. Addresses the organization of a scholarly review paper using APA format and appropriate and effective professional writing style.

**MFTH 608. Analysis and Presentation Issues in Research. 3 Units.**

Final course in a sequence of three research classes. Builds on the material presented in MFTH 605 and MFTH 606. Focuses on the final stage of the research process by identifying issues such as specifying research questions/problems; using relevant literature; selecting and using appropriate analytical tools; summarizing empirical results; and presenting results for proposals, brief reports, posters, and peer review articles. Focuses on quantitative approaches, and includes discussion of meta analysis and mixed methods approaches in understanding, analyzing, and presenting research in family studies and marriage and family therapy.

**MFTH 624. Program Development for Families and Communities. 3 Units.**

Examines core components of systemic/relational programs designed to address mental health problems within the context of families and larger systems. Explains the elements of systemic programming that address clinical treatment problems/populations, as well as prevention and intervention issues affecting schools, neighborhoods, and other communities. Using the systemic/relational paradigm of the field, students create programs reflecting their areas of interest.

**MFTH 625. Grant Writing. 3 Units.**

Study and practice in locating, developing, and responding to great grant opportunities of interest to marriage and family therapists and the mental health populations they serve. Students develop their own systemic/relational program, training, research, or dissertation grant ideas; locate potential funding sources; tailor applications and proposals to each funding source; and critique and refine proposals to meet professional and grantor standards.

**MFTH 626. Program Evaluation and Monitoring. 3 Units.**

Prepares students to conduct formative and summative evaluations using quantitative, qualitative, and mixed method designs. Emphasizes program evaluation and clinical outcomes using the systemic/relational perspective of marriage and family therapy. Develops students' abilities to collaborate with stakeholders in developing evaluation plans that ensure evaluation reports that meet the intended purposes and are used for program decision making. Evaluation activities include assessment of program need, theory and adherence, process and performance, outcomes, impact, and efficiency.

**MFTH 627. Advanced Program Development and Evaluation. 2 Units.**

Participants develop D.M.F.T. degree project proposals through intensive literature review, consultation with organization and community stakeholders, discussion with faculty and peers, and refinement resulting from feedback following formal presentations. The D.M.F.T. degree proposal is the expected outcome from this two-quarter class. For D.M.F.T. degree students only. Prerequisite: MFTH 624, MFTH 625, MFTH 626.

**MFTH 634. Practicum in Marital and Family Therapy. 3 Units.**

A three-quarter practicum series on applications of systems/relational therapy to relational distress and mental health symptoms. Series emphasizes a positive, strengths-based approach to resilience that engages clients in their natural family and community networks. Section 1: addresses gender, culture, socioeconomic, and political aspects of practice. Section 2: focuses on each student's mode of systemic conceptualization and how to work with in-session process. Section 3: emphasizes religious beliefs and spirituality as client resources, and addresses the moral and ethical imperatives in relationally based practice. Prerequisite: At least 200 clinical hours.

**MFTH 637. Special Projects in Health and Illness in Families. 1,3 Unit.**

Independent study in which students who have taken MFTH 544 participate in research, program development or evaluation, or clinical activities related to the integration of relational health and wellness. Prerequisite or concurrent: MFTH 544.

**MFTH 668. Qualitative Research Practicum. 3 Units.**

Gives students the opportunity to continue developing the skills needed to conduct and report the qualitative research begun in MFTH 604. Students expected to engage in a research project, with particular emphasis on analysis and manuscript preparation.

**MFTH 694. Doctoral Seminar. 1 Unit.**

Ph.D. degree students develop and refine their dissertation proposals in a workshop format through presentation and discussion with faculty and other students.

**MFTH 695. Project Research. 1-12 Units.**

Required research associated with the capstone project for the D.M.F.T. degree.

**MFTH 697. Research. 1-6 Units.**

Independent research relating to marital and family therapy or family studies under the direction of a faculty advisor.

**MFTH 698. Dissertation Research. 1-10 Units.**

Completes independent research contributing to the field of marital and family therapy.

**MFTH 785. Professional Clinical Training in MFT. 1.5,3 Unit.**

Supervised experience in the practice of marital and family therapy. Hours represent face-to-face direct client contact. May be repeated.

**MFTH 785A. Begin Clinical Training in Couple, Marital, and Family Therapy. 0 Units.**

Enables students to consult with clinical director to set up and begin supervised clinical practice in the field of couple, marital, and family therapy. Acceptance into a CFS doctoral program.

**MFTH 785B. Clinical Training in Couple, Marital, and Family Therapy. 4 Units.**

Documents completion of a minimum of 200 hours of direct client contact in the practice of couple, marital, and family therapy—with 40 hours of AAMFT-approved supervision or equivalent. At least half the client hours must be with more than one family member present. Students receive an IP in MFTH 785B for a maximum of five quarters, or until all hours are completed. Students can repeat MFTH 785B a maximum of five times in order to document the minimum program cognate of 1000 hours of clinical training and 200 hours of AAMFT-approved supervision or equivalent. The number of course repeats of MFTH 785B varies, depending on the verification of clinical advanced standing achieved through MFTH 785A. Students pay a course fee instead of unit tuition.

**MFTH 786. Professional Development Proposal. 0 Units.**

Must be registered for at least one quarter prior to eligibility for 786A. The student's professional development plan must be formulated and approved by the faculty during this course.

**MFTH 786A. Professional Development in Marital and Family Therapy. 1.5-12 Units.**

Doctoral-level experience in marital and family therapy under the supervision of a senior-level family therapist/mentor. Must be arranged in advance in the department. A total of 36 units required for graduation. Prerequisite: MFTH 786.

**MFTH 786B. Professional Internship in Marital and Family Therapy—Clinical. 2,4 Units.**

Supervised client contact (face-to-face hours only) in the practice of marital and family therapy.

## Marriage and Family (MFAM)

### Courses

**MFAM 501. Research Tools and Methodology: Quantitative. 3 Units.**

Current social research methods, practice in the use of techniques, consideration of the philosophy of the scientific method, and familiarization with MFAM test instruments. Prerequisite: An introductory course in statistics as an undergraduate research methods course.

**MFAM 502. Research Tools and Methodology: Qualitative. 3 Units.**

Qualitative methodology. Prepares students to undertake research projects using the intensive interview method of qualitative research. Explores practical and epistemological issues and problems in qualitative research in a workshop format.

**MFAM 515. Crisis Intervention and Client-Centered Advocacy. 3 Units.**

Experiential course that includes theory, techniques, and practice of crisis intervention and client-centered advocacy. Gives special attention to development of the basic skills of counseling, including: confidentiality, interprofessional cooperation, working with consumers, professional socialization, and collaboration with resources that deliver quality services and support needed in the community. Presents therapeutic tapes and covers topics such as suicide, substance abuse, domestic violence, incest, spousal abuse, rape, treating the severely mentally ill, and disaster and trauma response. Examines the principles of mental health recovery-oriented care and methods of service delivery in recovery-oriented practice environments. Cross-listing: COUN 515 .

**MFAM 516. Play Therapy. 2 Units.**

Experiential course that teaches practitioners and graduate students to apply play therapy techniques in dealing with childhood problems such as molestation, physical abuse, depression, trauma, and family conflict.

**MFAM 524. Psychopharmacology and Medical Issues. 3 Units.**

Introduces common physical and medical issues that relate to the practice of marriage and family therapy. Students learn a biopsychosocial-spiritual model to assess and intervene—with emphasis given to psychopharmacology, neuroanatomy, the mind-body relationship, and research relative to the field of medical family therapy.

**MFAM 528. Culture, Socioeconomic Status in Therapy. 3 Units.**

Addresses current information and historical narratives related to cultural diversity that impact belief systems, communication patterns, roles, and expectations within human relationships and systems. Examines SES and a wide range of social, racial, and ethnic factors that create meanings for individuals, couples, families, and mental health counselors. Emphasizes populations that become professional partners or clients served within this geographic region. Cross-listing COUN 528.

**MFAM 535. Case Presentation and Professional Studies. 3 Units.**

Introduces the principles of mental health recovery-oriented care and encourages students to develop the personal qualities related to practices within this type of health-care system. Students explore their personal biases toward and understanding of various cultures/ethnicities, as well as how poverty and social stress impact their understanding of consumers in the mental health system. Reviews marriage and family therapy ethics according to the Board of Behavioral Science, the American Counseling Association, and the American Association of Marriage and Family Therapists. Examines how spirituality and client-centered advocacy is a process important to the field. Explores the interface between MFTs, counselors, and other professionals. Students receive an IP until course criteria are met.

**MFAM 536. Case Presentation Seminar and Documentation. 3 Units.**

Teaches student trainees applied psychotherapeutic techniques, assessment, diagnosis, prognosis, and treatment of premarital, couple, family, aging population, the severely mentally ill, and child relationships. Examines dysfunctional and functional aspects, including recovery process, health promotion, evaluation from a systems perspective, and illness prevention. Trains students, through observation of live cases, to examine the cultural, social, and psychological implications of consumers' socioeconomic position, legal and ethical issues, biological implications, and how to collaborate with other mental health resources in order to advocate for the severely mentally ill population. Documents cases from a public mental health, systems, and medical model perspective. Student receives an IP until course criteria are met.

**MFAM 537. Case Presentation Seminar. 3 Units.**

Formally presents ongoing individual, marital, and family cases by clinical trainees. Taping, video playbacks, and verbatim reports with faculty and clinical peers. Examines and trains in applied psychotherapeutic techniques, assessment, diagnosis, prognosis, and treatment of premarital, couple, family, and child relationships. Examines dysfunctional and functional aspects, including health promotion and illness prevention. Limited to students in clinical training. Students learn client-centered advocacy and special needs services. Students receive an IP until course criteria are met.

**MFAM 538. Theory and Practice of Conflict Resolution. 2 Units.**

Overviews the field of conflict management and resolution. Basic theories and methodologies in the field, with opportunity to develop basic clinical mediation skills.

**MFAM 539. Solution-Focused Family Therapy. 2 Units.**

Provides an in-depth understanding of solution-focused family therapy and practice. Focuses on the work of de Shazer and Berg, along with the foundational constructs of MRI.

**MFAM 544. Family and Divorce Mediation. 4 Units.**

Comprehensive coverage of concepts, methods, and skills in family and divorce mediation. Includes the relational and legal aspects of property division and child custody. Substantial experience in role plays.

**MFAM 545. Gender Perspectives. 2 Units.**

Explores the identities, roles, and relationships of women and men in light of social, cultural, and historical perspectives. Explores implications for the family therapist.

**MFAM 547. Social Ecology of Individual and Family Development. 3 Units.**

Studies human individual development and its relationship to the family life cycle from birth through aging and death of family members. Discusses biological, psychological, social, and spiritual development in the context of family dynamics involving traditional two-parent families, alternative partnerships, single parents, blended families, and intergenerational communities.

**MFAM 549. Christian Counseling and Family Therapy. 2 Units.**

Integrates Christian concepts and family therapy in a conceptual and clinical context.

**MFAM 551. Family Therapy: Foundational Theories and Practice. 3 Units.**

Provides an overview of the major theories in marriage and family therapy. Explores systems theory concepts in light of the major models of family therapy. Exposes students to the recovery process and consumer advocacy. Examines evidence-based models—such as cognitive behavioral, multidimensional family therapy (MDFT), and emotional-focused therapy. Through MDFT, exposes students to the treatment of addicted adolescents and their families.

**MFAM 552. Couples Therapy: Theory and Practice. 3 Units.**

Overview of the couples/marital therapy literature—including divorce, child rearing, parenting, step parenting, and blended families. Evidence-based practices studied relevant to consumer treatment and recovery. Examines how culture, SES, poverty, social, stress and addiction affect clinical practice.

**MFAM 553. Family Systems Theory. 3 Units.**

Reviews Bowen theory of family systems. Introduction to family psychotherapy as an outgrowth of the theory. Students examine their own families of origin.

**MFAM 555. Narrative Family Therapy. 2 Units.**

Narrative therapy and social construction as important developments in social theory and in clinical practice. Uses narratives and the role they play in a person's life through language and meaning systems. Examines issues of power, collaboration, culture, community, and re-authoring narratives, particularly in the works of Michael White and David Epston.

**MFAM 556. Psychopathology and Diagnostic Procedures. 3 Units.**

Explores the history and development of psychopathology and how it relates to current clinical practice in general and marriage and family therapy in particular. Utilizes the multi-axial classifications of the DSM-IV as a practical basis for diagnostics. Prerequisite: A course in abnormal psychology.

**MFAM 559. Cognitive-Behavioral Couples Therapy. 2,3 Units.**

Experiential course that surveys major cognitive-behavioral family therapy therapists, and integrates treatment techniques into practice in laboratory.

**MFAM 564. Family Therapy: Advanced Foundational Theories and Practice. 3 Units.**

Comprehensively surveys more recent therapy models, such as narrative, collaborative language systems, and solution-focused theory. Using these models, student learns to assess and consider diagnosis; as well as learn the role of language, meaning, and process in relationships. Class examines the theoretical strengths and limitations of these models in relation to culturally diverse populations.

**MFAM 567. Treating the Severely and Persistently Mentally Ill and the Recovery Process. 3 Units.**

Identification, treatment, and referral procedures for consumers identified as severely mentally ill. Examines the phenomenon as it relates to a diverse consumer population (culture, age, gender, and SES). Treatment section focuses on the recovery process and on evidence-based or agreed-upon approaches in the mental health field, particularly the marriage and family therapy field. Includes principles of etiology, diagnosis, treatment planning, and prevention of mental and emotional disorders and dysfunctional behavior.

**MFAM 568. Groups: Process, and Practice. 3 Units.**

Surveys major theoretical approaches, including individual theories, marital groups, network, and family therapy groups. Group laboratory experience provided wherein students apply theory to practice and develop group leadership skills.

**MFAM 584. Advanced Child and Adolescent Problems. 3 Units.**

Psychodynamics involved in child and adolescent problems with respect to the family relationship. Demonstrates a variety of counseling approaches to the treatment of children and adolescents, with emphasis on diverse settings (e.g., education, hospital, and agency).

**MFAM 585. Internship in Family Mediation. 1-4 Units.**

Internship includes 50 hours of observation in the court room, 100 client-contact hours of mediation experience, twenty cases of mediation experience, and six mediation case studies.

**MFAM 604. Social Context in Clinical Practice: Gender, Class, and Race. 3 Units.**

Introduces social inequalities that result in unfairness, health disparities, assaults to personal dignity, and family stress. Focuses on how one's position within social hierarchies—such as gender, socioeconomic status, race, and sexual orientation—affects psychological and relational health. Students learn how family therapists and counselors address these social contextual factors as part of a recovery-based approach that empowers people within their relationships and social systems. Cross-listing: COUN 604.

**MFAM 605. Gestalt Family Therapy. 2 Units.**

Principles of Gestalt psychology and therapy; the relationship between the individual and the physical, emotional, societal, and spiritual environment. Group experience that permits the spiritual and affective aspects of Gestalt therapy to be expressed and integrated with systems theory.

**MFAM 606. Emotionally Focused Couples Therapy. 2 Units.**

Students examine the theory of emotionally focused therapy and concentrate on the work and research of Susan Johnson.

**MFAM 614. Law and Ethics. 3 Units.**

Examines laws pertaining to the family: child welfare, separation, divorce, and financial aspects of family maintenance. Case management, referral procedures, professional and client interaction, ethical practices (AAMFT, ACA, BBS), ethical relations with other professions, legal responsibilities, abilities, and confidentiality. Current legal patterns and trends in the mental health profession. Exploration between the practitioner's sense of self and.

**MFAM 615. Reflective Practice. 2 Units.**

Develops narrative-therapy ideas and emphasizes a reflective process in both therapy and research. Focuses on developing the student's skills as an active agent in therapy and research. Prerequisite: MFAM 555.

**MFAM 624. Individual and Systems Assessment. 3 Units.**

Applies psychological testing methods in the diagnostic assessment of individual, family, and group behavioral dynamics as encountered in marriage and family counseling. Observations and/or laboratory experience.

**MFAM 635. Case Presentation Seminar and Legal Issues. 3 Units.**

Clinical trainees normally present ongoing individual, marital, and family cases. Requires completion of an epistemology paper that demonstrates a systems approach. Students' presentations must demonstrate an understanding of legal, ethical, cultural, SES, spiritual, and developmental issues. Students required to discuss how their cases support consumer advocacy, as well as collaboration with other mental health practitioners. Examines the recovery process in relation to selected epistemology. Covers legal and ethical issues for marriage and family therapist. Limited to students enrolled in clinical training. Students receive an IP while case criteria are being met.

**MFAM 636. Case Presentation Seminar and Client-Centered Advocacy. 3 Units.**

Examines the recovery process in relation to case write-ups. Clinical trainees formally present ongoing individual, marital, and family cases—discussing how cases support consumer advocacy, as well as collaboration with other mental health practitioners. Requires an in-depth case write-up on a couple or family that demonstrates an understanding of legal, ethical, cultural, SES, spiritual, client-centered advocacy, recovery model, disability act and services, and developmental issues. Students rehearse their final oral case in group. Limited to students enrolled in clinical training. Students receive an IP grade until case criteria are met.

**MFAM 637. Case Presentation Seminar and Global Practices. 3 Units.**

Student presents a final clinical case to a panel. Selected couple/family case required to be relational and demonstrate selected core competencies supported by the American Association for Marriage and Family Therapy (AAMFT). Students provide videotapes of a couple/family case, an epistemology paper, a case write-up; and discuss a case vignette before a panel of three MFT clinical experts. Final case presentation demonstrates an understanding of legal, ethical, cultural, SES, spiritual, the recovery process, and developmental issues. Students learn how marriage and family therapists practice worldwide and develop a deeper understanding of global practices. Requires trainees to discuss how their relational case supports consumer advocacy, as well as collaboration with other mental health practitioners. Students receive an IP until course criteria are met.



**MFAM 638. Family Therapy and Chemical Abuse. 3 Units.**

Examines current theories of etiology of substance use disorders and the effects of psychoactive drug use. Emphasizes assessment and evaluation strategies; impact on mental, biological, relational, and community systems; evidence-based prevention and treatment approaches within a recovery process orientation. Explores issues of regional multicultural competence, human diversity, and access to care.

**MFAM 644. Child Abuse and Family Violence. 3 Units.**

Definition and incidence of physical and emotional abuse, neglect, sexual molestation, dynamics of family violence; offender and nonoffender characteristics. Treatment of children, adolescents, the family and adults abused as children. Treatment modalities, including individual, group, and family therapy. Ethical and legal issues, community resources, multidisciplinary approach to child abuse, assessment, interview techniques, and confidentiality. Examines how cultural, SES, poverty and/or social stress impacts a family's mental health and recovery. Minimum of thirty contact hours. Cross-listing: COUN 644.

**MFAM 645. Advanced Substance Abuse-Treatment Strategies. 3 Units.**

Presents information about addictions treatment for adults, adolescents, families, groups, and those with multiple diagnoses. Prerequisite: MFAM 638.

**MFAM 665. Structural and Multidimensional Family Therapy. 2 Units.**

Enhances observational, conceptual, planning, and intervention skills. Increases ability to understand verbal and nonverbal communication and evidence-based family therapies. Broadens understanding of structural and multidimensional family therapy.

**MFAM 670. Seminar in Sex Therapy. 2 Units.**

Discusses major male and female sexual dysfunctions. Therapeutic processes of treatment. Prerequisite: MFAM 674.

**MFAM 674. Human Sexual Behavior. 3 Units.**

Sexuality in contemporary society from the sociopsychological viewpoint. Anatomy and physiology of human sexuality: reproduction, normal and abnormal sexual response, psychosexual development, human fertility, human sexual dysfunction. Integration of systems theory. A minimum of thirty contact hours.

**MFAM 694. Directed Study: Marriage and Family. 1-4 Units.**

Individual study in areas of special interest concerning the family and its problems. May be repeated for credit at the discretion of the faculty.

**MFAM 695. Research Problems: Marriage and Family. 1-4 Units.**

Directed research in the student's special field of interest in the family. Prerequisite: MFAM 501; or concurrent registration with consent of the coordinator.

**MFAM 731. Clinical Training. 6 Units.**

For MFT students beginning their clinical training. An IP grade will be assigned until student completes 200 hours at an approved site.

**MFAM 732. Clinical Training. 9 Units.**

For students who have completed MFAM 731 and are at an approved clinical site. Students register for 9 units and receive an IP grade until 500 hours or five consecutive quarters have been completed.

**MFAM 734. Professional Clinical Training. 1.5,3 Unit.**

Supervised clinical counseling of individuals, couples, families, and children. At least one hour of individual supervision per week and two hours of case presentation seminar per week. Continuous registration for this portion of the clinical training until completion of at least fifty clock hours.

**MFAM 734A. Professional Clinical Training. 1.5-6 Units.**

Supervised clinical counseling of individuals, couples, families, and children. At least one hour of individual supervision per week and two hours of case-presentation seminar per week. Continuous registration for this portion of the clinical training until completion of at least 300 clock hours.

**MFAM 744. Clinical Internship. 1 Unit.**

Supervised clinical counseling of individuals, couples, families, and children. One hour of individual supervision per week. Postgraduates only. Approved by internship coordinator.

## Mathematics (MATH)

### Courses

**MATH 111. College Algebra. 4 Units.**

A study of the properties of the real and complex number systems, linear and quadratic equations, factoring, exponents, inequalities and polynomials. Course emphasizes functions (algebraic, exponential and logarithmic). Note: This course does not apply toward a mathematics major or minor. Students will enroll through Loma Linda University for course content and instruction provided online by the Division of Science and Mathematics of Union College in Lincoln, Nebraska. Grades will be filed with and transcripts will be provided by Loma Linda University.

## Medical Education Services (MNES)

### Courses

**MNES 791. Third-year Elective. 3 Units.**

Gives students an opportunity to spend time (two weeks) in a specialty that holds particular interest to them, allowing them to develop their skills to a level that will be beneficial in their fourth-year electives.

## Medicine—Conjoint (MDCJ)

### Courses

**MDCJ 508. Cell Structure and Function. 8.5 Units.**

A fully integrated, comprehensive course that develops knowledge and skills relating normal microscopic and submicroscopic anatomy to cellular biology, cellular physiology, and immunology. General pathology, the common thread for the course, familiarizes students with morphologic and functional changes affecting cells exposed to a variety of normal and, to a lesser extent, abnormal environments.

**MDCJ 509. Introduction to Medical Practice Management. 4 Units.**

A comprehensive introductory course in management of a medical practice, with focus on eight major areas of responsibility (domains) within medical practice management: business operations, financial management, human resources management, information management, organizational governance, patient care systems, quality management, and risk management. Facilitates students' understanding of these eight essential domains, contributing to their ability to manage a more effective and efficient medical practice while providing high-quality patient care with better health outcomes.

**MDCJ 510. Capstone Project. 3 Units.**

Surveys literature focusing on a clinical problem addressed in the basic science courses of the first-year medical curriculum. Culminates with a term paper on the researched topic.

**MDCJ 519. Doctoring. 17 Units.**

A six-week integrative, interactive, patient-centered contextual learning experience that is part of the first year's organ system-based curriculum. Emphasizes development of communication and physical examination skills, as well as professionalism. Introduces students to human development across the life cycle, mind-body interaction, pain management, end-of-life care, child and elder abuse, and domestic violence and sexuality. Utilizes lecture, patient interviews, reflection papers, small-group laboratory practice sessions, round-table discussions, small-group discussions, self-directed learning, and structured clinical encounters.

**MDCJ 520. Basis of Medical Genetics. 2 Units.**

Supports the organ system curriculum in the first year. Lays the basic foundations in genetics and molecular biology, including mechanisms for genetic information and its flow in eukaryotic cells. Introduces students to the causes of genetic disorders and familial disease—including inherited congenital disorders, as well as the genetic components of common disorders. Prepares students to transition to sophomore-year clinical applications and clinical case presentations. Includes didactic sessions, interactive class case presentations with real patients, and team-based learning sessions.

**MDCJ 521. Applications of Clinical Genetics. 2 Units.**

Supports the organ system curriculum in the second year. Expands on the basic foundations laid in the first year as knowledge is applied to real cases and disease processes that correlate with the second-year curriculum. Includes interactive learning sessions designed to provide a genetic/molecular basis for understanding human diseases. Team-based learning in small groups, self-directed learning, and reading; as well as participation in the highlighted patient cases designed to provide students not only with the practical knowledge needed for future clinical practice, but also with the tools for lifelong learning.

**MDCJ 527. Cell Structure and Function. 8.5 Units.**

Supports the organ system curriculum in the first year. Describes basic and organ system histology—including a foundation in immunology—and applies this material to general pathology. Develops skills in the use of the microscope and in diagnostic problem solving. Uses lectures, microscope laboratories, small-group activities, online quizzes, and interactive clicker sessions to teach histology with cell biology, immunology, and general pathology; and to apply this information to clinical problem solving and microscope skills.

**MDCJ 528. Evidence-Based Medicine and Information Sciences. 3.5 Units.**

Supports the organ system curriculum in the first year. Provides early learners with the medical knowledge, skills, values, and attitudes necessary to begin the process of becoming self-directed, lifelong learners in the medical professions. Combines interactive, large-group didactic sessions with small-group, problem-based learning sessions focusing on the care of patients. Promotes acquisition of the five fundamental skills of evidence-based medicine (EBM): (a) how to ask clinically relevant questions; (b) how to acquire answers to questions commonly asked by physicians; (c) how to critically appraise the medical literature; (d) how to apply results of the medical literature to patients; and (e) how to self-assess progress in the acquisition of the foregoing skills.

**MDCJ 529. Physical Diagnosis. 8 Units.**

Supports the organ system curriculum in the first year. Teaches students how to effectively communicate with and examine patients who have diseases commonly encountered. Utilizes a wide variety of educational methods, including formal didactic sessions; computer-based instruction; small-group, case-based discussion; small-group, laboratory practice sessions; simulation laboratory; self-directed learning; and structured clinical encounters.

**MDCJ 530. Pathophysiology and Applied Physical Diagnosis. 11 Units.**

Supports the organ system curriculum in the second year. Uses mechanisms of disease to bridge the basic science and clinical curriculum by requiring students to think critically while applying basic science knowledge to solve clinical problems. Introduces students to the pathophysiologic principles underlying mechanisms of disease; and emphasizes the application of pathophysiologic principles to a variety of new situations that require problem solving and synthesis in a clinical context—a process accomplished through formal didactic sessions, as well as case-based, simulation, real patient, and self-directed learning activities designed to integrate basic science knowledge into the clinical encounter and promote the development of clinical skills and professionalism.

**MDCJ 538. Medical Neuroscience. 3.5 Units.**

Provides a broad-based foundation in neuroscience upon which students can build throughout the remainder of their medical training and professional career. Supports the organ system curriculum in the freshman year. Teaches the basic normal neuroanatomy and neurophysiology of the human central and peripheral nervous system. Uses the neurologic examination to illustrate how the central and peripheral nervous systems can be evaluated. Students learn how to accurately localize lesions of the central and peripheral nervous systems, as well as the technologies that can diagnose neurologic condition—including brain magnetic resonance imaging (MRI), computerized tomography (CT), electromyography (EMG), electroencephalogram (EEG), and lumbar puncture. Incorporates formal lectures, brain dissection laboratories, small-group case studies, and online learning activities.

**MDCJ 539. Diseases of Neuroscience. 4 Units.**

Supports the organ system curriculum in the second year. Builds on the first-year neuroscience course to transform the basic building blocks of neuroanatomy and neurophysiology into tools that apply to "real" patients with neurologic disease. Students systematically apply the integration of neuroanatomy, neurophysiology, and the neurologic examination to patients with neurologic disease in the following broad categories: muscle disease and myopathy; neuromuscular junction disorders; peripheral neuropathy, electromyography (EMG), and nerve conduction studies (NCS); brachial plexopathy and radiculopathy; spinal cord disorders, including motor neuron disease; multiple sclerosis and demyelinating diseases; brain stem syndromes; cerebrovascular disease; movement disorders; dementia; headache; central nervous system trauma; tumors of the central nervous system (CNS); epilepsy and electroencephalography (EEG); coma and encephalopathy; neurology and neuropathology of medical disease; CNS infections; and sleep disorders. Utilizes formal lectures, audience response interactive learning, small-group case studies, interactive lecture reinforcement, team-based learning, and online learning activities. Integrates clinical neurology, neuropathology, and neuropharmacology throughout.

**MDCJ 560. Basis of Medical Genetics. 2 Units.**

Supports the organ system curriculum in the first year of medical education. Lays the basic foundations in genetics and molecular biology, including mechanisms for genetic information and its flow in eukaryotic cells. Introduces students to the causes of genetic disorders and familial disease, including inherited congenital disorders; as well as the genetic components of common disorders. Combines teaching and learning methodologies—including, didactic sessions, interactive class case presentations with real patients, and team-based learning sessions.

**MDCJ 599. Medicine Conjoint Directed Study. 1-18 Units.**

Individual arrangements for students to study under the guidance of a program faculty member. May include reading, literature review, lectures or other special projects. Minimum of thirty hours required for each unit of credit. Does not fulfill requirements towards the M.D. degree.

**MDCJ 821. Preventive Medicine and Population Health. 1.5-6 Units.**

Introduces clinical preventive medicine, quality improvement and patient safety, and care of the underserved in clinic and public health settings. Introduces students to various allied health professions and complementary and alternative medicine. Utilizes clinical teaching, online/independent learning, lectures, and other group-learning experiences—including simulation—to enhance the knowledge and attitudes important to public health and preventive medicine; as well as to core skills, including utilizing motivational interviewing to foster behavioral change. Teaches important quality improvement knowledge and attitudes. Requires students to work with fellow students and clinical leaders to conduct and report on a quality improvement project.

**MDCJ 891. Whole Person Care. 1.5-30 Units.**

Offers fourth-year medical students the opportunity to explore various aspects of whole person care, film and medicine, law and medicine, tropical medicine, and patient safety.

## Medicine (MEDN)

### Courses

**MEDN 599. Medicine Directed Study. 1.5-18 Units.****MEDN 701. Medicine Clerkship. 1.5-15 Units.**

A third-year internal medicine course that provides the knowledge and develops in students the skills and attitudes necessary to care for the adult patient. Utilizes bedside teaching, lecture, and independent learning to achieve the stated goals. One outpatient and two inpatient rotations allow students to experience different patient conditions and populations while exposing them to both acute and chronic medical illnesses.

**MEDN 821. Medicine Subinternship. 1.5-6 Units.**

Builds upon and expands the core knowledge established during the third-year clerkship. Student assumes more responsibility in patient care and, functioning essentially as the intern on the case, works closely with the senior resident and attending physician to provide optimal care that is evidence-based, cost efficient, and effective.

**MEDN 822. Medicine Intensive Care. 1.5-6 Units.**

A four-week service on a medical intensive care unit where students are expected to learn the foundations of care in the ICU. Students participate actively in the care of patients admitted to the ICU—integrating and applying their knowledge as they follow patients on a daily basis. Prerequisite: MEDN 701.

**MEDN 891. Medicine Elective. 1.5-27 Units.**

Provides an opportunity for students to explore various areas of internal medicine, such as cardiology, nephrology, gastroenterology, etc.

## Microbiology (MICR)

### Courses

**MICR 515. Introduction to Bioinformatics and Genomics. 2 Units.**

Introduces computer-aided analysis of macromolecules and the study of genes and their products on the level of whole genomes.

**MICR 521. Medical Microbiology. 8 Units.**

Systematically studies bacteria, fungi, viruses, and animal parasites of medical importance; pathogenic mechanisms; methods of identification and prevention; and clinical correlation.

**MICR 530. Immunology. 4 Units.**

Introduces selected topics of modern immunology to graduate students, emphasizing understanding key paradigms.

**MICR 537. Selected Topics in Molecular Biology. 1-3 Units.**

Critically evaluates current progress in a specific research area of molecular biology, including recently published papers and unpublished manuscripts. May be repeated for additional credit. Prerequisite: MICR 539, CMBL 502.

**MICR 540. Physiology and Molecular Genetics of Microbes. 3 Units.**

Advanced graduate course covering various hot topics in both microbial physiology and molecular genetics—such as diversity of microbes on earth, engineering new metabolic pathways, mechanisms of gene regulation and gene transfer, and comparative genomics.

**MICR 547. Medical Microbiology. 4.5 Units.**

Supports the organ system curriculum in the sophomore year. Covers the basic biology of microbial pathogens and the mechanism of their disease pathologies. Teaches students the signs and symptoms of major infectious diseases and provides practice in developing differential diagnoses and fundamentals for treatment and prevention of these diseases. Discusses relevant, medically important microbial pathogens in the context of organ system(s) affected by these agents. Utilizes lectures, laboratory exercises, team-based learning, and interactive learning sessions to teach the major infectious causes of disease, detail their morphology and their identification, explain their pathogenic mechanisms, and highlight their disease manifestations.

**MICR 570. Mechanisms of Microbial Pathogenesis. 3 Units.**

In-depth exploration of molecular mechanisms of pathogenesis and host response for selected bacteria, viruses, and parasites. Topics include endotoxins, exotoxins, tools to identify genes crucial to virulence, and a discussion of selected paradigms of microbe-host interaction. Vaccine development serves as a unifying theme linking the host-pathogen interactions. Focuses on evidence for current concepts, using primary journal articles.

**MICR 605. Colloquium. 1 Unit.**

Presentations by peers on a topic selected and directed by a faculty member. (All students required to attend the colloquium. Students registered for colloquium are required to give a presentation.)

**MICR 606. Graduate Seminar. 1 Unit.**

Student presentation in the form of a seminar. (Course requirement normally fulfilled by presentation of the dissertation or thesis seminar. Other major student presentations may also qualify.)

**MICR 624. Special Problems in Microbiology. 2-4 Units.**

Designed primarily for students enrolled in a course work M.S. degree program who elect to work on a research problem.

**MICR 625. Independent Study in Microbiology Literature. 2-4 Units.**

Explores in depth a specific topic, selected in consultation with the mentor, such as the antecedents for theses or dissertation research. (Formal proposal for the scope and evaluation of the independent study must be approved by the faculty prior to enrollment in this course. Does not satisfy an elective requirement in the microbiology and molecular genetics program.)

**MICR 626. Special Topics in Microbiology. 2-4 Units.**

Critically evaluates current progress in a specific research area, including recently published papers and unpublished manuscripts. (Each course taught by a resident or a visiting scientist who is a recognized authority in the research area under discussion. Students may register for multiple courses under this designation.)

**MICR 697. Research. 1-7 Units.****MICR 698. Thesis. 1-3 Units.****MICR 699. Dissertation. 2-5 Units.****MICR 891. Microbiology Elective. 1.5-12 Units.**

Offers fourth-year medical students the opportunity to explore various areas of microbiology, including research.

## Natural Sciences (NSCI)

### Courses

**NSCI 286. Topics in Biology. 1-4 Units.**

Reviews current knowledge in specified areas of the biological sciences. Registration should indicate the specific topic to be studied. May be repeated for additional credit. Offered on demand.

**NSCI 288. Topics in Geology. 1-4 Units.**

Reviews current knowledge in specified areas of the earth sciences. Registration should indicate the specific topic to be studied. May be repeated for additional credit. Offered on demand.

## Neurology (NEUR)

### Courses

**NEUR 599. Directed Elective Study. 1.5-12 Units.****NEUR 701. Neurology Clerkship. 1.5-6 Units.**

Develops in students the skills necessary to competently evaluate, document, localize, diagnose, and discuss treatment of adult patients who have neurological symptoms. Teaches students about inpatient neurologic emergencies, as well as chronic outpatient neurologic conditions. Exposes students to two weeks of inpatient neurology during which skills in the evaluation and treatment of acute stroke are developed; as well as two weeks of outpatient neurology during which students rotate through clinic areas that include headache, movement disorders, neuropathy, epilepsy, rehabilitation, EMG, and EEG. Incorporates bedside teaching, formal lectures, online learning activities, neurology grand rounds at LLUMC, clinical case conferences at VAMC, teaching conferences, web resources, and case studies that cover the core knowledge required in neurology. Includes a patient simulation OSCE during which the student is formally evaluated and provided with immediate feedback.

**NEUR 891. Neurology Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of neurology, including research.

## Neurosurgery (NEUS)

### Courses

**NEUS 891. Neurosurgery Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of neurosurgery, including research.

## Nursing (NRSNG)

### Courses

**NRSNG 214. Fundamentals of Professional Nursing. 8 Units.**

Introduces the profession of nursing. Emphasizes the basic health needs of the adult-client system, with the goal of optimal wellness/wholeness. Identifies stressors to the client system's lines of defense. Develops beginning-nursing decision-making skills. Supervised experience in application of nursing knowledge to adult-client systems in acute-care settings. Socializes into the role of professional nursing, including exploration of historical, ethical, cultural, and legal aspects. Current issues in professional nursing/health care.

**NRSNG 216. Basic Nursing Skills and Health Assessment. 4 Units.**

Introduces the basic skills required to assess, maintain, and strengthen client lines of resistance and defense. Supervised practice in communication skills and nursing interventions to achieve optimal client wellness. Foundation to clinical decision-making and client education. General concepts and techniques for performing a head-to-toe physical examination and proper documentation of assessment findings.

**NRSNG 217. Psychiatric Mental Health Nursing. 6 Units.**

Introduces care of the client presenting with psychiatric mental health symptoms. Emphasizes primary, secondary, and tertiary interventions to increase resilience and strengthen lines of defense/resistance for the client. Clinical experiences focus on communication skills, the nurse-patient relationship, and application of the nursing process in the management of the individual client system. Prerequisite: NRSNG 214, NRSNG 216.

**NRSNG 224. Nursing Pathophysiology. 4 Units.**

Overview of the physiological function of a client system under stress, the common stressors that threaten system stability/integrity, and the consequences that result to the individual whose lines of resistance and defense are breached. Foundation for understanding the rationale behind assessment findings and nursing intervention.

**NRSNG 225. LVN Bridge Course. 4 Units.**

Designed for the LVN transfer student. Content includes introduction to baccalaureate nursing, physical assessment, and gerontology.

**NRSNG 226. LVN Bridge Course for Physical Assessment. 2 Units.**

Designed for the LVN transfer student. Content includes an introduction to baccalaureate nursing and physical assessment.

**NRSNG 227. LVN Bridge Course for Gerontological Nursing. 2 Units.**

Designed for the LVN transfer student. Content includes an introduction to baccalaureate nursing and gerontology.

**NRSNG 244. Strategies for Academic Success. 1 Unit.**

Assessment of student's learning needs, with individualized approaches to learning strategies essential for success in nursing education and practice.

**NRSNG 299. Directed Study. 1-8 Units.**

Opportunity for clinical learning in a selected area of nursing. Prerequisite: Consent of instructor and the associate dean.

**NRSG 305. Nursing Pharmacology. 3 Units.**

Overview of the major drug classifications. Introduces the therapeutic use of drugs in the maintenance and strengthening of the client system lines of resistance and defense.

**NRSG 308. Adult Health Nursing I. 8 Units.**

Emphasizes the wholistic nature of the adult/aging client system in response to acute, short-term stressors. Uses the nursing process to assist the client system in achieving optimal wellness through strengthening lines of resistance and defense. Supervised practice in caring for the adult-client system in acute-care settings. Prerequisite: NRSG 214, NRSG 216, NRSG 224.

**NRSG 309. Gerontological Nursing. 4 Units.**

Focuses on older adult client systems experiencing normal aging. Examines age-related stressors to client variables—physiological, psychological, sociocultural, developmental, and spiritual. Guided learning experiences in nursing care of the older client in long-term care and community settings. Prerequisite: NRSG 214, NRSG 216.

**NRSG 314. Obstetrical and Neonatal Nursing. 6 Units.**

Emphasizes primary prevention strategies that promote optimal wellness for the mother and neonate, and identification of stressors that influence the family's normal lines of defense. Applies the nursing process, using a wholeness approach when caring for the maternal-fetal and maternal-infant dyads. Prerequisite: NRSG 317.

**NRSG 315. Child Health Nursing. 6 Units.**

Focuses on the client from infancy through adolescence within the family system. Wholistic nursing care emphasizing optimal wellness in relation to potential or actual stressors, including primary, secondary, and tertiary interventions. Individualization of the nursing process guided by physiological, psychological, sociocultural, developmental, and spiritual variables of the client system. Prerequisite: NRSG 317.

**NRSG 316. The Nursing Role in Health Promotion. 4 Units.**

Prepares the student to promote optimal wellness throughout the lifespan. Examines the impact of common lifespan stressors on students, clients, and family systems. Primary preventions—including theories of behavior change, motivation, and health education—applied to strengthen lines of defense. Prerequisite: NRSG 308.

**NRSG 317. Adult Health Nursing II. 8 Units.**

Continues NRSG 308. Explores relationships among adult and aging client/family system variables in the development of primary, secondary, and tertiary interventions for chronic stressors that require comprehensive nursing care. Guided practice in acquiring advanced nursing skills and clinical integration. Prerequisite or concurrent\*: NRSG 308, NRSG 217\*, NRSG 309.

**NRSG 324. Nursing Informatics and Evidence-Based Practice. 3 Units.**

Applies information technology systems to evidence-based practice, education, and communication in health-care settings. Reviews academic and research-based publications and writing formats. Addresses quality of care, patient safety, and ethical issues. An IP notation assigned pending successful completion of LLEAP requirements.

**NRSG 337. Strategies for Professional Transition. 4 Units.**

Focuses on growth and enhancement of the professional nurse. Includes the following topics: (1) professional nursing in a changing health-care delivery system, (2) exploration of identified nursing role issues, (3) legal and ethical foundations of professional nursing, (4) socialization to professional nursing roles, and (5) theoretical foundations of professional nursing. Emphasizes scholarship for evidence-based practice. Based on learning objectives for career growth, students assess and strengthen the application of skills in communication, research, professional responsibility and values, teaching and learning process, management, nursing process, and individual empowerment for themselves, clients, and communities. Includes orientation to LLU campus/University setting, assessment and development of learning objectives, and portfolio development.

**NRSG 338. Essential Leadership Concepts for Nursing Licensure. 1 Unit.**

Management issues related to entry into nursing practice. For students who have a previous B.S./B.A. degree or LVN taking the 45 unit option and who wish to sit for boards at the end of the junior year. Course does not apply towards the bachelor's degree.

**NRSG 375. Introduction to Applied Biostatistics for Nurses. 3 Units.**

Introduces statistical methods of summarizing, analyzing, presenting, and interpreting data, with emphasis on nursing research. Topics include normal and binomial distributions, probability, central limit theorem, confidence intervals; as well as hypothesis testing using t-tests, ANOVA, correlation, linear regression, and chi-square. Includes a brief introduction to multivariate analysis. Practice in reading and interpreting statistical summaries in peer-reviewed literature. Emphasizes the practical application of biostatistics. Prerequisite: Competency in introductory level mathematics.

**NRSG 375L. Computer Applications in Biostatistics. 1 Unit.**

Uses SPSS to apply appropriate statistical methods in the summary and analysis of health-related data, including descriptive; as well as hypothesis testing using t-tests, correlation, linear regression, chi-square, and ANOVA. Designed to be taken concurrently with STAT 414.

**NRSG 399. Nursing Externship. 1 Unit.**

An elective work-study course that provides opportunity for experiential understanding of the nature of nursing in the work place. Focuses on application of the Neuman framework. The student, under the supervision of an RN preceptor, applies previously learned skill in providing direct patient care. Prerequisite: NRSG 408.

**NRSG 404. Introduction to Epidemiology for Nursing. 3 Units.**

Explores historic and current epidemiological investigation methods, evaluates health-care study designs, and analyzes utilization of evidence-based nursing practices impacting delivery of care on personal, organizational, community, national, and global levels. In-depth exploration of interdisciplinary communication, collaboration, and development of nursing interventions impacting disease identification, control, and management. Comprehensive focus on assessment and measurement of disease occurrence, frequency and prevention of illness, infection control practices, and evaluation of evidence-based research impacting nursing care. Prerequisite: Completion of statistics course.

**NRSG 407. Complex Nursing Concepts of Health and Disease. 6 Units.** Explores the complex pathophysiological concepts across the lifespan using a systems approach. Applies multifaceted alterations at the cell/system levels and potential resulting functional changes to the nursing practice. Presents comprehensive clinical case studies based on theory to support nursing assessments and interventions. Uses theories relating etiology, pathogenesis, and clinical manifestations to investigate and understand the common disease processes. Builds upon the underlying concepts of previous anatomy and physiology courses. Through online discussion and simulation-based practice, teaches evidence-based advanced health assessment theory and its application across the lifespan. Prerequisite: NRSG 337.

**NRSG 408. Critical Care Nursing. 6 Units.** Students study and participate in complex clinical nursing practice (critical care). Students utilize the nursing process in primary, secondary, and tertiary prevention with critically ill clients and their families. Emphasizes the scientific basis of the effects of stressors on the lines of defense and resistance. Promotes collaborative efforts of the members of the health-care team in the care of the critically ill client and his/her family. Prerequisite: NRSG 314, NRSG 315, NRSG 316, NRSG 317.

**NRSG 409. Home Health Nursing. 3 Units.** Wholistic care of the client system across the lifespan within the home. Clinical experience focuses on acute and chronic stressors. Introduces community resources to facilitate continuity of care and to promote optimal wellness. Prerequisite: NRSG 314, NRSG 315, NRSG 316, NRSG 317.

**NRSG 414. Management and Leadership for the Working Nurse. 5 Units.** The health care agency or nursing unit viewed as the core system, with lines of defense and lines of resistance. The management process as the set of interventions aimed at maintaining or restoring a state of equilibrium and order within the organization. The role of the first-line manager observed and some aspects experienced.

**NRSG 415. Community Mental Health Nursing. 4 Units.** Student delivers psychiatric nursing care in a variety of clinical settings within the community. Guidance given in assessing stressors and developing primary, secondary, and tertiary interventions within populations at risk for psychosocial stress. Student practices case management strategies and psychoeducational interventions. Clinical experience directed toward optimizing lines of defense and resistance for families, groups, and communities. Prerequisite: Completion of 200- and 300-level NRSG courses.

**NRSG 416. Public Health Nursing. 4 Units.** Focuses on the optimal wellness of the client community in partnership with the community health nurse. Intervention strategies emphasize primary, secondary, and tertiary prevention with micro- and macroclient systems. Develops skills in assessment; diagnosis; planning based on outcomes; and implementation within inter-, extra-, and intrasystem of the client community. Prerequisite: NRSG 404, NRSG 408, NRSG 409.

**NRSG 416L. Public Health Nursing Clinical Laboratory. 4 Units.** Clinical application focusing on the optimal wellness of the community as client. Intervention strategies emphasizing primary, secondary, and tertiary prevention with micro-/macro-client systems. Prerequisite or concurrent\*: NRSG 404, NRSG 416\*.

**NRSG 418. Capstone Nursing Practicum. 8 Units.** Application of theoretical knowledge and skills in a preceptored clinical experience. Integrates selected management principles into clinical practice. Prerequisite: NRSG 415, NRSG 429.

**NRSG 419. Capstone: Management and Leadership in Nursing. 5 Units.** Provides historical overview of theories of leadership and management leading to the development of leadership skills. Explores current concepts of issues in the field of nursing.

**NRSG 420. Professional Preparation. 2 Units.** Preparation for the NCLEX-RN examination, with emphasis on career development and licensure issues.

**NRSG 424. Professional Practice for the Working RN. 7 Units.** Provides an online opportunity for synthesis and application of theoretical knowledge and skills to a clinical practice environment. Enhances critical thinking and clinical decision making in the clinical practice area through current clinical readings and online studies, discussions, interprofessional simulation, and identification and exploration of ethical and clinical issues. Documents baccalaureate outcomes in a professional portfolio. Prerequisite: NRSG 337, NRSG 407.

**NRSG 426. Public Health Nursing for Working RNs. 4 Units.** Focuses on the optimal wellness of the community as client. Intervention strategies emphasizing primary, secondary, and tertiary prevention with micro-/macroclient systems. Develops skills in assessment; diagnosis; planning based on outcomes; and implementation within inter-, extra-, and intrasystem of both aggregate and geopolitical clients. Assignments designed to focus on the working environment of the RN. Credit cannot be earned for NRSG 416 and NRSG 426. Prerequisite: NRSG 337, NRSG 404, NRSG 407.

**NRSG 426L. Public Health Nursing Clinical Laboratory for the Working RN. 4 Units.** Clinical application focusing on the optimal wellness of the community as client. Intervention strategies emphasizing primary, secondary, and tertiary prevention with micro-/macro-client systems. Assignments designed to focus on the working environment of the RN. Credit cannot be earned for both NRSG 416L and NRSG 426L. Prerequisite or concurrent: NRSG 426.

**NRSG 429. Nursing Research. 3 Units.** Prepares the novice nurse consumer to identify practice issues and appraise evidence related to the profession of nursing in order to more effectively integrate evidence into learning, understanding, and practice. Provides the knowledge and understanding of qualitative and quantitative systems of inquiry necessary for the novice nurse to facilitate optimal wellness through retention, attainment, and maintenance of client system stability. Prerequisite: Complete all NRSG 300 level courses.

**NRSG 497. Advanced Clinical Experience. 3-12 Units.** An elective course open to students seeking clinical experience in nursing.

**NRSG 499. Directed Study. 1-8 Units.** Opportunity for clinical experience in a selected area of nursing. Prerequisite: Consent of instructor and the associate dean.

**NRSG 514. Advanced Physiology and Pathophysiology for the Nurse Anesthetist II. 4 Units.** Study of the causes, processes, and clinical manifestations of disease and the associated anesthesia management of patients with specific disorders. Prerequisite: NRSG 567; ANAT 527; PHSL 506.

**NRSG 518. Orientation to Clinical Practice. 1 Unit.** Orientation to the clinical setting through supervised experiences in the management of patients throughout the perianesthetic continuum. Focuses on preparation of the anesthetizing location and successful creation and implementation of an anesthetic plan of care. Emphasizes patient safety and prevention of iatrogenic complications. Requires participation in weekly grand rounds.

**NRS 519. Advanced Role Development for the Nurse Anesthetist. 4 Units.**

Examines advanced practice registered nurse roles and core competencies. Focuses on issues relevant to nurse anesthesia practice, including history of nurse anesthesia, role of the nurse anesthetist in California, and an overview of ethical medical-legal issues. Emphasizes collaborative communication and the nurse anesthetist as educator. Per week: theory three hours, practicum zero hours. Prerequisite: NRS 520, NRS 521.

**NRS 520. Principles of Nurse Anesthesia Practice I. 4 Units.**

Examines basic principles of anesthesia related to the perianesthetic management of patients undergoing surgical, diagnostic, and therapeutic procedures. Per week: theory 3 hours, practicum 1 hour.

**NRS 521. Principles of Nurse Anesthesia Practice II. 4 Units.**

Builds upon basic principles of anesthesia, and introduces advanced concepts in the individualized perianesthetic management of patients with a variety of coexisting diseases and disorders who are undergoing diverse procedures. Per week: theory 3 hours, practicum 1 hour. Prerequisite: NRS 520.

**NRS 522. Principles of Nurse Anesthesia Practice III. 5 Units.**

Applies basic and advanced principles of anesthesia to the individualized perianesthetic management of patients with various coexisting diseases and disorders across the life span. Per week: theory 4 hours, practicum 1 hour. Prerequisite: NRS 521.

**NRS 523. Principles of Nurse Anesthesia Practice IV. 4 Units.**

Focuses on the perianesthetic management of patients impacted by increasingly complex coexisting diseases and/or procedures. Includes an examination of various regional anesthesia techniques and associated considerations. Per week: theory 3 hours, practicum 3 hour. Prerequisite: NRS 522.

**NRS 524. Clinical Practicum and Correlation Conference I. 3 Units.**

Supervised experience in the management of patients throughout the perianesthetic continuum. Focuses on preparation of the anesthetizing area and successful creation and implementation of an anesthetic plan of care. Emphasizes patient safety and prevention of iatrogenic complications. Clinical correlation conference participation includes attendance at required grand rounds and conferences, participation in class discussions and projects, and review of selected anesthetic concepts and techniques. Per week: theory 1 hour, practicum 2 hours. Prerequisite: NRS 522.

**NRS 525. Clinical Practicum and Correlation Conference II. 4 Units.**

Continued supervised experience in the management of patients throughout the perianesthetic continuum, focusing on identification and intervention of physiological responses to anesthesia and surgery. Clinical correlation conference participation includes attendance at required grand rounds and conferences, participation in class discussions and projects, and review of selected anesthetic concepts and techniques. Per week: theory 1 hour, practicum 3 hours. Prerequisite: NRS 524.

**NRS 526. Clinical Practicum and Correlation Conference III. 4 Units.**

Continued supervised experience in the full scope of anesthesia practice, focusing on predicting and preventing anesthetic management issues in cases with increasing complexity. Clinical correlation conference participation includes attendance at required grand rounds and conferences, participation in class discussions and projects, and review of selected anesthetic concepts and techniques. Per week: theory 1 hour, practicum 3 hours. Prerequisite: NRS 525.

**NRS 527. Clinical Practicum and Correlation Conference IV. 4 Units.**

Continued supervised experience in the full scope of anesthesia practice. Emphasizes exposure to advanced anesthetic and surgical techniques. Clinical correlation conference participation includes attendance at required grand rounds and conferences, participation in class discussions and projects, and review of selected anesthetic concepts and techniques. Per week: theory 1 hour, practicum 3 hours. Prerequisite: NRS 526.

**NRS 528. Clinical Practicum and Correlation Conference V. 4 Units.**

Continued unrestricted experience in advanced anesthetic techniques and surgical specialties. Includes orientation and instruction of junior students enrolled in Clinical Practicum and Correlation Conference I. Clinical correlation conference participation includes attendance at required grand rounds and conferences, participation in class discussions and projects, and review of selected anesthetic concepts and techniques. Per week: theory one hour, practicum three hours. Prerequisites: NRS 527.

**NRS 529. Clinical Practicum and Correlation Conference VI. 4 Units.**

Focuses on the development and implementation of anesthetic care plans using all major techniques for all surgical specialties, with increasing independence based on individual skill levels. Provides opportunities for refinement of decision-making skills in preparation for the independent management of anesthetics. Clinical correlation conference participation includes attendance at required grand rounds and conferences, participation in class discussions and projects, and review of selected anesthetic concepts and techniques. Per week: theory one hour, practicum three hours. Prerequisite: NRS 528.

**NRS 548. Nursing Administration Practicum. 1-10 Units.**

Provides opportunities for the ongoing development and refinement of leadership capability in selected areas of nursing administration. Students showcase competencies in the synthesis and application of nursing, management, economic, and human resources theories to solve real-world issues of importance to the profession and the workplace. Per week: lecture 0 hours, practicum 3-24 hours. Prerequisite: NRS 547; HADM 528.

**NRS 551. Primary Care Pediatric Nurse Practitioner I. 4 Units.**

Focuses on the PNP primary care role in health promotion, wholistic assessment, and management of minor common illnesses for children from newborn through adolescence. Per week: theory three hours, practicum three hours. Prerequisite: NRS 555, NRS 556, NRS 651, PHS 588.

**NRS 552. Primary Care Pediatric Nurse Practitioner II. 7 Units.**

Continues development of the PNP primary care role for children from newborn through adolescence, related to assessment and management of common or acute illnesses while incorporating health maintenance and prevention. Per week: theory 3 hours, skills laboratory 3 hours, practicum 9 hours. Prerequisite: NRS 551.

**NRS 553. Primary Care Pediatric Nurse Practitioner III. 7 Units.**

Continues development of the PNP primary care role in assessment and management of chronic or complex illnesses for children birth through adolescence. Per week: theory three hours, practicum twelve hours. Prerequisite: NRS 552.

**NRS 554. Primary Care Pediatric Nurse Practitioner IV. 7 Units.**

Continues development of the PNP primary care role in assessment and management of chronic or complex illnesses for children birth through adolescence. Per week: theory two hours, practicum fifteen hours. Prerequisite: NRS 553.

**NRSG 557. Primary Care Pediatric Nurse Practitioner V. 5 Units.**

Focuses on integration and synthesis of knowledge and skills, under the guidance of an expert preceptor, with the goal of working independently and collaboratively within a health-care team. Per week: theory zero hours, practicum fifteen hours. Prerequisite: NRSG 554.

**NRSG 561. Primary Care Adult-Gerontology Nurse Practitioner I. 4 Units.**

Introduces the role, professional responsibilities, and clinical practice of the primary care adult-gerontology nurse practitioner (A-GNP). Focuses on primary health-care concepts related to health maintenance and promotion of optimal wellness and to common illnesses of the adult. Per week: lecture two hours, practicum six hours. Prerequisite: NRSG 555, NRSG 556, NRSG 651; PHSL 588.

**NRSG 562. Primary Care Adult-Gerontology Nurse Practitioner II. 6 Units.**

Focuses on the A-GNP role of health promotion and management of common acute and chronic conditions across the adult life span. Per week: lecture three hours, practicum nine hours. Prerequisite: NRSG 561; NRSG 566.

**NRSG 563. Primary Care Adult-Gerontology Nurse Practitioner III. 6 Units.**

Continues focus on the A-GNP role of health promotion and management of patients with acute and chronic conditions across the adult life span. Per week: lecture three hours, practicum nine hours. Prerequisite: NRSG 562.

**NRSG 564. Primary Care Adult-Gerontology Nurse Practitioner IV. 7 Units.**

Focuses on health maintenance and management of patients with complex acute and chronic conditions across the adult life span. Per week: lecture three hours, practicum twelve hours. Prerequisite: NRSG 563.

**NRSG 565. Primary Care Adult-Gerontology Nurse Practitioner V. 6 Units.**

Final clinical practicum. Emphasis on integrating prior learning and increasing clinical competence in primary care settings. Includes case study discussions and on-line certification practice testing. Per week: lecture zero hours, practicum eighteen hours. Prerequisite: NRSG 564.

**NRSG 567. Scientific Foundations of Nurse Anesthesia Practice. 2 Units.**

In-depth study of the principles of mathematics, chemistry, and physics as they relate to nurse anesthesia practice.

**NRSG 569. Primary Care Adult-Gerontology Nurse Practitioner: Fragile Elders. 4 Units.**

Continues development of the A-GNP role of health promotion, maintenance, and management—with focus on fragile elders with acute and chronic conditions. Per week: lecture three hours, practicum three hours. Prerequisite: NRSG 561.

**NRSG 571. Advanced Pharmacology for Nurse Anesthesia I. 6 Units.**

First of three distance education technology-based courses focused on development of knowledge and application of pharmacology to nurse anesthesia clinical practice. Includes principles of drug action, pharmacokinetics, pharmacodynamics, inhalation anesthetics, intravenous adjuncts, and opiates. Per week: theory six hours, practicum zero hours.

**NRSG 572. Advanced Pharmacology for Nurse Anesthesia II. 3 Units.**

Second of three distance education technology-based courses focused on development of knowledge and application of pharmacology to nurse anesthesia clinical practice. Includes muscle relaxants, and an introduction to autonomic nervous system pharmacology. Per week: theory three hours, practicum zero hours.

**NRSG 573. Advanced Pharmacology for Nurse Anesthesia III. 2 Units.**

Third of three distance education technology-based courses focused on development of knowledge and application of pharmacology to nurse anesthesia clinical practice. Includes autonomic nervous system pharmacology, anti-arrhythmic medications, and medications for pulmonary and cardiovascular disease. Per week: theory two hours, practicum zero hours.

**NRSG 618A. Writing for Publication. 1 Unit.**

First of a two-course mentored writing experience that includes information, resources, and guidance that facilitate development of a publishable manuscript.

**NRSG 618B. Writing for Publication. 2 Units.**

Second of a two-course mentored writing experience that includes information, resources, and guidance that facilitate development of a publishable manuscript.

**NRSG 627. DNP Project Development Seminar. 1 Unit.**

Using the Iowa Model of Evidence-Based Practice to Promote Quality Care, systematically develops over seven quarters the approach for implementation of an evidence-based practice project. Includes identification of the EBP question, the search for evidence, and steps for effective translation of the project into the specific practice setting.

**NRSG 634A. DNP Project. 3 Units.**

The first of four courses in development of the DNP project. Focuses on identifying and describing in detail the project problem, forming the project guidance committee and project team in the practice setting, and beginning development of the DNP project paper and PowerPoint presentation. An IP assigned at the end of each quarter until all steps are completed.

**NRSG 634B. DNP Project. 3 Units.**

The second of four courses in the development of the DNP project. Student comprehensively reviews and critiques relevant literature, works through the IRB approval process, pilots the project in the practice setting, and continues developing the DNP project paper and PowerPoint presentation. An IP assigned at the end of each quarter until all steps are completed.

**NRSG 634C. DNP Project. 3 Units.**

The third of four courses in the development of the DNP project. Student implements the change project using appropriate communication strategies with key personnel, adapts change strategies appropriately, and continues developing the DNP project paper and PowerPoint presentation. An IP assigned at the end of each quarter until all steps are completed.

**NRSG 634D. DNP Project. 3 Units.**

The last of four courses in the development of the DNP project. Student monitors and analyzes the change project, evaluates key variables, implements adjustments as needed, identifies implications for future work, continues developing the DNP project paper and PowerPoint presentation, and develops results for dissemination through publication and presentation. An IP assigned at the end of each quarter until all steps are completed.

**NRSG 650. Family Nurse Practitioner: Children and Adolescents. 4 Units.**

Focuses on the FNP role of health promotion and management of common conditions in infants, children, and adolescents. Emphasizes normal growth and development and principles of anticipatory guidance. Per week: theory 3 hours, clinical 3 hours.



**NRSG 652. Family Nurse Practitioner I. 4 Units.**

Introduces the role, professional responsibilities, and clinical practice of the family nurse practitioner (FNP). Focuses on primary health-care concepts related to health promotion, maintenance, and common illnesses across the life span. Per week: theory two hours, practicum six hours. Prerequisite: NRSG 555, NRSG 556; NRSG 651; PHSL 588.

**NRSG 653. Family Nurse Practitioner II. 6 Units.**

Focuses on the FNP role of health promotion and management of common acute and chronic conditions across the life span. Per week: lecture three hours, practicum nine hours. Prerequisite: NRSG 652.

**NRSG 654. Family Nurse Practitioner III. 7 Units.**

Continues focus on the FNP role of health promotion and management of patients with acute and chronic conditions across the life span. Per week: lecture three hours, practicum twelve hours. Prerequisite: NRSG 653.

**NRSG 655. Family Nurse Practitioner IV. 7 Units.**

Focuses on health promotion, maintenance and management of patients with complex acute and chronic conditions across the life span. Per week: lecture three hours, practicum twelve hours. Prerequisite: NRSG 654.

**NRSG 656. Family Nurse Practitioner V. 7 Units.**

Final clinical practicum. Emphasis on integrating prior learning and increasing clinical competence in primary care settings. Includes case study discussions and on-line certification practice testing. Per week: lecture zero hours, practicum twenty-one hours. Prerequisite: NRSG 655.

## Nursing - Graduate (NGRD)

### Courses

**NGRD 500. Gerontological Health and Wellness. 2 Units.**

Continues development of the advanced practice role of health promotion, maintenance, and management. Focuses on fragile elders with acute and chronic conditions.

**NGRD 501. Primary Care Adult-Gerontology Nurse Practitioner I. 5 Units.**

Introduces the role, professional responsibilities, and clinical practice of the primary care adult-gerontology nurse practitioner (A-GNP). Focuses on primary health care concepts related to health maintenance and promotion of optimal wellness and common, acute illnesses of the adult. Per week: lecture 3 hours, practicum 6 hours. Prerequisite: NGRD 621, NGRD 622, NGRD 624, NGRD 625.

**NGRD 502. Primary Care Adult-Gerontology Nurse Practitioner II. 6 Units.**

Focuses on the A-GNP role of health promotion and management of reproductive health and related conditions across the adult life span. Per week: lecture 3 hours, practicum 9 hours. Prerequisite: NGRD 501.

**NGRD 503. Primary Care Adult-Gerontology Nurse Practitioner III. 8 Units.**

Continues focus on the A-GNP role of health promotion and management of patients with common chronic conditions across the adult life span. Per week: lecture 4 hours, practicum 12 hours. Prerequisite: NGRD 502.

**NGRD 504. Primary Care Adult-Gerontology Nurse Practitioner IV. 8 Units.**

Focuses on health maintenance and management of patients with complex acute and chronic conditions across the adult life span. Per week: lecture 4 hours, practicum 12 hours. Prerequisite: NGRD 503.

**NGRD 505. Primary Care Adult-Gerontology Nurse Practitioner V: Practicum. 8 Units.**

Emphasis on integrating prior learning and increasing clinical competence in primary care settings. Includes discussion and on-line certification practice testing in addition to final practicum. Per week: lecture 1 hour, practicum 21 hours. Prerequisite: NGRD 504.

**NGRD 509. Primary Care Adult-Gerontology Nurse Practitioner: Skills Lab. 1 Unit.**

Focuses on kinetic learning and practice of primary care clinical skills and procedures. An IP will be assigned at the end of each quarter until all skills laboratory activities for the clinical program are completed. Prerequisites: NGRD 501.

**NGRD 510. Family Nurse Practitioner: Pediatrics and Adolescent. 5 Units.**

Focuses on the FNP role of health promotion and management of common conditions in infants, children, and adolescents. Emphasizes normal growth and development and principles of anticipatory guidance. Per week: theory 3 hours, clinical 6 hours. Prerequisites: NGRD 511.

**NGRD 511. Family Nurse Practitioner I. 5 Units.**

Introduces the role, professional responsibilities, and clinical practice of the primary care family nurse practitioner (FNP). Focuses on primary health-care concepts related to health maintenance and promotion of optimal wellness and common, acute illnesses across the life span. Per week: lecture 3 hours, practicum 6 hours. Prerequisite: NGRD 621, NGRD 622, NGRD 624, NGRD 625.

**NGRD 512. Family Nurse Practitioner II. 6 Units.**

Focuses on the FNP role of health promotion and management of reproductive health and related conditions across the adult life span. Per week: lecture 3 hours, practicum 9 hours. Prerequisite: NGRD 511.

**NGRD 513. Family Nurse Practitioner III. 8 Units.**

Focuses on health maintenance and management of patients with complex acute and chronic conditions across the adult life span. Per week: lecture 4 hours, practicum 12 hours. Prerequisites: NGRD 512.

**NGRD 514. Family Nurse Practitioner IV. 8 Units.**

Focuses on health maintenance and management of patients with complex acute and chronic conditions across the adult life span. Per week: lecture 4 hours, practicum 12 hours. Prerequisites: NGRD 513.

**NGRD 515. Family Nurse Practitioner V: Practicum. 8 Units.**

Emphasis on integrating prior learning and increasing clinical competence in primary care settings. Includes discussion and on-line certification practice testing in addition to final practicum. Per week: lecture 1 hour, practicum 21 hours.

**NGRD 519. Family Nurse Practitioner: Skills Lab. 1 Unit.**

Focuses on kinetic learning and practice of primary care clinical skills and procedures. An IP will be assigned at the end of each quarter until all skills laboratory activities for the clinical program are completed. Prerequisite: NGRD 511.

**NGRD 520. Neonatal Advanced Health Assessment. 4 Units.**

Focuses on neonatal assessment of a neonate from birth to 2 years of age. Additional overview of specific gestational age, behavioral and developmental assessment, comprehensive history and neonatal physical examination, diagnostic testing, and family assessment. Per week: lecture 3 hours, practicum 3 hours. Prerequisite: NGRD 625.

**NGRD 521. Neonatal Nurse Practitioner I. 4 Units.**

Focuses on concepts and principles of genetics, embryology, growth and development, physiology/ pathophysiology, and pharmacology/ toxicology as relevant to the assessment and management of the health promotion and maintenance needs of the newborn. Per week: theory 2 hours; laboratory 3 hours; clinical 3 hours. Prerequisite: NGRD 520, NGRD 623, NGRD 625.

**NGRD 522. Neonatal Nurse Practitioner II. 4 Units.**

Focuses on concepts and principles of pathophysiology, neonatal disease entities, and disorders in relation to the clinical management of the sick and growing neonate in the NICU. Understanding the morbidities and follow-up care needed. Per week: theory 3 hours; clinical 3 hours. Prerequisite: NGRD 521.

**NGRD 523. Neonatal Nurse Practitioner III. 5 Units.**

Focuses on concepts and principles of pathophysiology and neonatal disease entities and disorders in the management of the acutely ill neonate. Emphasis on assessment, diagnosis, and prioritization of the acutely ill neonate. Understanding the common morbidities of the premature infant. Per week: theory 3 hours; clinical 6 hours. Prerequisites: NGRD 522.

**NGRD 524. Neonatal Nurse Practitioner IV. 8 Units.**

Synthesizes concepts, principles, theories, knowledge, and skills from the preceding advanced neonatal critical care nursing courses to practice. The use of specific interventions and diagnostic procedures of a critically ill and high-risk neonate. Using diagnostic reasoning to create a management plan for the critically ill neonate, with focus on neurodevelopmental needs and enhancing developmental outcomes. Per week: theory 4 hours; clinical 12 hours. Prerequisite: NGRD 523.

**NGRD 525. Neonatal Nurse Practitioner V. 8 Units.**

Synthesizes concepts, principles, theories, knowledge, and skills from the preceding advanced neonatal critical care nursing courses to practice. Emphasis on assessment and management of neonates in the NICU, with direct collaboration with physicians. Additional multidisciplinary collaboration used for management of the neonates and family-centered care. Per week: theory 4 hours; clinical 12 hours. Prerequisite: NGRD 524.

**NGRD 526. Neonatal Nurse Practitioner VI: Practicum. 9 Units.**

Emphasis on clinical competency in the neonatal nurse practitioner role. Focus on stabilization and management of the critically ill neonate and multi-organ complications in the NICU. Management of a caseload of high-risk neonates and their family. Includes discussion and certification practice testing in addition to final practicum. Per week: theory 1 hour; clinical 24 hours. Prerequisites: NGRD 525.

**NGRD 531. Primary Care Pediatric Nurse Practitioner I. 4 Units.**

Focuses on basic primary health-care concepts of children from birth through 21 years of age related to health maintenance and promotion. Emphasis on learning developmental milestones, childhood immunizations, and prescription writing. Introduction to the role of a pediatric nurse practitioner in the community. Per week: theory 3 hours; practicum 3 hours. Prerequisites: NGRD 621, NGRD 622, NGRD 624, NGRD 625.

**NGRD 532. Primary Care Pediatric Nurse Practitioner II. 6 Units.**

Continues development of the PNP primary care role for children from birth through 21 years of age, related to assessment and management of common or acute illnesses, while incorporating health maintenance and prevention. Per week: theory 3 hours, practicum 9 hours. Prerequisite: NGRD 531.

**NGRD 533. Primary Care Pediatric Nurse Practitioner III. 6 Units.**

Continues development of the PNP primary care role in screening, assessment, and management of chronic diseases in children from birth through 21 years of age. Per week: theory 3 hours, practicum 90 hours. Prerequisite: NGRD 532.

**NGRD 534. Primary Care Pediatric Nurse Practitioner IV. 6 Units.**

Emphasizes the assessment and management of children from birth to 21 years of age with rare complex chronic health problems such as genetic syndromes and children with special needs. Per week: theory 3 hours, practicum 9 hours. Prerequisite: NGRD 533.

**NGRD 535. Primary Care Pediatric Nurse Practitioner V. 6 Units.**

Emphasizes the development of advanced clinical skills in conjunction with the advanced practice role. Discusses health-care issues related to policy, ethics/ culture, and research. Per week: theory 3 hours, practicum 9 hours. Prerequisite: NGRD 534.

**NGRD 536. Primary Care Pediatric Nurse Practitioner VI: Practicum. 7 Units.**

Focuses on integration and synthesis of knowledge and skills under the guidance of an expert preceptor, with the goal of working independently and collaboratively within a health-care team. Includes discussion and certification practice testing in addition to final practicum. Per week: theory 1 hour, practicum 18 hours. Prerequisite: NGRD 535.

**NGRD 539. Primary Care Pediatric Nurse Practitioner: Skills Lab. 1 Unit.**

This skills lab is designed to equip pediatric nurse practitioner students with common ambulatory care skills most often used in pediatric primary care clinics. An IP will be assigned at the end of each quarter until all skills lab activities for the clinical program are completed.

**NGRD 541. Psychiatric Nurse Practitioner I. 4 Units.**

Focuses on psychopharmacology principles and treatment in clinical management of psychiatric disorders and symptoms across the life span. Per week: theory 3 hours; clinical 3 hours. Prerequisites: NGRD 621, NGRD 622, NGRD 624, NGRD 625.

**NGRD 542. Psychiatric Nurse Practitioner II. 6 Units.**

Focuses on mental health promotion and assessment of psychiatric disorders occurring in children, adolescents, adults, and families across the life span. Per week: theory 3 hours, clinical 9 hours. Prerequisite: NGRD 541.

**NGRD 543. Psychiatric Nurse Practitioner III. 6 Units.**

Focuses on modalities of evidence-based treatment of children, adolescents, and family with common, chronic, and complex psychopathology; and on clinical experience in the assessment and management of these psychiatric disorders. Per week: theory: 3 hours, clinical 9 hours. Prerequisite: NGRD 542.

**NGRD 544. Psychiatric Nurse Practitioner IV. 6 Units.**

Focuses on modalities of evidence-based treatment of the adult, geriatric, and family with common, chronic, and complex psychopathology; and on clinical experience in the assessment and management of these psychiatric disorders. Per week: theory 3 hours, clinical 9 hours. Prerequisite: NGRD 543.

**NGRD 545. Psychiatric Nurse Practitioner V. 6 Units.**

Focuses on modalities of evidence-based psychotherapies, as well as complementary and alternative approaches across the lifespan— with emphasis on select psychiatric disorders, community psychiatric populations, and brief solution-oriented psychotherapy. Prerequisite: NGRD 544.

**NGRD 546. Psychiatric Nurse Practitioner VI: Practicum. 7 Units.**

Final clinical practicum with opportunity to develop autonomy while working with preceptors in clinical settings. Focuses on integration of learning from all prior psychiatric nurse practitioner courses and clinical experiences. Includes discussion and certification practice testing in addition to final practicum. Per week: theory 1 hour, practicum 18 hours.

**NGRD 549. Psychiatric Nurse Practitioner VII: Skills Laboratory. 1 Unit.**

Focuses on practice of psychiatric care clinical skills and procedures.

**NGRD 551. Adult - Gerontology: CNS I. 4 Units.**

Focuses on theoretical basis of advanced nursing practice for adult and aging clients related to health-care delivery and continuity of chronic illness care in vulnerable populations. Contents applied to selected client populations. Prerequisite: NGRD 621, NGRD 622, NGRD 625.

**NGRD 552. Adult - Gerontology: CNS II. 4 Units.**

Focuses on the physiological basis of advanced practice nursing care of adult and aging clients with specific acute and chronic health conditions. Utilizes a systems approach to the management of complex patient problems. Prerequisite: NGRD 551.

**NGRD 553. Adult - Gerontology: CNS III. 4 Units.**

Focuses on issues relevant to the clinical nurse specialist caring for the adult and aging client. Includes topics and applications relevant to organization leadership, clinical reasoning, quality improvement, collaboration, consultation, finances, and other concepts necessary for CNS role implementation. Per week: theory 2 hours, clinical 6 hours. Prerequisite: NGRD 552.

**NGRD 554. Adult - Gerontology: CNS Clinical Practicum. 2-8 Units.**

Experiential learning of the advanced practice role under the guidance of faculty and clinical experts in the area of adult and aging. Emphasizes the clinical competencies outlined by AACN. Per week: clinical hours variable. Prerequisite: NGRD 553.

**NGRD 561. Pediatrics: CNS I. 4 Units.**

Focuses on theoretical basis of advanced nursing practice for the child and family related to health-care delivery and continuity of chronic illness care in vulnerable populations. Students apply content to selected client populations. Prerequisite: NGRD 621, NGRD 622, NGRD 625.

**NGRD 562. Pediatrics: CNS II. 4 Units.**

Focuses on the pathophysiological basis of advanced practice nursing care of the child with specific acute and chronic health conditions. Utilizes a systems approach to the management of complex patient problems.

**NGRD 563. Pediatrics: CNS III. 4 Units.**

Focuses on issues relevant to the clinical nurse specialist caring for the child and family. Includes topics and applications relevant to organization leadership, clinical reasoning, quality improvement, collaboration, consultation, finances, and other concepts necessary for CNS role implementation. Per week: theory 2 hours, clinical 6 hours. Prerequisite: NGRD 562.

**NGRD 564. Pediatrics: CNS Clinical Practicum. 2-8 Units.**

Experiential learning of the CNS advanced practice role under the guidance of faculty and clinical experts in the area of the child and family. Emphasizes the clinical competencies outlined by AACN. Per week: clinical hours variable.

**NGRD 580. Advanced Health Assessment for Nurse Anesthetists. 4 Units.**

Focuses on health history and physical assessment as they relate to the perioperative patient population. Includes invasive and noninvasive systems assessment and diagnostic methods. Principles and application of health promotion strategies for the CRNA population.

**NGRD 600. Teaching and Learning Theory. 3 Units.**

Explores the components of the teaching-learning process, including traditional and current modalities. Provides opportunities for students to practice specific teaching strategies.

**NGRD 601. Curriculum Development in Higher Education. 3 Units.**

Emphasizes the basic principles of curriculum building (needs assessment, program planning, implementation, and evaluation) within the context of the purposes, trends, and issues of the undergraduate curriculum in higher education. Considers content in nursing science and physical therapy and related disciplines in the context of the philosophical base and nursing and physical therapy theory. Synthesizes knowledge and application through a curriculum development project.

**NGRD 602. Assessment of Learning Outcomes. 3 Units.**

Explores methods of assessing classroom and clinical performance in nursing. Assists students in developing measurement instruments that assess clinical reasoning. Discusses test administration, results analysis, and appropriate feedback. Addresses social, ethical, and legal issues related to evaluation, testing, and grading.

**NGRD 603. Educational Leadership. 2 Units.**

Focuses on development of leadership skills within the nursing education arena that facilitates quality education. Explores the processes of moving from a nurse faculty role to a leadership role with a perspective toward developing educational approaches that meet current and future needs of students and facilitate the development of nursing faculty. Learned leadership to advance nursing education by being involved with others, being authentic, and creating an environment for change.

**NGRD 604. Teaching Practicum. 3 Units.**

Assists the student in developing the ability to teach both theory and clinical components in the specialty area of choice. Emphasizes the nurse teacher as facilitator of learning. Integrates expected knowledge and skills related to educational methodology and clinical nursing. Practice teaching done in the classroom and clinical setting. Per week: theory 0 hours, practicum 9-12 hours. Prerequisite: NGRD 600.

**NGRD 605. Clinical Practicum: Nurse Educator. 3 Units.**

Focuses on in-depth clinical expertise in selected area of nursing practice. Considers strategies to use clinical expertise in facilitating future nursing students' learning.

**NGRD 606. Nursing Administration Practicum. 1-10 Units.**

Provides opportunities for the ongoing development and refinement of leadership capability in selected areas of nursing administration. Students showcase competencies in the synthesis and application of nursing, management, economic, and human resources theories to solve real-world issues of importance to the profession and the workplace. Per week: lecture 0 hours, practicum 3-30 hours. Prerequisites: NGRD 652; HADM 528.

**NGRD 610. Master's Comprehensive Project. 2 Units.**

Comprehensive project based on a PICOT question as appropriate for focus area of study. Prerequisite: NGRD 651, NGRD 658; Completion of clinical courses required for concentration area.

**NGRD 621. Pharmacology in Advanced Practice I. 2 Units.**

Principles of pharmacodynamics, pharmacotherapeutics, and pharmacokinetics. Overview of specific major drug classifications, discussion of the therapeutic use of drugs, and application to medical conditions. Addresses specific legal and ethical issues for advanced practice.

**NGRD 622. Pharmacology in Advanced Practice II. 3 Units.**

Builds on principles discussed in NGRD 621, with a focus on additional specific major drug classifications, discussion of the therapeutic use of these drugs, and application to medical conditions. Prerequisite: NGRD 621.

**NGRD 623. Neonatal Pharmacology. 3 Units.**

Advanced principles of neonatal pharmacotherapeutics, pharmacodynamics and pharmacokinetics. Additional overview of specific drug classifications within the neonatal population. Prerequisite NGRD 621.

**NGRD 624. Advanced Health Assessment. 4 Units.**

Focuses on advanced health assessment skills and knowledge necessary to successfully conduct a comprehensive history and physical throughout the lifespan. Emphasizes a wholistic plan of care, including health promotion strategies, while considering cultural and developmental variations of the patient.

**NGRD 625. Advanced Clinical Pathophysiology. 4 Units.**

Provides graduate students with an integrated understanding of normal human physiology and the most common pathological changes that occur throughout the lifespan. Focuses on using pathophysiological concepts to explain clinical observations and management.

**NGRD 629. Selected Topics. 1-4 Units.**

Lecture and discussion of a current topic in graduate nursing bearing on the theory or practice of one aspect of the discipline. Specific content varies from quarter to quarter. May be repeated for additional credit.

**NGRD 650. Advanced Role Development and Collaboration. 4 Units.**

Focuses on transition to advanced practice and Doctor of Nursing Practice role. Topics include advanced practice nursing, theoretical bases, competencies, interprofessional collaboration, legal requirements, evidence-based practice, and professional writing.

**NGRD 651. Theoretical Foundations for Evidence-Based Practice. 4 Units.**

Focuses on the philosophical, theoretical, and scientific foundations of nursing practice. Examines evidence-based models and theories for use in clinical decision making and program development.

**NGRD 652. Health-Care Systems Leadership. 4 Units.**

Applies leadership theories and organizational models to complex professional and systems issues addressed by the advanced practice nursing leader. Focuses on development of leadership competencies for quality health care.

**NGRD 653. Health Systems Policy Development and Advocacy. 4 Units.**

Evaluates the impact of sociopolitical systems/processes within the context of current trends and issues affecting population health. Explores the impact of nursing on systems in the workplace, community, professional organizations, and government. Emphasizes strategic planning, policy formation, and advocacy.

**NGRD 654. Social Determinants of Health. 4 Units.**

Examines factors that contribute to disease prevention, health promotion, and well-being in vulnerable and diverse populations. Analyzes models, programs, and systems that address assessment, implementation, and evaluation for safe, equitable, culturally competent, and just health care.

**NGRD 655. Health Systems Finance. 4 Units.**

Focuses on health-care economics and finance—including evaluation of financial reports, business plans, and cost-benefit analyses of care-delivery systems. Explores strategies for optimizing fiscal resources to ensure safe patient care and best practices.

**NGRD 656. Outcomes Assessment for Strategic Planning. 4 Units.**

Examines and evaluates patient outcomes across the health-care system. Considers strategic planning, quality improvement, and information and technology systems that promote excellence in nursing practice.

**NGRD 657. Intermediate Statistics for Translational Nursing Research. 4 Units.**

Topics in intermediate statistics—including ANOVA, multiple regression, other multivariate statistical procedures, and interpreting computer output. Applies statistical analysis in translational research.

**NGRD 658. Translational Research for Advanced Practice. 4 Units.**

Applies qualitative and quantitative research to the improvement of nursing practice.

**NGRD 659A. Writing for Publication I. 1 Unit.**

First of a three-course mentored writing experience that includes information, resources, and guidance that facilitate development of a publishable manuscript.

**NGRD 659B. Writing for Publication II. 1 Unit.**

Second of a three-course mentored writing experience that includes information, resources, and guidance that facilitate development of a publishable manuscript. Prerequisite: NGRD 659A.

**NGRD 659C. Writing for Publication III. 2 Units.**

Third of a three-course mentored writing experience that includes information, resources, and guidance that facilitate development of a publishable manuscript. Prerequisite: NGRD 658, NGRD 658B.

**NGRD 660. Integrative Leadership Case Study. 1-6 Units.**

Focuses on integration of advanced concepts for DNP practice. Provides opportunity to extend learning from previous academic work to achieve the knowledge needed for the D.N.P. degree. Course may be processed as an IP but must be completed before beginning NGRD 667 DNP Proposal Development.

**NGRD 667. DNP Proposal Development. 3 Units.**

Examines the Iowa Model of Research in Practice (IMRP) guidelines and process to systematically develop the approach for implementation of an evidence-based project to improve patient care quality. Includes identification of the EBP question, the search for evidence, and steps for effective translation of the project into the specific practice setting.

**NGRD 669A. DNP Practice Inquiry Project I. 4 Units.**

The first of six courses in the development of the DNP project. Student focuses on identifying and describing in detail the project problem, forming the project guidance committee and project team in the practice setting, and beginning development of the DNP project paper and PowerPoint presentation.

**NGRD 669B. DNP Practice Inquiry Project II. 4 Units.**

The second of six courses in the development of the DNP project. Student comprehensively reviews and critiques relevant literature, works through the IRB approval process, and continues developing the DNP project paper and PowerPoint presentation. Prerequisite: NGRD 669A.

**NGRD 669C. DNP Practice Inquiry Project III. 2 Units.**

The third of six courses in the development of the DNP project. Student pilots the project in the practice setting, and continues developing the DNP project paper and PowerPoint presentation. Prerequisite: NGRD 669B.

**NGRD 669D. DNP Practice Inquiry Project IV. 2 Units.**

The fourth of six courses in the development of the DNP project. Student implements the change project using appropriate communication strategies with key personnel and adapts change strategies appropriately, while continuing to develop the DNP project paper and PowerPoint presentation. Prerequisite: NGRD 669C.

**NGRD 669E. DNP Practice Inquiry Project V. 2 Units.**

The fifth of six courses in the development of the DNP project. Student monitors and analyzes the change project, evaluates key variables, implements adjustments as needed, identifies implications for future work. Student continues developing the DNP project paper and PowerPoint presentation. Prerequisite: NGRD 669D.

**NGRD 669F. DNP Practice Inquiry Project VI. 2 Units.**

The last of six courses in the development of the DNP project. Student develops results for dissemination through publication and presentation, and completes the DNP project paper and PowerPoint presentation. Prerequisite: NGRD 669E.

**NGRD 680. Strategies for Theory Development in Nursing. 4 Units.**

Engages the student in examining and applying the process of concept and theory development. Students analyze phenomena of interest, use selected strategies to construct conceptual relationships, and evaluate theoretical frameworks for development of nursing science.

**NGRD 681. Philosophical Foundations of Nursing Science. 4 Units.**

Explores the development of scientific thought and knowledge. Examines sources of knowledge and the assumptions underlying major approaches to scientific inquiry. Critiques these approaches in relation to knowledge development of nursing science.

**NGRD 682. Methods of Disciplined Inquiry. 2 Units.**

Provides an overview of formal methods of inquiry and explores the responsibility of doctorally prepared nurses for the future of nursing knowledge. Helps students build a foundation for a program of formal scholarly inquiry in an identified area of interest. Prerequisite: Acceptance into Ph.D. degree program in the School of Nursing; or consent of instructor.

**NGRD 683. Mentored Research. 2 Units.**

Student participates in the research process or engages in research activities guided by mentors. Experience contributes to ongoing development of the student's knowledge in research planning, design conduct, analysis, or dissemination. Research activity may continue beyond one quarter (IP eligible). Acceptance into the Ph.D. degree program in nursing.

**NGRD 684. Advanced Quantitative Research Methods. 4 Units.**

Examines advanced quantitative research methods applicable to advancing and developing nursing science. Topics range from the formulation of research problems and questions to discussing and identifying complex designs and methods. Guides the student in development of a quantitative research proposal that focuses on an area of study that may serve as the initial step in conducting independent dissertation research. Prerequisite: Minimum of one doctoral-level statistics course, or equivalent.

**NGRD 685. Advanced Qualitative Research Methods. 4 Units.**

Advanced course in qualitative research methods. Emphasizes selected qualitative and mixed research methodologies specific to social, clinical, and health services research. Topics covered include theoretical bases for conducting qualitative research; research design; data gathering, including interviewing, observation, archival and historical research, and data analysis and writing. Introduces various approaches for integrating qualitative and quantitative methodologies. NGRD 681, NGRD 682.

**NGRD 686. Applied Psychometrics for Health Care. 4 Units.**

Advanced study of psychological tests and application in the health sciences. Includes review of prerequisite basic statistics (correlation and regression) and an introduction to more advanced analyses important to test development and evaluation (exploratory and confirmatory factor analysis). Focuses on methods of test development; procedures for evaluating psychometric adequacy (reliability, validity, and generalization); and practical issues in the use and interpretation of test scores (scoring, cultural diversity, and test bias). Prerequisite: STAT 531 or equivalent.

**NGRD 687. LLU Scholars Seminar. 1 Unit.**

Online seminar that provides students with a forum for systematic scholarly discussion of their developing role as Ph.D.-prepared stewards of the nursing profession. Helps students integrate and apply core content to their role, philosophy, and research emphasis while exchanging and critiquing ideas in a professional and collegial setting. Progresses from role transition through dissertation support over the course of four years. Prerequisite: Admission to Ph.D. degree program; or consent of instructor.

**NGRD 688. Nursing Science Seminar. 1 Unit.**

Nursing phenomena. Focus varies according to national emphases in nursing research and focus areas of participants. Emphasizes critical examination of conceptual, theoretical, and methodological issues relative to the selective topic. Prerequisite: Doctoral standing or consent of instructor.

**NGRD 689. Spiritual Care: Theory, Research and Practice. 3,4 Units.**

Examines spirituality and religiosity in the context of health and illness, and provides or coaches others in providing spiritually sensitive health care. Emphasizes empirical, personal, and ethical sources of knowledge about spirituality and religiosity, using knowledge generated in health care, psychology, anthropology, and other fields. Additional project required for fourth unit.

**NGRD 696. Master's Thesis. 1-5 Units.**

Completion of the requirements of the master's thesis. Prerequisites: NGRD 657; NGRD 658; approval of advisor.

**NGRD 697. Dissertation Research. 1-8 Units.**

Development, conduct, analysis, and defense of dissertation research. IP may be applied as needed, depending on the progress of the work. Prerequisite: Satisfactory completion of the Comprehensive Examination.

**NGRD 699. Guided Study. 1-6 Units.**

Opportunity for intensive study in a selected area of nursing, under faculty direction.

## Nutrition (NUTR)

### Courses

**NUTR 490. Topics in Foods and Food Preparation. 1 Unit.**

On-line course provides an introduction to foods and food preparation. Includes relationship of food composition to food preparation, cultural and ethnic food patterns, sensory evaluation of food, and culinary techniques.

**NUTR 504. Nutritional Metabolism. 5 Units.**

Studies the static and dynamic aspects of the metabolism of carbohydrates, lipids, amino acids, proteins, nucleic acids, enzymes, hormones, vitamins, and minerals in the normal healthy human.

**NUTR 509. Public Health Nutrition and Biology. 3 Units.**

Introduces the concepts of nutrition and biology as related to public health. Includes life-cycle issues and discussion of major nutrition-related diseases and their prevention. Integrates molecular and biological approaches to public health problems; and addresses the role of nutritional assessment, intervention, and policy to solve public health issues.

**NUTR 510. Advanced Public Health Nutrition. 3 Units.**

Advances in public health nutrition and the science base for application to the prevention of disease in the community. Includes nutritional guidelines, policies, monitoring systems, efficacious interventions throughout the life cycle, and interactions between genetic and nutritional factors. Prerequisite: NUTR 504 or equivalent.

**NUTR 517. Advanced Nutrition I: Carbohydrates and Lipids. 4 Units.**

Advanced study of the nutrition, metabolism, and function of carbohydrates and lipids as related to health and disease. Prerequisite: NUTR 504; or biochemistry equivalent; or consent of instructor.

**NUTR 518. Advanced Nutrition II: Proteins, Vitamins, and Minerals. 4 Units.**

Advanced study of the nutrition, metabolism, and function of proteins, vitamins, and minerals as related to health and disease.

**NUTR 519. Phytochemicals. 2 Units.**

Discusses the role of phytochemicals in disease prevention and treatment. Reviews current research in this area.

**NUTR 525. Nutrition Policy, Programs, and Services. 3 Units.**

Develops professional skills in management of nutrition programs. Includes legislative advocacy and analysis of current nutrition programs at local, state, and federal levels. Laboratory.

**NUTR 526. Nutrition Counseling and Education. 2 Units.**

Counseling skills, specifically counseling one-on-one and groups, in order to facilitate changes in nutrition status. Teaching/learning styles, development of therapeutic relationships with patients/clients, and development of listening skills. Case-study evaluation, nutrition-counseling guides, and development of group-education lesson plans.

**NUTR 527. Assessment of Nutritional Status. 3 Units.**

Techniques of individual nutrition assessment: dietary intake and evaluation, use of computer software (1 unit); anthropometric, clinical, and biochemical methodologies (1 unit); principles and practice in nutrition counseling in a supervised community setting (1 unit). Laboratory or practicum included in each unit.

**NUTR 529. Health Aspects of Vegetarian Eating. 2,3 Units.**

Introduces concepts of vegetarian nutrition as related to health and longevity. Addresses nutritional adequacy, as well as the benefits of vegetarian eating related to the prevention of major chronic diseases, such as heart disease, cancer, obesity, diabetes, and osteoporosis. Covers the interplay between the risks and benefits of vegetarian eating. Students taking course for 3 units either prepare a term paper or develop a vegetarian nutrition program.

**NUTR 531. Community Nutrition Intervention I. 2 Units.**

Provides training and practice identifying/assessing community health issues. Students collaborate with local associations and faculty advisers to analyze a public health issue and evaluate intervention alternatives using an asset-based, problem-solving approach.

**NUTR 532. Community Nutrition Intervention II. 1 Unit.**

Focuses on implementation and evaluation strategies to address a community health issue that was identified and analyzed in NUTR 531.

**NUTR 534. Maternal and Child Nutrition. 3 Units.**

Advanced study of the role of nutrition in human growth and development during the prenatal period, lactation, infancy, and childhood.

**NUTR 535. Research Applications in Nutrition. 3 Units.**

Overview of research methods in nutrition. Provides an understanding of foundational issues of research design from both the quantitative and qualitative perspectives, as well as understanding of the sequence of procedures in proposal development. Laboratory included.

**NUTR 537. Nutrition Education Practicum. 1 Unit.**

Experiential course that applies medical nutrition therapy in the assessment and counseling of individuals and groups across the life cycle in an outpatient setting. Includes training in counseling, educational materials development, and cultural sensitivity. Includes at least forty hours of dietetic practice. May be repeated for additional credit. Prerequisite: HPRO 509.

**NUTR 539. Research Methods in Nutrition. 2 Units.**

Discusses the steps in the research process as they relate to clinical nutrition investigation. Validity of biological parameters and dietary intake measurements, study design, subject selection, and ethical issues. Prerequisite: STAT 509 or STAT 521; or equivalent.

**NUTR 543. Concepts in Nutritional Epidemiology. 3 Units.**

Prepares students to conduct research relating diet to health/disease outcomes. Reviews methodological issues related to dietary assessment for clinical/metabolic and epidemiological research. Topics include variation in diet, measurement error and correction for its effects, advantages and limitations of different diet assessment techniques, design and development of a food frequency instrument, total energy intake in analyses.

**NUTR 556. Nutritional Applications in Lifestyle Intervention. 1 Unit.**

Provides students with practical experience and training in applying nutritional assessment and counseling skills to address lifestyle interventions. Reviews current dietary practice guidelines and pertinent food components relative to their health effects. Includes hands-on training in skills, tools, and strategies for effective nutrition counseling.

**NUTR 564. Contemporary Issues of Vegetarian Diets. 2,3 Units.**

Introduces contemporary issues and controversies related to vegetarian diets. Presents background information on the history and rationale of vegetarian diets, ecologic and environmental issues, health benefits and risks of the vegetarian lifestyle. A major paper on one of the vegetarian topics required for 3 units.

**NUTR 578. Exercise Nutrition. 2,3 Units.**

Nutritional needs of professional and recreational athletes. The role of macro- and micronutrients as ergogenic aids. Presents overview of current research in the areas of exercise nutrition. Additional unit assignment available for doctoral students with instructor direction.

**NUTR 585. Topics in Global Nutrition. 3 Units.**

Discussion of current issues of importance in international nutrition.

**NUTR 595. Special Topics in Nutrition. 1-4 Units.**

Current topics in nutrition. May be repeated for additional credit.

**NUTR 597. Special Topics in Clinical Nutrition. 1-3 Units.**

Current topics in clinical nutrition. May be repeated for additional credit.

**NUTR 605. Seminar in Nutrition. 1 Unit.**

Explores current major issues in nutrition. Students choose and research a topic or problem and discuss their findings in class. Written report required. May be repeated for additional credit. Prerequisite: Five graduate units in nutrition; or consent of instructor.

**NUTR 608. Doctoral Seminar in Public Health Nutrition. 1-3 Units.**

Enhances skills relative to scientific literature review, critical thinking, scientific discussion with peers, presentation using advanced audiovisual aids, writing review paper and abstract as per peer-reviewed journal requirements. Maximal interaction with faculty, peers, and visiting nutritional professionals. Limited to doctoral degree students in nutrition. May be repeated for additional credit.

**NUTR 620. Advanced Topics in Nutrition. 3 Units.**

Lecture and discussion of an advanced topic in nutrition bearing on the theory or practice of one aspect of the discipline. Specific content varies from year to year. May be repeated for additional credit. Topics may include: nutrigenomics and epigenetics, environment and nutrition, microbiome and diet, etc. Limited to doctoral degree students.

**NUTR 643. Advanced Applications in Nutritional Epidemiology. 1-2 Units.**

Critically assesses nutritional epidemiology exposure and outcome measures. Applies critical thinking skills to the development of nutritional epidemiology research. Topics covered include: issues related to nutrition database sources, self-reported exposure and outcome data issues, assessment of diet and lifestyle behavior interrelations, AHS-2 databases structures, guidelines for submitting a research proposal to the Adventist Health Study (AHS). Includes formal lectures and student presentations. Students submitting a proposal to AHS-2 research register for 2 units.

**NUTR 678. Advanced Exercise Nutrition. 3 Units.**

Discusses current research in the field of exercise nutrition; nutritional needs of professional and recreational athletes; and the role of macro- and micronutrients as ergogenic aids. Requires a presentation and a term paper on a current research topic in exercise nutrition. Limited to doctoral students. Instructor approval required for master's degree students.

**NUTR 685. Preliminary Research Experience. 2 Units.**

Experience in various aspects of research under the guidance of a faculty member and by participation in an ongoing project. Must be completed prior to beginning dissertation/research project. Limited to doctoral degree students.

**NUTR 694. Research. 1-12 Units.**

Independent research for doctoral degree candidates and qualified master's degree students on problems currently being studied in the program, or in other programs(s) with which they collaborate. Research program arranged with faculty member(s) involved. Minimum of 100 hours required for each unit of credit. Written report required.

**NUTR 695. Thesis. 2 Units.**

Preparation of report of individual, guided experimental-research study in nutrition, under direct faculty supervision. Limited to graduate students whose thesis project has been approved by their research committee.

**NUTR 696. Directed Study/Special Project. 1-4 Units.**

Individual arrangements for advanced students to study under the guidance of a program faculty member. May include readings, literature reviews, or other special projects. Minimum of thirty hours required for each unit of credit. A maximum of 4 units applicable to any master's degree program.

**NUTR 697. Dissertation Proposal. 1-10 Units.**

Doctoral student develops a written dissertation proposal and works in collaboration with the dissertation committee chair on mutually agreed-upon objectives that will provide the basis for evaluation. Culminates in a written and oral dissertation proposal defense and advancement to candidacy. Prerequisite: NUTR 697 and advancement to candidacy.

**NUTR 698. Dissertation. 1-14 Units.**

Student prepares manuscript presenting results of doctoral research study. Limited to doctoral degree students.

**NUTR 799B. Dietetic Practicum. 6 Units.**

Assignment to hospital or other school-approved organization where practical application of the materials studied regarding food service and medical nutrition therapy is made under the guidance of department faculty and the organization involved. Intended to meet the dietetic practice hours of the Graduate Coordinated Program in Public Health Nutrition and Dietetics.

**NUTR 799D. Dietetic Practicum. 12 Units.**

Assignment to hospital or other school-approved organization where practical application of the materials studied regarding food service and medical nutrition therapy is made under the guidance of department faculty and the organization involved. Intended to meet the dietetic practice hours of the Graduate Coordinated Program in Public Health Nutrition and Dietetics.

## Occupational Therapy (OCTH)

### Courses

**OCTH 501. Professional Foundations I. 3 Units.**

Foundational understanding of the philosophical and historical underpinnings of the occupational therapy profession, and the unique role and therapeutic use of occupation across multiple settings. Introduces the professional paradigms of frames of reference, professional organizations, and occupation in health and society. Initiates the process of therapeutic use of self as a reflective professional.

**OCTH 502. Professional Foundations II: Human Occupation. 3 Units.**

Develops an understanding of how occupation, embedded in a diverse social-cultural context, is shaped and changed throughout the human lifespan. Examines the concept of occupation, as defined in occupational therapy and occupational science, in the context of its historical relationship to human adaptation and health. Explores social participation through individual and group occupations. Prerequisite: OCTH 501.

**OCTH 503. Professional Foundations III. 1 Unit.**

Explores occupational science as a foundation for understanding the form, function, and meaning of occupation to inform intervention and guide research for health promotion and wellness. Includes basic elements of grant writing, and opportunity to create a mock grant proposal for innovative program development.

**OCTH 504. Professional Foundations IV. 2 Units.**

Introduces leadership and management with roles and responsibilities specific to occupational therapy practice. Explores standards of practice, supervision, and advocacy options for populations and the profession.

**OCTH 505. Occupation-Based Activity Analysis. 3 Units.**

Analyzes activities in all areas of occupations based on dynamic interaction of client factors, performance skills, performance patterns, and contexts. Includes in-depth understanding of the kinesiology components of joint mobility, stability, tone, and power. Relates activity demands to their influence on performance in occupations. Applies concepts to grading and adapting activities and occupations. Prerequisite: AHCJ 512.

**OCTH 506. Functional Neuroscience. 3 Units.**

Provides a foundational understanding of neuroscience—including anatomy and function of the central and peripheral nervous systems, neurological conditions related to anatomical structure and function, and relationship of the nervous system to engagement in occupation. Prerequisite: AHCJ 512.

**OCTH 507. Trends in Neuroscience. 2 Units.**

Explores current research and practice trends in neuroscience for enhancing understanding of occupational engagement as it relates to health and well-being. Prerequisite: OCTH 506.

**OCTH 508. Splinting. 1 Unit.**

Design and fabrication of splints, with reference to various populations across the lifespan. Emphasizes safety precautions and monitoring. Prerequisite: OCTH 505.

**OCTH 509. Design and Technology. 2 Units.**

Introduces a broad spectrum of assistive technology to address the gap in occupational performance by examination and assessment of theoretical and societal issues, population and policy trends, scientific advances, environmental constraints, and funding opportunities. Includes case studies and hands-on use of assistive technology to facilitate evaluation, basic design, and resource coordination of technological devices to meet a variety of client and population needs. Explores principles of universal design and public policy that support engagement in the home and community environments.

**OCTH 510. Functional Kinesiology. 1 Unit.**

Applies anatomical and mechanical fundamentals of human motion to conduct muscle testing and goniometry. Emphasizes upper extremity. AHCJ 510.

**OCTH 511. Conditions in Occupational Therapy: Orthopedic. 4 Units.**

Common orthopedic and rheumatological disorders, and the implications for participation in occupations across the lifespan. Introduces safety issues surrounding these disorders, as well as the influence of contexts. Prerequisite: AHCJ 510; OCTH 510.

**OCTH 512. Conditions in Occupational Therapy: Neuroscience. 4 Units.**

Reviews common neurological disorders and the implications for participation in occupations across the lifespan. Examines guiding theories and evidence-based practice. Introduces safety issues surrounding these disorders, as well as the influence of contexts. Prerequisite: OCTH 506.

**OCTH 514. Conditions in Occupational Therapy: Behavioral Health. 4 Units.**

Examines common disorders and guiding theories related to behavioral health and the implications for participation in occupations across the lifespan. Explores roles and how occupations and roles are related, resulting in healthy emotional connections and occupational participation. Discusses safety issues surrounding these disorders, as well as the influence of context.

**OCTH 515. Conditions in Occupational Therapy: Infants, Children, Youth. 4 Units.**

Reviews common disorders and conditions, along with implications for participation in occupations for infants, children, and youth from individual and family perspectives. Examines guiding theories, evidence-based practice, federal laws, and policies related to these populations. Introduces safety issues surrounding these disorders, as well as the influence of contexts.

**OCTH 516. Conditions in Occupational Therapy: General Medicine. 4 Units.**

Reviews common general medicine disorders and the implications for participation in occupations across the lifespan in both traditional and nontraditional settings. Examines guiding theories and evidence-based practice. Introduces safety issues and standard protocols surrounding these disorders, as well as the influence of contexts. Prerequisite: OCTH 510.

**OCTH 517. Introduction to Physical Agent Modalities. 1 Unit.**

Prepares the student for use of physical agent modalities with differential diagnoses in multiple practice settings. Discusses treatment goals and use of physical agent modalities within practice guidelines, assesses common practice techniques, explores regulations and safety, and reviews the process for obtaining advanced practice certification in physical agent modalities.

**OCTH 521. Analysis and Intervention I: Orthopedic. 3 Units.**

Assesses common orthopedic conditions, including safe transfer techniques; as well as training in the use of adaptive equipment. Treatment planning emphasizes evaluation findings and safety considerations of the client's condition and contexts.

**OCTH 522. Analysis and Intervention: Behavioral Health. 3 Units.**

Introduces assessments for common behavioral health diagnoses. Emphasizes designing and coordinating occupation-based and client-centered interventions. Demonstrates ability to facilitate groups, and implements de-escalation strategies. Applies wholistic approach in working with clients to promote health and participation in a variety of contexts.

**OCTH 523. Analysis and Intervention: Neuroscience. 3 Units.**

Introduces assessment of clients with common neurological disorders—including cognitive, visual/perceptual, balance, and coordination skills; as well as the condition's impact on participation in occupations. Demonstrates ability to safely transfer clients; and provides training in the adaptation of tools, techniques, and environment. Emphasizes treatment planning based on the synthesis of evaluation findings and safety considerations of the client's condition and contexts. Prerequisite: OCTH 506.

**OCTH 524. Analysis and Intervention: Infants, Children, Youth. 3 Units.**

Introduction to assessments for common diagnoses and conditions of infants, children, and youth. Emphasizes designing and coordinating evidence-based, client-centered interventions. Design and coordinate groups, and family-centered care. Applies wholistic approach in working with clients to promote health and participation in a variety of contexts.

**OCTH 527. Analysis and Intervention: General Medicine. 3 Units.**

Student synthesizes evaluation and assessments to develop intervention plans for clients with general medicine conditions, and to promote participation in occupations. Student demonstrates ability to safely transfer clients and to provide patient and family training; as well as ability to adapt tools, techniques, and environment.

**OCTH 531. Sensorimotor I. 2 Units.**

Includes current rehabilitation trends and best practice relevant to adult neurological rehabilitation. Emphasizes sensorimotor approaches to rehabilitation, CIMT, NDT, PNF, Rood, Brunnstrom, and clinical decision making. Integrates neurologic and orthopedic rehabilitation strategies through activities of daily living. Prerequisite: OCTH 506.

**OCTH 532. Sensorimotor II. 2 Units.**

Explores sensorimotor theory, assessment, and intervention to enable understanding and implementation of sensory-based therapies. Provides skill sets used by occupational therapy practitioners to promote roles and participation in areas of occupation such as activities of daily living, play, sleep, and education.



**OCTH 544. Advanced Occupational Therapy History. 3 Units.**

Provides the student with an extensive understanding of the history of occupational therapy by critically reviewing historical incidents, the history of occupational therapy and societal theories and practices, political conditions, and historical incidents. Facilitates the student's ability to enact advocacy and to better understand future projections in the field.

**OCTH 545. Current Trends in Occupational Therapy Practice. 3 Units.**

Provides an overview of current trends in the field of occupational therapy and health care. Topics may include issues related to health-care funding, policy, emerging practice areas, and health disparities.

**OCTH 551. Occupation and Wellness. 2 Units.**

Provides the student with an understanding of the connections among occupation, occupational therapy practice, and wellness by critically investigating research and theoretical perspectives. Leads to a better understanding of the uniqueness of an occupational perspective of health and its relationship to daily living.

**OCTH 552. Professional Transition. 3 Units.**

Provides the student with an opportunity to explore a variety of topics relevant to transitioning into occupational therapy professional practice. Preparation for national certification examination.

**OCTH 560. Occupational Therapy Advocacy and Leadership. 3 Units.**

Introduces business for occupational therapy practitioners, including financial statements and budgetary processes, marketing, management, and consultation. Emphasizes the use of strategic planning for decision-making processes of program development, productivity, and accountability. Introduces roles and responsibilities of leadership; and explores standards of practice, supervision, and advocacy options for populations and the profession.

**OCTH 570. Critical Inquiry and Evidence-Based Practice I. 1 Unit.**

Defines evidence-based practice (EBP) and its relevance to occupational therapy practice and professional growth. Describes steps to complete EBP and discusses common statistical methods used in occupational therapy research. Includes philosophical approaches to scientific inquiry, range of research designs, roles of variables, and ethics.

**OCTH 574. Critical Inquiry and Evidence-Based Practice II. 3 Units.**

Student develops and implements a scholarly research proposal by systematically identifying and investigating a problem, issue, or question of relevance to occupational therapy practice. Emphasizes writing skills and critical analysis in preparation of literature review, purpose, conceptual framework, proposed methodology, and data analysis for the Institutional Review Board proposal.

**OCTH 575. Critical Inquiry and Evidence-based Practice III. 2 Units.**

Student finalizes research proposal and implements a scholarly research project by systematically engaging in data collection, data management, and data analysis. Incorporates research ethics.

**OCTH 576. Critical Inquiry and Evidence-based Practice IV. 2 Units.**

Student implements a scholarly research proposal by systematically analyzing data relevant to occupational therapy practice. Emphasizes synthesis of findings and writing scholarly paper.

**OCTH 598. Occupational Therapy Advanced Specialty Tracks. 1-3 Units.**

Presents in-depth practice application in an area of occupational therapy. Opportunity to pursue various topics related to current trends. Develops advanced clinical skills, where appropriate.

**OCTH 600. Occupational Science and Health Promotion. 3 Units.**

Explores occupational science as an academic discipline and how it supports occupational therapy's role in health promotion. Utilizes theoretical perspectives and research to analyze and understand occupation's relationship to lifestyle, health, well-being, and prevention.

**OCTH 601. Spirit of Diverse Abilities I. 3 Units.**

Examines perspectives in order to view and understand the disability experience and the role of spirituality and occupational justice in practice. Emphasizes theoretical approaches. Discusses role of occupational therapy in social justice.

**OCTH 602. Spirit of Diverse Abilities II. 3 Units.**

Explores and discusses the experience of disability and occupational injustice. Explores and applies these concepts in relation to the profession of occupational therapy and the greater society. Students explore issues such as homelessness, diversity, disparity, and ethics. Prerequisite: OCTH 601.

**OCTH 604. Health, Society, and Participation. 3 Units.**

Incorporates health and participation to integrate the individual, community, and greater society. Students engage in grant searching and grant writing. Discusses logic models and program. Emphasizes participatory research; program development; needs assessment; healing environments; social justice issues; global issues; World Health Organization; International Classification of Functioning, Disability and Health; AIDS; culture; and mission work in relation to the profession of occupational therapy.

**OCTH 605. Education for Health Professionals. 3 Units.**

Explores the philosophical foundations of knowledge and learning theory. Prepares health professionals for the roles and expectations of education in academic and practice settings. Discusses instructional design, media, student assessment, teaching skills, course development, mentoring, and curriculum design.

**OCTH 606. Leadership for Health Professionals. 3 Units.**

Explores leadership theory, administrative characteristics and strategies, professionalism, team facilitation, clinical reasoning, ethics, and advocacy. Students participate in legislative process and analyze international issues and social justice in relation to professional practice.

**OCTH 631. Capstone Planning. 2 Units.**

Students design their capstone project with guidance from the primary course instructor. Emphasizes identification of a focus area, objectives, goals, outcomes, on-site mentor, faculty mentor, and time frame.

**OCTH 632. Capstone I: Introduction to Theory & Research. 2 Units.**

Introduces theoretical foundations and designs for research. Emphasizes skills necessary to plan and develop an independent research study. Grant-writing instruction for funding of capstone projects.

**OCTH 633. Capstone Proposal: IRB or Program Development. 4 Units.**

Online, interactive course work precedes and follows on-site intensive. Emphasizes reflective discussions of research interests and experiences, planning, conceptual framework, proposed methodology, and data analysis. Student chooses to develop research proposal or program development capstone. Research proposal option requires completing Institutional Review Board (IRB) training and successfully submitting proposal to the IRB. Program development option requires designing a detailed proposal for implementation.

**OCTH 634. Capstone II. 3 Units.**

Continues the capstone project. Students complete a needs assessment and program development, data collection, data management techniques, and introduction to various data analysis strategies. Individual projects and activities vary.

**OCTH 635. Capstone III. 4 Units.**

Implements capstone approved in OCTH 634. Critical discussion of experiences and problem solving with classmates.

**OCTH 636. Capstone IV. 4 Units.**

Completes implementation aspects of capstone. Initiates preparation of a manuscript and participation in online critical discussions with classmates.

**OCTH 637. Professional Publication and Dissemination. 4 Units.**

A culmination course in which students reflect on their capstone experiences and complete their program development. Students prepare a professional manuscript to be submitted for publication. Critical discussion with peers regarding knowledge transference to impact individuals, society, the profession, and clinical practice.

**OCTH 699. Directed Study. 2,3 Units.**

Student pursues an area of special interest under the direction of the faculty advisor. Topic must be approved by the occupational therapy department.

**OCTH 701. Service Learning Seminar. 1 Unit.**

Includes philosophy of service, learning by experience, reflection, and civic engagement. Provides opportunity for students to apply critical thinking skills, team-based learning, and information learned in didactic course work to collaborate with the community and address client and community needs.

**OCTH 702. Service Learning I. 1,3 Unit.**

Service learning experiences that utilize active learning strategies involving students in reflection, sustainability, and civic engagement. Encourages collaboration with community partners in order to address needs of the community. Develops critical thinking and team-based learning skills. Current students register for 1 unit. Students beginning in the summer of 2016 must register for 3 units.

**OCTH 703. Service Learning II. 1,3 Unit.**

Service learning experiences that utilize active learning strategies involving students in reflection, sustainability, and civic engagement. Encourages collaboration with community partners in order to address needs of the community. Develops critical thinking and team-based learning skills. Current students register for 1 unit. Students beginning in the summer of 2016 register for 3 units.

**OCTH 704. Service Learning III. 2,3 Units.**

Service learning experiences that utilize strategies that involve students in experience, reflection, sustainability, and civic engagement. Emphasizes needs assessment. Encourages collaboration with community partners and addresses needs of the community through the development of service learning projects. Develops critical thinking and team-based learning skills. Current students register for 2 units. Students enrolling in the summer of 2017 must register for 3 units.

**OCTH 705. Service Learning IV. 2,3 Units.**

Service learning experiences that utilize active learning strategies involving student in reflection, sustainability, and civic engagement. Encourages collaboration with community partners in order to address needs of the community. Develops critical thinking and team-based learning skills. Current students register for 2 units. Students enrolling in the autumn of 2017 must register for 3 units.

**OCTH 711. Level I Fieldwork 1. 2 Units.**

Observation and supervised interaction in clinical and/or community-based programs to introduce students to fieldwork experience, apply knowledge to practice, and develop understanding of the needs of clients.

**OCTH 712. Level I Fieldwork 2. 2 Units.**

Observation and supervised interaction in clinical and/or community-based programs to introduce students to fieldwork experience, apply knowledge to practice, and develop understanding of the needs of clients.

**OCTH 713. Level I Fieldwork 3. 2 Units.**

Supervised interaction in a school-based setting to allow student to apply knowledge to practice, and to develop understanding of client needs.

**OCTH 721. Level II Fieldwork Experience 1. 8 Units.**

A twelve-week (forty hours/week) supervised fieldwork experience in clinical and/or community-based programs. Emphasizes assessment, planning, treatment, problem solving, administration, and professionalism. Successful completion necessary before student is eligible to take the certification examination.

**OCTH 722. Level II Fieldwork Experience 2. 8 Units.**

A twelve-week (forty hours/week) supervised fieldwork experience in clinical and/or community-based programs. Emphasizes assessment, planning, treatment, problem solving, administration, and professionalism. Successful completion necessary before student is eligible to take the certification examination.

## Occupational Medicine (OMED)

### Courses

**OMED 524. Foundations of Occupational Health and Safety. 4 Units.**

Provides a framework and fundamental knowledge and skills needed for identification and assessment of hazards in the work environment and for evaluation of the magnitude of risks. Focuses on the practical and applied evaluation of hazards and risks in the occupational environment and on identification of possible causes. Chemical, physical and biological agents of disease. Basic principles of toxicology and risk assessment for occupational exposures. Patient history and differential diagnosis principles and the use of technology. Prerequisite: completion of 1st year in MPH/MS; accepted into DrPH or PhD; 2nd year NP/DNP Nursing; 2nd year DPT or MPA; PG-1 Residents; 3rd or 4th year Medical Students.

**OMED 525. Clinical Toxicology and Occupational Health Disorders. 4 Units.**

Focuses on the diagnosis, management, and prevention of adverse effects due to occupational and environmental toxicants and biological and physical agents. Covers exposures common to occupational settings. Includes exposure assessment to toxic agents, signs and symptoms of exposure, clinical evaluation, diagnosis, and intervention. Focuses on advance application of the principles of human toxicology and risk assessment and gaining the skills to apply knowledge to the practice of occupational and environmental medicine. Provides knowledge, skills, and abilities needed to carry out specialist assessment and management of occupational hazards to health in a range of working environments, emphasizing differential diagnosis. Prerequisite: OMED 524.

**OMED 526. Occupational Health and Safety Law and Ethics. 4 Units.**

Provides student sufficient knowledge of occupational health law and ethical issues to be able to advise effectively across the spectrum of stakeholders (employers, colleagues, etc.). Applies advanced knowledge and skills in understanding and navigating the regulatory framework in managing the health of a worker population. Focuses on the practical use of advanced applied epidemiology (to include acute and chronic disease), surveillance and protection programs, clinical preventive services, and risk/hazard control and communication. Covers reporting and program compliance. Prerequisite: OMED 524.

## Ophthalmology (OPHM)

### Courses

#### **OPHM 891. Ophthalmology Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of ophthalmology, including research.

## Oral and Maxillofacial Surgery (OMFS)

### Courses

#### **OMFS 604. Selected Topics in Oral and Maxillofacial Surgery. 1 Unit.**

A rotating, two-year schedule of weekly seminars covering selected topics in oral and maxillofacial surgery. Following a lecture on these topics, recent representational clinical cases presented and used as the basis for review and discussion—enhancing the knowledge base and critical thinking. Monthly grand rounds, given by respected guest speakers considered to be experts in their respective fields, cover current topics in oral and maxillofacial surgery and in practice management. Repeated registrations required to fulfill the total units.

#### **OMFS 605. Integrated Orthodontic and Surgical Correction of Dentofacial Deformities. 1 Unit.**

A monthly multidisciplinary seminar course emphasizing preoperative diagnosis, planning, intraoperative procedures, and postoperative care of orthognathic patients. Includes description of congenital and developmental deformities, emphasizing all aspects of surgical-orthodontics patient management leading to critical thinking and decision making. Patients selected include a wide range of dentofacial deformities. Preoperative skeletal, dental, and soft-tissue analyses performed. Emphasizes the importance of accurate cephalometric analysis in treatment planning, including accurate prediction tracings. Repeated registrations required to fulfill the total units.

#### **OMFS 606. Applied Surgical Anatomy. 1 Unit.**

Enables the resident to master the anatomic principles involved in clinical diagnosis and in assessing clinical problem areas encountered in various health-care delivery situations. Discusses in detail the applied anatomic consequences of various surgical and treatment procedures and the anatomic aspects of emergencies occurring in practice, including cadaveric dissection. Emphasizes knowledge of the vascular supply and neuroinnervation of the structures of the oral cavity and adjacent areas of the head and neck. Applies material discussed in terms of actual clinical case presentations.

#### **OMFS 607. Principles of Medical History, Physical Examination, and Clinical Medicine. 2 Units.**

Focuses on developing accurate history-taking and physical examination skills. Specific topics include review of organ systems and associated pathology (physical and laboratory), hospital protocol, and charting. Residents perform history and physical (H&P) on medical and surgical patients. Emphasizes proficiency in developing differential diagnoses of common medical and surgical problems.

#### **OMFS 608. Surgical Oral and Maxillofacial Pathology Conference. 0.5 Units.**

Uses recent pathology cases as the basis for review and discussion of common and ominous lesions encountered. Emphasizes differential diagnosis and patient management. Guest lecturers cover selected topics in oral and maxillofacial pathology. Repeated registrations required to fulfill the total units.

#### **OMFS 609. Literature Review in Oral and Maxillofacial Surgery. 0.5 Units.**

A monthly discussion of recent literature from selected journals. Reviews classic landmark articles and their impact on the specialty. Repeated registrations required to fulfill total units.

#### **OMFS 614. Clinical Experience in Oral and Maxillofacial Surgery Practice. 7 Units.**

Training in various aspects of oral and maxillofacial surgery. Training in dentoalveolar surgery, complicated fractures of the facial bones, reconstructive maxillofacial surgery, surgical orthognathic correction, treatment of developmental and acquired deformities of the jaw, implant surgery, temporomandibular joint surgery, and osseous grafting of postresection and posttraumatic maxillofacial defects. Study continues in the application of general anesthesia to ambulatory outpatient surgery patients. Residents trained to assume full responsibility for all aspects of the oral and maxillofacial surgery practice. Advanced clinical training in the subspecialty areas of oral and maxillofacial surgery, as well as training through off-service rotations with internal medicine, plastic and reconstructive surgery, head and neck surgery, general surgery, and other specialties. Repeated registrations required to fulfill the total units.

#### **OMFS 615. Current Trends in Medicine and Surgery. 2 Units.**

Off-service specialty seminars on a wide range of topics, including anesthesia, internal medicine, ICU care, general surgery, and various specialty topics. Repeated registrations required to fulfill the total units.

#### **OMFS 616. Application of Surgical Principles to Orthognathic Surgery. 1 Unit.**

Introductory multidisciplinary lecture-seminar emphasizing preoperative diagnosis, treatment planning, intraoperative procedures, and postoperative care of orthognathic patients; description of congenital and developmental deformities, emphasizing all aspects of surgical orthodontic patient management.

#### **OMFS 617. Critical Decision Making in Oral and Maxillofacial Surgery. 1 Unit.**

A weekly seminar designed to expand the participants' skill in critical decision making as it pertains to patient care in the field of oral and maxillofacial surgery. Students present cases weekly of proposed surgical experiences—reviewing data gathering, treatment alternatives, and treatment of complications. Additionally, selected posttreatment cases presented to review the proposed treatment versus the actual outcome as an opportunity for the participant to be involved with an outcome assessment analysis. Repeated registrations required to fulfill the total units.

#### **OMFS 618. Introduction to General Anesthesia. 1 Unit.**

Introduces the theory and practice of general anesthesia.

#### **OMFS 696. Scholarly Activity in Oral and Maxillofacial Surgery. 1 Unit.**

Selected didactic, clinical, and/or laboratory activity developed by the program director or a designated program faculty member. Primarily designed for residents to fulfill the certificate requirements for scholarly activity/research in oral and maxillofacial surgery. Multiple registrations may be needed to complete these activities.

#### **OMFS 697A. Research. 1 Unit.**

Student identifies a research project, prepares a protocol, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities.

#### **OMFS 697B. Research. 1 Unit.**

Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

**OMFS 697C. Research. 1 Unit.**

Resident completes research project, holds a public presentation of research, and submits a publishable paper to his/her research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

**OMFS 698. Thesis. 1 Unit.****OMFS 805. Oral and Maxillofacial Surgery I. 1 Unit.**

Theory of oral surgery. Etiology, diagnosis, and surgical treatment of oral conditions and diseases commonly encountered in general practice. Familiarizes student with fundamental surgical techniques, principles involved in extraction of teeth, and selection and use of equipment.

**OMFS 811. Oral and Maxillofacial Surgery II. 2 Units.**

Continues preparatory topics for general practice. Surgical complications, management of impacted teeth, odontogenic infections, preprosthetic surgery; introduces maxillofacial trauma, surgical treatment of cysts and tumors, orthognathic surgery.

**OMFS 825. Oral and Maxillofacial Surgery Clinic I. 1 Unit.**

Clinical application of the principles of oral maxillofacial surgery. Opportunities to gain experience in cases of the type treated by the general dentist.

**OMFS 875. Oral and Maxillofacial Surgery Clinic II. 1 Unit.**

Clinical application of the principles of oral maxillofacial surgery. Opportunities to gain experience in cases of the type treated by the general dentist.

## Oral Diagnosis, Radiology and Pathology (ODRP)

### Courses

**ODRP 311. General and Oral Pathology DH. 5 Units.**

Basic disease processes and selected organ system diseases. Discusses common and important oral mucosal, soft tissue, and jaw lesions. Emphasizes signs for early recognition and differential diagnosis.

**ODRP 501. Principles of Microbiology DN. 4 Units.**

Fundamentals of general and oral microbiology and the principles of infection and treatment supported by current research data. Discusses bacterial, viral, and fungal diseases pathogenic to humans in the context of the immunological basis of the host/pathogen relationship. Emphasizes organisms relevant to dentistry, as well as causative agents of dental disease. Studies and evaluates specific aspects of infection control, sterilization and disinfection, and the significance of dental disease.

**ODRP 701. Radiology I: Clinical Procedures. 1.5 Unit.**

Techniques for producing intraoral and extraoral radiographs and digital images, digital image processing, radiation protection and safety, and infection control. Covers viewing of radiographic and digital images, technique, handling, anatomy, and errors.

**ODRP 725. Patient Assessment and Data Management. 3 Units.**

Introduces students to all portions of the comprehensive oral evaluation—including the patient interview, all parts of the examination, and the use of the problem-oriented record for diagnosis and treatment planning. Includes supervised clinical experience of examination procedures, with fellow students acting as patients.

**ODRP 726. Patient Diagnosis and Treatment Planning. 1.5 Unit.**

Concepts of diagnosis and treatment planning. Introduces procedures used to treat most common dental problems, sequencing of the treatment plan, and use of the disease-control treatment plan and the definitive treatment plan. Case-based, small-group treatment planning exercises.

**ODRP 735. Dental Emergency Diagnosis and Treatment. 1 Unit.**

Diagnosis and management of dental emergencies, including general emergencies, endodontic, pediatric, and prosthodontic emergencies, hard- and soft-tissue trauma, forensic issues, substance abuse, child abuse and dealing with difficult patients.

**ODRP 751. General and Systemic Pathology I. 4 Units.**

Studies basic disease mechanisms and disease processes, including host responses to pathogens and injury, repair, immune disorders, hemodynamic disorders, neoplasia and genetic disorders. Begins the study of disease processes of the organs and systems with emphasis on epidemiology, etiology and pathogenesis, morphologic and clinical disease manifestations, and major treatment modalities.

**ODRP 752. General and Systemic Pathology II. 4 Units.**

Continues study of disease processes of the various organs and systems. Emphasizes epidemiology, etiology and pathogenesis, morphologic and clinical disease manifestations, and major treatment modalities. Prerequisite: ODRP 751.

**ODRP 755. Radiology II: Theory and Interpretation. 2 Units.**

Radiation physics and biology. Interpretation of intraoral and extraoral images—including appearance of hard- and soft-tissue anatomy, restorative materials and abnormalities of teeth, dental caries, periodontal disease, periapical disease, and other jaw pathology. Covers patient selection criteria, legal considerations, and quality assurance. Introduces cone beam computed tomography.

**ODRP 761. Oral Pathology and Diagnosis. 6 Units.**

Studies oral mucosal and soft-tissue lesions, developmental and genetic disorders, jaw lesions, salivary gland disorders, oral manifestations of systemic diseases, and some diseases of the skin and head and neck. Includes epidemiology, etiology and pathogenesis, clinical and/or radiographic features, microscopic features, and management of disease, emphasizing differential diagnosis.

**ODRP 807. Oral Medicine I: TMJ/Orofacial Pain I. 1 Unit.**

Introduces diagnosis and treatment of temporomandibular joint disorders (TMD). Teaches anatomy, pathology, and diagnostic imaging of the temporomandibular joint. Presents clinical features and mechanisms of masticatory muscle pain, disc disorders, occlusal disorders, and arthritis of the TMJ. Includes patient cases focusing on these disorders. Student learns how to perform an orofacial pain examination and initial treatment for patients with temporomandibular joint disorders.

**ODRP 808. Oral Medicine II: Medically Compromised Patient. 2 Units.**

Etiology, pathophysiology, clinical presentation, medical management, and dental treatment modifications for patients with medical conditions of the cardiovascular, pulmonary, gastrointestinal, genitourinary, endocrine, immunologic, hematologic, and neurologic systems; as well as psychiatric disorders and infectious and oncologic diseases. Case-based, small-group discussions.

**ODRP 811. Oral Medicine III: TMJ/Orofacial Pain II. 1 Unit.**

Advanced topics on temporomandibular joint disorders and orofacial pain. Introduces diagnosis and management of acute and chronic orofacial pain conditions, including neuropathic pain, headaches, and comorbid psychiatric disorders. Student learns to recognize, screen, and make appropriate referrals for chronic orofacial pain. Case presentations focus on nonodontogenic pain that presents as tooth pain.

**ODRP 821. Clinical Management of Older Adults. 1 Unit.**

Instruction in the multidisciplinary medical and dental assessment and management of older adults. Includes clinical experience in a multidisciplinary team setting.

**ODRP 825. Oral Diagnosis, Radiology, and Pathology Clinic. 3 Units.**

Clinical practice in patient assessment, diagnosis, and treatment planning of early-to-intermediate dental and oral diseases. Clinical practice in the assessment and management of patients with urgent dental problems. Clinical practice making and interpreting intraoral and panoramic radiographic images.

**ODRP 826. Oral Medicine IV: Clinical Oral Pathology and Oncology. 2 Units.**

Differential diagnosis and initial management of oral disease, utilizing clinical case studies. Epidemiology, methods of detection, diagnosis, and management of oral and maxillofacial cancer. Principles of cancer therapy by surgical modalities. Includes discussion of cancer prevention and posttherapy reconstruction. Reviews tobacco cessation protocols.

**ODRP 875. Oral Diagnosis, Radiology, and Pathology Clinic. 4 Units.**

Clinical practice in patient assessment, diagnosis, and treatment planning of intermediate-to-advanced dental and oral diseases. Clinical practice in the assessment and management of patients with urgent dental problems. Clinical practice making and interpreting intraoral and panoramic radiographic images.

## Oral Pathology (ORPA)

### Courses

**ORPA 533. Radiology Topics for Graduate Dental Programs. 2 Units.**

Applies principles of radiology to the specialty level. Presents new imaging modalities, as well as methods to create a custom image center for the provider's needs. Equips provider to evaluate equipment, state laws, and other factors in setting up a modern practice.

## Orthodontics (ORDN)

### Courses

**ORDN 524. Introduction to Graduate Orthodontics. 12 Units.**

Lecture course outlining the principles of applied design, the application of forces to produce tooth movement, and the tissue response to such forces. Overview of orthodontics to prepare the student for clinical practice of orthodontics diagnosis and treatment planning, including cephalometrics, growth forecasting, and preparation of visual treatment objectives.

**ORDN 524L. Introduction to Graduate Orthodontics Laboratory. 6 Units.**

Selected laboratory projects to enhance the didactic portion of the course.

**ORDN 525. Materials Science and Mechanics. 2 Units.**

Structure and properties of materials used in orthodontics. Analyzes the effects of mechanical and heat treatment. Surveys strength and mechanics in force-delivery systems.

**ORDN 526. Applied Anatomy. 2 Units.**

Fundamentals of anatomy as applied to a special region or application.

**ORDN 527. Clinical Photography. 1 Unit.**

Clinical proficiency in intraoral and extraoral photography. Discusses and uses photographic equipment and techniques on orthodontic patients. Camera, lens, and flash required.

**ORDN 535. Advanced Cephalometrics. 2 Units.**

Studies cephalometrics from a historical perspective to the present time, including most of the major analyses.

**ORDN 536. Concepts of Physical Anthropology. 2 Units.**

Basic and classic concepts of physical anthropology as they relate to orthodontics.

**ORDN 545. Growth and Development. 3 Units.**

Principles of growth and development from the subcellular to the tissue level. Emphasizes myogenesis and osteogenesis. Prenatal and postnatal development of the face and jaws, including the classic concepts of facial growth. Considers general growth, with the goal of developing ability to recognize abnormal signs, observe variations, diagnose pathological conditions, know the normal, predict height, and use various standards to assess growth and development.

**ORDN 546. Fundamentals of Occlusion. 2 Units.**

The development of the human face and dentition. A concept of dynamic functioning occlusion.

**ORDN 571. Diagnosis and Treatment Planning I. 2 Units.**

Student diagnoses and treats assigned patients.

**ORDN 574. Diagnosis and Treatment Planning II. 2 Units.**

Continues ORDN 571, with follow-up of clinical cases with progress records.

**ORDN 584. Current Orthodontics Literature I. 2 Units.**

Presents current papers in various subspecialties of orthodontics.

**ORDN 591. Current Orthodontics Literature II. 2 Units.**

Presents current papers in various subspecialties of orthodontics.

**ORDN 597. Orthognathic Surgery Theory and Literature Review. 2 Units.**

Presents current papers in various subspecialties of orthodontics, with primary emphasis on surgical orthodontics. Presents cases with various problems requiring surgery.

**ORDN 604. Seminar in Orthodontics. 1 Unit.**

Critically reviews suggested etiological factors of malocclusion. Problems of diagnosis and the rationale of various treatment philosophies. Liberally uses current literature. Discussion by guest lecturers with demonstrated competence in the field.

**ORDN 605. Advanced Seminar in Orthodontics. 1 Unit.**

Second-year seminar. Design of clinical diagnosis and practice management. Repeated registrations to fulfill the total units required.

**ORDN 606. Craniofacial Genetics. 2 Units.**

Basic genetics. Introduces craniofacial clinic.

**ORDN 608. Speech, Language, Breathing, and Orofacial Myofunction. 1 Unit.**

Studies areas related to speech, language, breathing, and behavior affecting the orofacial complex and occlusion.

**ORDN 634. Orthodontics Clinical Conference. 2 Units.**

Students prepare and present diagnosis, case analysis, and treatment plan—with primary emphasis on difficult and unusual cases.

**ORDN 635. Finishing Mechanics I. 2 Units.**

Orthodontic treatment modalities, emphasizing finishing mechanics for the patient.

**ORDN 636. Finishing Mechanics II. 1 Unit.**

A seminar course created for first-year graduate orthodontic students, exposing them to alternate treatment philosophies and modalities. Guest orthodontists present the main portion of the course and demonstrate their treatment concepts in finishing orthodontic cases.

**ORDN 654. Practice Teaching in Orthodontics. 1-4 Units.**

Students gain experience in teaching clinical orthodontics to predoctoral dental students. Repeated registrations to fulfill the total units required.

**ORDN 655. Temporomandibular Function and Dysfunction. 2 Units.**

The temporomandibular joint and dysfunction in health and disease. Diagnosis, treatment planning, and treatment of the temporomandibular joint, emphasizing the integration of orthodontics and temporomandibular joint treatment.

**ORDN 657. Orthodontic Board Preparation. 1-6 Units.**

Student presents completed orthodontic cases to faculty and other students. Prepares for the American Board of Orthodontics. Repeated registrations required to fulfill the total units required.

**ORDN 697A. Research. 1 Unit.**

Student identifies a research project, prepares a proposal, and obtains approval for the protocol.

**ORDN 697B. Research. 1-4 Units.**

Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

**ORDN 698. Thesis. 3 Units.****ORDN 725. Clinical Practice in Orthodontics. 7 Units.**

Diagnosis and treatment of assigned patients, including adults. Repeated registrations to fulfill the total units/clock hours required.

**ORDN 751. Principles of Orthodontics I. 1 Unit.**

Objectives and science of orthodontics. Incidence, etiology, and recognition of malocclusion. Craniofacial growth and development. Diagnostic procedures, aids, and interpretation.

**ORDN 801. Minor Tooth Movement. 2 Units.**

Lecture, laboratory demonstration, and clinical exercise prepares students to diagnose and treat limited clinical problems. Applies theory. Minor tooth movement.

**ORDN 811. Principles of Orthodontics II. 1 Unit.**

Biophysical principles. Removable and fixed orthodontic appliances, adult orthodontics, surgical orthodontics. Treatment planning. Interaction with other disciplines. National Board Examination preparation. Selected topics in orthodontics.

**ORDN 875. Orthodontics Clinic. 1 Unit.**

Clinical application of skills that have been learned in the laboratory to manage minor tooth movement and early treatment cases.

## Orthopaedic Surgery (ORTH)

### Courses

**ORTH 891. Orthopaedic Surgery Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of orthopaedic surgery, including research.

## Orthotics and Prosthetics (ORPR)

### Courses

**ORPR 301. Orthotics and Prosthetics Laboratory and Technical Skills. 3 Units.**

Introduces the baseline of material and safety practice of orthotics and prosthetics design, fabrication, and repairs. Provides a solid foundational knowledge of the principles and applications of orthotics and prosthetics materials, technologies, designs, and processes associated with the manufacture of custom devices.

**ORPR 305. Orthotic Fitting Techniques. 3 Units.**

Teaches methods of biometrics, shape capture, and fitting criteria for orthotic devices. Expands knowledge and techniques of applied anatomy in the fitting of orthotic and assistive devices in activities of daily living and patient's occupational needs.

**ORPR 310. Patient Management, Assessment, and Documentation. 3 Units.**

Orthotic and prosthetic patient-care models, patient rights, and ethical practice of care. Advanced principles and processes of patient assessment, management, and complete documentation within the context of interprofessional referrals, interactions, and reimbursement as applied both to the in- and outpatient context.

**ORPR 315. Pedorthics. 3 Units.**

Clinical application of biomechanical interventions of the ankle-foot structure as it refers to walking, medical issues of the foot, and activity levels. Applied anatomical knowledge of the foot and sports medicine within the context of shoes and shoe modifications.

**ORPR 320. Biomechanical Evaluation. 3 Units.**

Establishes orthotic and prosthetic biomechanical principles and interventions in the context of normal body mechanics and musculoskeletal pathologies. Examines how these interventions serve to maximize healing, manage pain, support movement and function. Encompasses whole body considerations for the kinetic effects, including gait, ADL, occupational and recreational functions.

**ORPR 323. Economics, Business Management, and Entrepreneurship. 3 Units.**

Establishes principles of economics, financial management, and law as they apply to health-care settings, including: starting a new service, reimbursement, capital and operational budgeting, reading financial statements, and cost-saving measures.

**ORPR 325. Medical Terminology. 3 Units.**

Language of medicine, including: word construction, word analysis, definitions, and the use of terms related to medical science—specifically to orthotics and prosthetics. Course information organized by body systems. Applies knowledge to documentation, interdisciplinary communication, and medical justification as it applies to orthotic and prosthetic care.

**ORPR 330. Lower Extremity Orthotics I. 3 Units.**

Studies foot and ankle-foot orthoses—including myoelectric orthoses—from an anatomical design and fabrication perspective. Effects of their application to the body kinematics and kinetic chain. Considerations for specific pathological applications, as well as awareness of implied benefits and risks. Outcome measurements for particular static and dynamic designs.

**ORPR 340. Lower Extremity Prosthetics I. 3 Units.**

Studies the etiology of amputations below the knee. Considers surgical and immediate postoperative issues as they relate to patient experience, prosthetic outcome, and gait. Looks at prosthetic component selection; socket, interface, and suspension designs in the context of ambulation levels and activities; and specialty applications. Examines skin and tissue physiology, both from a design and end-user perspective. Considers cost and efficiency based on component selection.

**ORPR 345. Spinal Orthotics. 3 Units.**

Examines the anatomy, biomechanics, and pathology of the spine. Presents fabrication, fitting, and application of various orthotic interventions in light of a critical and differential diagnosis—determining the best outcome with the most effective and comfortable fit. Includes application and proper fitting of halos and of cervical, thoraco-lumbar, and lumbar devices. Gives special consideration to design, plaster casting techniques, and CAD measurements for the management of scoliosis. Teaches student to read a standard radiograph and measure and interpret spinal deformities, and to make appropriate recommendations for orthotic management.

**ORPR 402. Pathology I. 3 Units.**

Fundamental mechanisms of disease, including cell injury; inflammation, repair, regeneration, and fibrosis; and vascular, cardiac, respiratory, gastrointestinal, hepatobiliary, urinary, reproductive, endocrine, and integumentary pathologies.

**ORPR 404. Materials Science in Orthotics and Prosthetics. 3 Units.**

Introduces the science of materials found in the body, as well as those used to support the body. Includes the composition of common orthopedic and prosthetics materials used in everyday practice. Provides an overview of mathematics, physics, movement (both simple and complex), anatomy, physiology, and thermodynamics that creates a well-rounded understanding of and rationale behind material and fabrication choices. Provides students with knowledge of chemical composition, stress-strain curves, fatigability, and other essential characteristics to be considered in orthotic and prosthetic design.

**ORPR 405. Gait Analysis. 3 Units.**

Observation and analysis of normal human locomotion contrasted with pathological gait, and their implications for orthotic and prosthetic interventions and care.

**ORPR 410. Orthotic and Prosthetic Clinical Rotation. 1 Unit.**

Assigns student to a weekly clinic, department, or specialty—with a focus on familiarization with specific orthotic and prosthetic services. Student reports to his/her cohorts in a once-a-month didactic presentation at the weekly grand rounds, which can include lectures from industry providers on the topic of choice. Site allocation determined by program director; student accountable to quarterly assigned clinical supervisor.

**ORPR 414. Kinesiology I. 3 Units.**

Introduces advanced kinesiology topics, including movement science dealing with the behavioral basis of motor control and motor learning from an information-processing perspective. Kinesiology from an O&P perspective focusing primarily on the lower limbs, with some introduction to upper limb involvement.

**ORPR 415. Lower Extremity Orthotics II. 3 Units.**

Advanced study of knee-ankle-foot orthoses, knee orthoses, hip orthoses, reciprocating gait orthoses, and standing frames from an anatomical design and fabrication perspective. Effects of their application to the body kinetic chain. Considers specific pathological applications, including implied benefits and risks. Outcome measurements for particular static and dynamic designs. Introduces CAD/CAM technologies both for image capture and fabrication.

**ORPR 420. Lower Extremity Prosthetics II. 3 Units.**

Studies etiology of above-the-knee amputations. Surgical and immediate postoperative considerations as they relate to patient experience, prosthetic outcome, and potential for gait. Considers prosthetic component selection, socket interface, and suspension designs in the context of ambulation levels and activities; specialty applications. Presents mechanical, hydraulic, and electronic knee-motion control. Includes cost and efficiency calculations based on component selection. Introduces CAD/CAM shape capture and fabrication considerations, with attention to mechanical and electronic alignment capture.

**ORPR 425. CAD/CAM Technologies. 3 Units.**

Studies applications of CAD/CAM technologies as they are used in today's clinical practice. Familiarizes the student with the most common shape/image capture systems, manipulations, and interfaces with the various central fabrication methods available in the industry. Includes use of CADs/CAMs in both orthotics and prosthetics, including foot orthoses, spinal orthoses, and cranial helmets. Prepares student to be able to store and manipulate data and familiarizes student with the technical support and fabrication process.

**ORPR 430. Upper Extremity Orthotics. 3 Units.**

Applies anatomy, kinesiology, and biomechanics to serve specific upper extremity neuromuscular needs. Determines the use of functional and electrically powered orthoses based on differential diagnoses. Examines myoelectric assisted translateral motion rehabilitation. Teaches function, purpose, and building of wrist- and cable-driven orthoses.

**ORPR 435. Upper Extremity Prosthetics. 3 Units.**

Studies the etiology of upper limb and forequarter amputations. Considers shape capture, socket design, interface, and suspension in the context of cosmetic, body-powered, and myoelectric functional prostheses. Includes special needs adaptations for occupational and sports situations. Give attention to the distinctions of functionality, efficacy, and cost. Studies the bionic arm and hand and the computer training that goes with this particular technology.

**ORPR 439. Computers and Electronics for O&P Clinicians. 3 Units.**

Basic theory of electricity, transistors, computer circuits, and computer programming. Discusses electrons, structure of the atom, resistance, capacitance, Ohm's law, and basic transistor theory. Windows programming. Includes laboratories and three programming assignments.

**ORPR 440. Bionics and Cyborg Technology. 3 Units.**

Examines emerging bionic technologies aimed at merging man with machine. Includes competencies and promotion of these devices in the context of scientific research and potential patient applications. Examines bionic control systems' embedded software development and associated function. Topics include proficiency in the implementation of cybernetic feedback systems in ortho-prosthetic devices.

**ORPR 491. Research I. 1.5 Unit.**

Introduces the scientific method in health science research. Focuses on the major steps of the research process: problem identification, literature review, conceptual framework, identification of variables, statement of hypothesis, experimental design, and analysis and presentation of data. Includes critical evaluation of research literature. Applies the research process to problems in related specific allied health fields. Develops a research proposal. Pilot-tests a research proposal. Tests procedures and data forms. Implements the research proposal in a practice setting. Prerequisite: AHCJ 471, AHCJ 472.

**ORPR 505. Current Issues in Orthotics and Prosthetics. 3 Units.**

Reviews and discusses concerns and current advances relating to orthotics and prosthetics, e.g., legislation, regulations, education, professional organization, interdisciplinary patient care, and reimbursement issues.

**ORPR 506. Advanced Specialty Tracks in Orthotics and Prosthetics. 3 Units.**

Presents the newest clinical treatment applications over the spectrum of the patient population in the field of orthotics and prosthetics.

**ORPR 510. Advanced Clinical Rotations. 1 Unit.**

Assigns student to a weekly clinic, department, or specialty—with a focus on familiarization with specific orthotic and prosthetic services. Under direct supervision, student provides comprehensive orthotic and prosthetic clinical care. Student reports to his/her cohort in a once-a-month didactic presentation at the weekly grand rounds, which can include lectures from industry providers on the topic of choice. Site assignment determined by program director; student accountable to quarterly assigned clinical supervisor.

**ORPR 514. Clinical Affiliation. 8 Units.**

Establishes a clinical affiliation with a facility that complies with ENCOPE residency standards and that has been approved by the Professional Development Committee and the EL-MSOP locally assigned site supervisor. Student completes the 500 clinical contact hours required for graduation.

**ORPR 515. Topics in Orthotics and Prosthetics. 1-6 Units.**

Lecture and discussion related to the practice of orthotics and prosthetics. Content varies from quarter to quarter. (May be repeated for additional credit for a maximum 6 quarter units.).

**ORPR 518. Kinesiology II. 3 Units.**

Examines the mechanical basis of movement in the human body in relation to the length of muscles; the tension developed by muscles under various conditions; the anatomical arrangement of the origin and insertion of the bones and joints; and the biomechanics of complex movement, such as gait and balance. Uses physics principles to explain the mechanics of movement in the body. Topics include: linear movement, rotational movement, work and energy, muscle-length tension relationships, single and multiple joint biomechanics, and gait and balance.

**ORPR 520. Lower Extremity Prosthetics III. 3 Units.**

Studies the etiology of hip and transcorporectomy amputations. Surgical and immediate postoperative considerations as they relate to patient experience, prosthetic outcome, and potential for gait. Considers the care of the extreme sports-user amputee. Includes selection, socket interface, and suspension designs in the context of ambulation levels and activities' specialty applications. Examines skin and tissue physiology, both from a design and an end-user perspective. Includes mechanical, hydraulic, and electronic knee-motion control. Considers cost and efficiency based on component selection. Introduces CAD/CAM shape capture; and considers fabrication, with attention to mechanical and electronic alignment capture.

**ORPR 522. Self-Care Portfolio and Community Outreach. .5 Units.**

Inventory of self-care and process to accomplish it. Puts self-care in the context of life-long learning, relational responsibility, and social justice. Applies principles of effective community leadership engagement, locally and globally.

**ORPR 525. Lower Extremity Orthotics III. 3 Units.**

Advanced study of myoelectric and electronic control to ankle-foot, knee-ankle-foot, and reciprocating gait orthoses from a design and fabrication perspective. Effects of their application to the body kinetic chain. Considerations for specific pathological applications; awareness of implied benefits and risks. Studies outcome measurements for particular static, dynamic, and electrodynamic designs, including EFS.

**ORPR 526. Prosthetics III. 3 Units.**

Focuses on both upper limb and lower limb amputations and prosthetic interventions. Includes the etiology of hip and transcorporectomy amputations. Surgical and immediate postoperative considerations as they relate to patient experience, prosthetic outcome, and potential for gait. Considers the care of the extreme sports-user amputee. Includes selection, socket interface, and suspension designs in the context of ambulation levels and activities' specialty applications. Examines skin and tissue physiology both from a design and an end-user perspective. Includes mechanical, hydraulic, and electronic knee-motion control. Considers cost and efficiency based on component selection. Introduces CAD/CAM shape capture, and considers fabrication with attention to mechanical and electronic alignment capture. Integrates complex cases of upper extremity prosthetics as unique methods of treatment and intervention.

**ORPR 527. Orthotics III. 3 Units.**

Advanced study of myoelectric and electronic control to upper extremity and lower extremity orthoses from a design and fabrication perspective. Effects of their application to the body kinetic chain. Considerations for specific pathological applications; awareness of implied benefits and risks. Studies outcome measurements for particular static, dynamic, and electrodynamic designs, including EFS.

**ORPR 538. Biomechanics. 3 Units.**

Development of competencies in biomechanics. Bionic technology, embedded design programming, and fabrication. Robotic actuation and senses. Advanced material use and fabrication techniques.

**ORPR 540. Rehabilitative Care in Developing Nations. 3 Units.**

Examines the physical rehabilitation state of affairs in developing nations. Outlines specific challenges with rehabilitation delivery from logistics, materials, and cost perspectives. Points out alternative methods to maximize rehabilitation with minimal cost.

**ORPR 544. Applied Functional Neuroanatomy. 3 Units.**

Evidence-based coverage of the applied functional neuroanatomy of several common adult progressive and nonprogressive neurological diseases. Emphasizes motor control, stroke, traumatic brain injury, spinal cord injury, multiple sclerosis, Parkinson's disease, Guillian-Barre syndrome, amyotrophic lateral sclerosis, and vestibular pathology. Includes literature review, lecture, discussion, and laboratory sessions.

**ORPR 575. Couples, Families, and Disabilities. 3 Units.**

Examines not only the effects disabilities have on couples and family systems, but also what contributions family members are making to the rehabilitation process of disabled individuals. Looks at the discourse patterns taking place within a person with a disability; within the disabled person's family and social support system; and most importantly, within the context of the individual, the family, and the medical and rehabilitation providers. Addresses the issues of human sexuality, reproduction, and disability.



**ORPR 592. Research II. 1.5 Unit.**

Guides and equips students as they work toward completion of their capstone research thesis, which is presented at the annual Capstone Research Day. Includes data-collection review and completion, APA-style formatting rules, data analysis with application of appropriate statistics, graphing, write up of discussion and results.

**ORPR 593. Research III. 3 Units.**

Culminates all research-track courses in a project comprising a master's degree thesis, a research paper, a presentation, and a poster. Includes data analysis and statistical interpretation.

## Otolaryngology (OTOL)

### Courses

**OTOL 891. Otolaryngology Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of otolaryngology, including research.

## Pathology (PATH)

### Courses

**PATH 501. Anatomy and Pathology I. 4 Units.**

A systems-based approach to the study of human anatomy utilizing cadaver dissection, correlating gross and microscopic anatomy and associated pathologies.

**PATH 502. Anatomy and Pathology II. 4 Units.**

A systems-based approach to the study of human anatomy utilizing cadaver dissection, correlating gross and microscopic anatomy and associated pathologies.

**PATH 517. Human Systemic Pathology. 9.5 Units.**

Cooperates with the efforts of the sophomore year curriculum towards the orderly, integrated progression of students in their application of the principles of the basic sciences in the development of competencies in actual patient care. Introduces students to the important diseases and anomalies of each human organ system and their impacts on patients. Uses a combination of didactic sessions, self-study assignments, online image modules, practical laboratory experience, self-assessment questions, computer-based group quizzes, and interactive team-based sessions to emphasize the etiologies, pathogeneses, macroscopic and microscopic morphologic features, pathophysiologies, biologic behaviors, and relevant laboratory findings of such disorders. Challenges students with multiple clinical scenarios for each organ system with the intent of developing analytical thinking, productive skills of cooperation between the team members, and appropriate use of laboratory testing.

**PATH 521. Anatomical Techniques I. 3 Units.**

Designed specifically for pathologists' assistant students. Comprehensive coverage of surgical and autopsy pathology techniques. Incorporates histology and medical terminology, including clinical and pathologic correlations.

**PATH 522. Anatomical Techniques II. 3 Units.**

Designed specifically for pathologists' assistant students. Comprehensive coverage of surgical and autopsy pathology techniques. Incorporates histology and medical terminology, including clinical and pathologic correlations.

**PATH 524. Clinical Microbiology for Pathologists' Assistants. 3 Units.**

Studies of pathologically pertinent microbes and pathogenic mechanisms; overview of methods of identification and antibiotic sensitivities.

**PATH 551. Disease Mechanisms I. 3 Units.**

Comprehensive study of mechanisms of disease and clinical correlations, based on Robbins' Pathologic Basis of Disease.

**PATH 552. Disease Mechanisms II. 3 Units.**

Builds on the basic courses in the pathologists' assistant curriculum. Requires students to use critical-thinking skills in the participatory discussion sessions. Prepares students for clinical practicum experiences.

**PATH 564. Biomedical Photography. 1 Unit.**

Investigates the use of digital cameras, scanners, Adobe®, photomicrography, and macrophotography. Examines fundamental processes applied in digital photography to a wide range of specimen types.

**PATH 581. Basic Pathologic Microanatomy. 2 Units.**

Designed specifically for pathologists' assistant students. Covers normal microanatomy, including clinical correlations and grossing techniques. Lectures enhanced by multihead microscopy sessions.

**PATH 582. Advanced Microanatomy. 2 Units.**

Designed specifically for pathologists' assistant students. Covers disease states in microanatomy, including clinical correlations. Lectures enhanced by multihead microscopy sessions.

**PATH 598. Clinical Laboratory Management. 2 Units.**

Laboratory organization and examination of principles and practices of laboratory management.

**PATH 599. Directed Study. 1.5-18 Units.****PATH 644. Clinical Pathology Seminar. 2 Units.**

Provides pathologists' assistant students with an overview of clinical pathology, relating clinical testing to disease processes.

**PATH 741. Pathology Review I. 2 Units.**

An intense review of clinical and anatomical pathology theory with assigned presentations and clinical cases.

**PATH 742. Pathology Review II. 2 Units.**

An intense review of clinical and anatomical pathology theory with assigned presentations and clinical cases.

**PATH 743. Pathology Review III. 2 Units.**

An intense review of clinical and anatomical pathology theory with assigned presentations and clinical cases.

**PATH 744. Pathology Review IV. 2 Units.**

An intense review of clinical and anatomical pathology theory with assigned presentations and clinical cases.

**PATH 761. Pathologists' Assistant Practicum I. 9 Units.**

Rotations in surgical and autopsy pathology to include forensics and pediatrics in a variety of clinical settings, such as academic health centers, community hospitals, and private laboratories.

**PATH 762. Pathologists' Assistant Practicum II. 9 Units.**

Rotations in surgical and autopsy pathology to include forensics and pediatrics in a variety of clinical settings, such as academic health centers, community hospitals, and private laboratories.

**PATH 763. Pathologists' Assistant Practicum III. 9 Units.**

Rotations in surgical and autopsy pathology to include forensics and pediatrics in a variety of clinical settings, such as academic health centers, community hospitals, and private laboratories.

**PATH 764. Pathologists' Assistant Practicum IV. 9 Units.**

Rotations in surgical and autopsy pathology to include forensics and pediatrics in a variety of clinical settings, such as academic health centers, community hospitals, and private laboratories.

**PATH 891. Pathology Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of pathology, including but not limited to hematopathology, molecular embryopathy, and research.

## Public Health Core (PCOR)

### Courses

**PCOR 501. Public Health for Community Resilience. 5 Units.**

Provides an integrated public health core experience focusing on the health of communities and leading to community engagement. Introduces service learning. Major focus areas include biostatistics, health policy and management, environmental health sciences, epidemiology, and social behavioral sciences (health education). Also includes general public health principles and cross-cutting content as viewed through the lenses of faith, health equity, and global health.

**PCOR 502. Public Health for a Healthy Lifestyle. 5 Units.**

Provides an integrated public health core experience focusing on the health of individuals, identifying factors influencing behavioral and physical health. Introduces service learning. Major focus areas include biostatistics, health policy and management, environmental health sciences, epidemiology, and social behavioral sciences (health education). Also includes general public health principles and cross-cutting content as viewed through the lenses of faith, health equity, and global health. Prerequisite: PCOR 501 or PCOR 511.

**PCOR 503. Public Health and Health Systems. 5 Units.**

Provides an integrated public health core experience focusing on health systems. Includes policy and advocacy for health issues, as well as structure and function of health systems. Major focus areas include biostatistics, health policy and management, environmental health sciences, epidemiology, and social behavioral sciences (health education). Also includes general public health principles and cross-cutting content as viewed through the lenses of faith, health equity, and global health.

## Pediatric Dentistry (PEDN)

### Courses

**PEDN 503. Pediatric Dental Seminar. 2 Units.**

Selected clinical topics in pediatric dentistry. Requires repeated registrations to fulfill total units.

**PEDN 508. Pediatric Hospital Dentistry Seminar. 2-4 Units.**

Hospital protocol and the care of patients in a hospital environment.

**PEDN 512. Oral Sedation Seminar. 2 Units.**

Pharmacology, medical considerations, clinical applications, and protocols for oral sedation.

**PEDN 521. Principles of Medicine and Physical Diagnosis. 2 Units.**

Medical and physical diagnosis for the pediatric dental patient.

**PEDN 524. Introduction to Orthodontics. 2 Units.**

Diagnosis and treatment planning for clinical orthodontics.

**PEDN 524L. Introduction to Orthodontics Laboratory. 1,2 Unit.**

Fabrication of various orthodontic appliances.

**PEDN 604. Pediatric Dental Literature. 2-12 Units.**

Pediatric dental literature study, including literature found on the reading list of the American Board of Pediatric Dentistry. Repeated registrations required to fulfill the total units.

**PEDN 654. Practice Teaching for Pediatric Dentistry. 1-5 Units.**

Student gains experience teaching pediatric dentistry in clinical and laboratory settings. Repeated registrations required to fulfill the total units.

**PEDN 680. Elective Study for Advanced Education Students of Pediatric Dentistry. 1-10 Units.**

Topics selected by students in the advanced education program in pediatric dentistry and by department faculty. Repeated registrations required to fulfill the total units.

**PEDN 696. Scholarly Activity in Pediatric Dentistry. 1 Unit.**

Selected didactic, clinical, and/or laboratory activity developed by the program director or a designated program faculty member. Primarily designed for residents to fulfill the certificate requirements for scholarly activity/research in pediatric dentistry. Multiple registrations may be needed to complete these activities.

**PEDN 697A. Research. 1 Unit.**

Student identifies a research project, prepares a protocol, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities.

**PEDN 697B. Research. 1 Unit.**

Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

**PEDN 697C. Research. 1 Unit.**

Resident completes research project, holds a public presentation of research, and submits a publishable paper to his/her research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

**PEDN 698. Thesis. 1-3 Units.**

Required for M.S.-degree track.

**PEDN 725. Pediatric Dental Clinic. 8 Units.**

Clinical pediatric dental experience in both the outpatient and inpatient settings for patients with a variety of clinical needs and problems. Repeated registrations required to fulfill total units.

**PEDN 753. Pediatric Dentistry I Lecture. 2 Units.**

Prevention of dental disease (oral hygiene, diet, fluoride, pit and fissure sealants). Behavior management of the child dental patient. Diagnosis, treatment planning, and operative dentistry for children. Pediatric pulp therapy, oral surgery, dental arch-length management, and local anesthesia and sedation for children. Medical aspects of pediatric dentistry.

**PEDN 753L. Pediatric Dentistry I Laboratory. 1 Unit.**

Technique course to accompany PEDN 753. Students perform operative procedures for amalgam and composite resin on simulated primary and young permanent teeth. In addition, students perform pulpotomies on primary molar teeth and prepare primary teeth for stainless steel, open-faced stainless steel, and resin crowns. Unilateral and bilateral space maintainers are fabricated.

**PEDN 821. Pediatric Dentistry II. 1 Unit.**

Traumatic injuries to the primary and young permanent teeth and oral soft tissues. Developmental and eruption patterns of primary and permanent teeth. Sports dentistry. Pediatric sedation techniques and monitoring. Oral habits of children. Child abuse.

**PEDN 825. Pediatric Dentistry Clinic. 3.5 Units.**

Dental care of children in their primary, mixed, and young permanent dentition. Etiology of disease, prevention of oral disease, growth and development analysis, treatment planning, restorative procedures, and arch length control.

**PEDN 875. Pediatric Dentistry Clinic. 3 Units.**

Continuing dental care of children in their primary, mixed, and young permanent dentition. Etiology of disease, prevention of oral disease, growth and development analysis, treatment planning, restorative procedures, and arch length control.

## Pediatrics (PEDS)

### Courses

**PEDS 599. Pediatrics Directed Study. 1.5-18 Units.****PEDS 701. Pediatrics Clerkship. 1.5-12 Units.**

Provides basic knowledge of growth and development and the clinical application of this knowledge to all age groups. Teaches the history-taking skills unique to pediatrics and the interpersonal skills required to interact with patients and their families. Teaches students to diagnose and manage common acute and chronic illnesses, and enhances understanding of how a pediatrician approaches the preventive health of children or adolescents. Uses interactive, case-based teaching sessions, simulation laboratory, direct clinical encounters, and online/independent learning to teach students about well-child care; children with abnormal growth patterns; and children with obesity, developmental delays, acute upper respiratory infections, lower respiratory tract infections, diarrhea, rashes, dehydration, and fever.

**PEDS 821. Pediatrics Subinternship. 1.5-6 Units.**

Students independently collect patient histories, perform physical examinations, and synthesize this information to formulate a differential and primary diagnosis. Students learn to identify the reason for admission, to select diagnostic testing based on the chief complaint, to provide a family-centered approach to patient care, and when to involve a supervising physician immediately. Uses direct clinical encounters, teaching on rounds, and meetings with the clerkship directors to ensure that students are learning how to evaluate abdominal pain/distention, altered mental status, fluid/electrolyte disturbances, fevers, musculoskeletal pain or swelling, and respiratory distress; as well as variations in common laboratory findings or in vital signs—such as heart rate, respiratory rate, blood pressure, BUN/Cr, CSF studies, CBC, and chest x-ray.

**PEDS 822. Pediatrics Intensive Care. 1.5-6 Units.**

Students learn to obtain relevant history when a patient is unable to communicate, to recognize relevant physical examination findings, to manage critically ill patients, to document in the admission H&P or daily progress note(s) information that reflects the condition of the patient, to write orders and understand the criteria for continued ICU admission or transfer to a lower level of care, and to interact with the family for patients who are critically ill. Rotation utilizes direct clinical encounters, teaching on rounds, and simulation to teach students about patients admitted for trauma, acute respiratory failure, diabetic ketoacidosis, congenital heart disease, renal failure, and septic shock. Prerequisite: PEDS 701.

**PEDS 891. Pediatrics Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of pediatrics, including but not limited to inpatient and outpatient care, endocrinology, rheumatology, neurology, oncology, and research.

## Periodontics (PERI)

### Courses

**PERI 524. The Periodontium. 2 Units.**

Reviews literature concerning the anatomy (macro-, micro-, and ultrastructural) and the physiology of the periodontium.

**PERI 531. Periodontal Pathology. 2 Units.**

Reviews literature that forms the basis for current concepts of the etiology and pathogenesis of periodontal diseases. Repeated registrations required to fulfill the total units.

**PERI 601. Periodontal Therapy. 2 Units.**

Reviews literature that forms the basis for current concepts of the treatment of periodontal diseases. Repeated registrations required to fulfill the total units.

**PERI 604. Current Periodontal and Implant Literature. 2 Units.**

Reviews most recent issues of periodontal and implant scientific journals. Repeated registrations required to fulfill the total units.

**PERI 605. Implant Literature Review. 2 Units.**

Reviews literature providing the basis for implant surgery, as well as concepts for implant restoration. Repeated registrations required to fulfill the total units.

**PERI 606. Modern Concepts of Periodontal Wound Healing. 2 Units.**

Integrates the latest information in the literature concerning the etiologic factors in the initiation and development of the inflammatory process, the relation to systemic factors, the immunologic aspects of tissue healing, the microbiologic interactions in tissue repair, and how derangements in the inflammatory process can lead to various pathologic conditions.

**PERI 608. Dental Specialty Practice Management. 2 Units.**

Assists graduate students with transition from school to private practice. Includes practical discussion of and guidance relevant to such considerations as staff, insurance, banking, referral communications, and legal aspects of dentistry. Students required to bring in articles on practice management and to present a business plan for their first few years in practice.

**PERI 611. Introduction to Periodontics. 2 Units.**

Overview of the clinical science of periodontics, including epidemiology, etiology, therapy, clinical methods, and record keeping.

**PERI 614. Implant Treatment Planning. 2 Units.**

Limited to residents enrolled in two disciplines (i.e., advanced education in periodontics and implant surgery, and advanced prosthodontics). Residents required to present cases that involve mutual interests. Repeated registrations required to fulfill the total units.

**PERI 624. Moderate Sedation in Periodontics. 4 Units.**

Prepares postdoctoral periodontics graduate students to meet or exceed the requirements for certification by the California Board of Dentistry in the administration of moderate (intravenous) sedation and to satisfy the requirements of the Commission on Dental Accreditation of the American Dental Association for the teaching of moderate sedation. Includes lectures, laboratory exercises, and literature review seminars intended to enhance the students' proficiency in the theory and practice of moderate sedation in the dental office. Open to graduate students/residents in other advanced education programs.

**PERI 634. Clinical Conference. 1,2 Unit.**

Case management conference to assist the student in diagnosis, treatment planning, and the management of periodontal diseases and implant surgery. Repeated registrations required to fulfill the total units.

**PERI 654. Practice Teaching in Periodontics. 1 Unit.**

Experience in teaching the predoctoral dentistry student. Repeated registrations required to fulfill the total units.

**PERI 696. Scholarly Activity in Periodontics. 1 Unit.**

Selected didactic, clinical, and/or laboratory activity developed by the program director or a designated program faculty member. Primarily designed for students to fulfill the certificate requirements for scholarly activity/research in periodontics. Multiple registrations may be needed to complete these activities.

**PERI 697A. Research. 1 Unit.**

Student identifies a research project, prepares a protocol, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities.

**PERI 697B. Research. 1 Unit.**

Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

**PERI 697C. Research. 1 Unit.**

Student completes research project, holds a public presentation of research, and submits a publishable paper to his/her research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

**PERI 698. Thesis. 1 Unit.****PERI 705. Fundamentals of Periodontics I. 2 Units.**

Presents the gross microscopic anatomy of the periodontium. Introduces periodontal diseases and their classification. Discusses the epidemiology of plaque-related periodontal diseases. Reviews the microbial etiology of periodontal diseases and modifying risk factors—including cigarette smoking, hormonal changes, systemic disease, and genetics. Discusses non-plaque-related periodontal diseases and plaque-related gingivitis.

**PERI 706. Fundamentals of Periodontal Surgery—Techniques and Instrumentation. 2 Units.**

Introduces rationale, fundamental techniques, and instrumentation of periodontal surgery. Close seminar and clinic instruction and direct “one-on-one” teaching and learning of the salient aspects of periodontal surgery, using patients receiving treatment.

**PERI 725. Clinical Practice in Periodontics. 1-6 Units.**

Clinical experience in the diagnosis and treatment of periodontal diseases. Repeated registrations to fulfill the total units/clock hours required.

**PERI 726. Clinical Practice in Implant Surgery. 2 Units.**

Clinical experience in the diagnosis and treatment regarding implant surgery. A minimum of sixty clock hours per quarter (twelve quarters) required to fulfill total units.

**PERI 741. Fundamentals of Periodontics II. 2 Units.**

Reviews the various periodontitis diseases—including chronic periodontitis, aggressive periodontitis, necrotizing periodontal diseases, and periodontitis as a manifestation of systemic disease. Reviews developmental or acquired deformities and conditions, including mucogingival deformities and occlusal trauma. Reviews the clinical evaluation of the periodontal patient and introduces the diagnostic and treatment-planning process. Discusses the interactions between periodontics and other dental disciplines.

**PERI 742. Essential Periodontal Therapy Laboratory. 2 Units.**

Laboratory exercises in the proper implementation of basic periodontal therapy, such as oral hygiene instruction, periodontal charting and examination, periodontal instrumentation using curettes, scalers (both hand and ultrasonic), the sharpening of instruments; culminates in a partner prophylaxis. Prerequisite: PERI 705.

**PERI 765. Essential Periodontal Therapy. 2 Units.**

Focuses on nonsurgical periodontal therapy—including self-performed plaque control, scaling, root-planing, periodontal maintenance, local antimicrobial agents, systemic antibiotics, and host response modulation. Utilizes interactive teaching, student-directed inquiry; and introduces evidence-based decision making in the management of periodontitis patients.

**PERI 805. Periodontal Surgical Therapy. 1 Unit.**

Introduces surgical periodontal therapy and periodontal wound-healing concepts. Discusses periodontal flaps and their use in various surgical techniques. Reviews surgical management of multirrooted teeth. Reviews preprosthetic periodontal surgery. Presents laboratory exercises in application of surgical principles.

**PERI 875. Periodontics Clinic. 7.5 Units.**

Clinical practice in evaluation, diagnosis, and treatment planning of early-to-advanced periodontal disease. Practice in dental emergency diagnosis and management.

## Pharmaceutical Sciences (RXPS)

### Courses

**RXPS 511. Pharmaceutics I. 2 Units.**

The first in a series of three courses that presents the physicochemical and biological factors affecting the stability, kinetics, bioavailability, and bioequivalence of drugs in dosage forms. Applies this knowledge to dosage form design, formulation, and drug-delivery systems. Focuses on the theory, technology, formulation, evaluation, and dispensing of solid, semisolid, and liquid dosage forms. Laboratory sessions involve students in the preparation and evaluation of dosage forms.

**RXPS 512. Pharmaceutics II. 4 Units.**

Surveys conventional dosage forms—including oral, topical, and parenteral medications—with emphasis on formulation, preparation, and effectiveness. Continues RXPS 511.

**RXPS 513. Pharmaceutics III. 3 Units.**

Studies the mathematical, physicochemical, and biological principles concerned with the formulation, preparation, and effectiveness of pharmaceutical dosage forms. Continues RXPS 512. Prerequisite: RXPS 512.

**RXPS 515. Pharmaceutics Laboratory I. 0.5 Units.**

Laboratory designed for the student to apply pharmaceutical principles and to develop proficiency when compounding selected formulations and employing aseptic techniques. Prerequisite: RXPS 511. Corequisite: RXPS 512.

**RXPS 516. Pharmaceutics Laboratory II. 0.5 Units.**

Continues RXPS 515.

**RXPS 524. Physiology I. 4 Units.**

The first in a sequence of three courses. Covers the nervous, endocrine, and urinary systems. Focuses on physiological processes required for maintenance of whole-body homeostasis. Presentation of anatomical relationships and structures serves to support the physiological topics discussed. Emphasizes targets for pharmaceutical intervention and the relationship between biochemical processes and drug metabolism and action.

**RXPS 525. Physiology II. 3 Units.**

The second in a sequence of three courses. Covers the gastrointestinal, cardiovascular, and respiratory systems. Focuses on the physiological processes required for maintenance of whole-body homeostasis. Presentation of anatomical relationships and structures serves to support the physiological topics discussed. Emphasizes targets for pharmaceutical intervention and the relationship between biochemical processes and drug metabolism and action.

**RXPS 581. Biochemistry I. 3 Units.**

The first in a two-part series that addresses the structure-function relationships of major biomolecules; enzymes in biochemistry; human energy metabolism; and major pathways for human protein, carbohydrate, and lipid metabolism. Discusses important organic functional groups, nomenclature and physical properties, characteristic reactions, stereochemistry, and acid-base properties that are important considerations for drug action. Emphasizes principles of biochemistry as they relate to pH and buffers; hemostasis; enzyme functions; regulation of intermediary metabolism; chemical signaling; and interconversions in the living system, including the role of vitamins, hormones, and enzyme inhibitors. Discusses biotechnological advances, when appropriate.

**RXPS 582. Biochemistry II. 3 Units.**

The second in a two-part series that addresses the structure-function relationships of major biomolecules; enzymes in biochemistry; human energy metabolism; and major pathways for human protein, carbohydrate, and lipid metabolism. Discusses important organic functional groups, nomenclature and physical properties, characteristic reactions, stereochemistry, and acid-base properties that are important considerations for drug action. Emphasizes principles of biochemistry as they relate to pH and buffers; hemostasis; enzyme functions; regulation of intermediary metabolism; chemical signaling; and interconversions in the living system, including the role of vitamins, hormones, and enzyme inhibitors. Discusses biotechnological advances, when appropriate.

**RXPS 610. Pharmacokinetics. 4 Units.**

Teaches the basic principles of absorption, distribution, metabolism, and elimination of drugs from the body. Focuses on physical, physiological, and biochemical factors that impact these processes. Includes clinical pharmacokinetics principles and practical examples in the recitation periods. Prerequisite: Successful completion of all P1-level courses and P2; Autumn Quarter standing.

**RXPS 616. Neuropsychopharmacology. 3 Units.**

Introduces the fundamentals of neuropsychopharmacology, including the functional organization of the brain and the physiology and biochemistry of major neurotransmitters. Studies how drugs—including medications for neurologic and psychiatric disorders, as well as drugs of abuse—affect the brain and alter behavior. Discusses some of the most common brain disorders—such as schizophrenia, depression, Parkinson's disease, and drug addiction—with a focus on the mechanisms of action of drugs used for treatment of these disorders.

**RXPS 617. Natural Products in Current Therapeutics. 2 Units.**

A journal club-style course in which students lead the discussion and dialogue. Explores specific cases of natural product-derived therapeutics from the history of discovery, synthesis, and biological activity to drug development and marketing. Students perform literature searches, read and summarize journal articles, present summaries of multiple articles on a similar topic, and prepare topical presentations for the class.

**RXPS 619. Nutrition and Culinary Arts. 2 Units.**

Enhances the pharmacist's current understanding of patient care while developing new skills in basic nutrition and the culinary arts. Lecture and hands-on culinary experimentation in the School of Allied Health Profession's (SAHP) teaching kitchen, where students follow recipes and create simple and healthy meals weekly. Students define, discuss, and understand concepts such as disease reversal, lifestyle-change programs, lifestyle medicine, culinary medicine, culinary prescription, and the whole-food plant-based diets. Chronic disease states classified, research on disease reversal discussed, and strategies to improve community health examined. Students learn to distinguish and apply the importance of label reading, to integrate appropriate portion sizes, to compare and contrast nutrients in specified recipes, and to prepare healthy meals on a student budget.

**RXPS 630. Biochemical Aspects of the Obesity and Metabolic Syndrome. 2 Units.**

Explores biochemical factors related to the obesity epidemic in the United States. Emphasizes the impact of these biochemical factors on currently available pharmacotherapeutic options, as well as the development of new therapies. Focuses particularly on the role of pharmacist-guided lifestyle interventions on the treatment of obesity and metabolic syndrome. Coordinator-moderated seminar/discussion format in which students present in-depth analysis and interpretation of papers from the current scientific literature.

**RXPS 651. Principles of Medicinal Chemistry I. 3 Units.**

The first in a three-course sequence that focuses on the chemistry of drug entities. Effects of a drug's chemistry on its various properties, such as pharmacology, toxicology, absorption, distribution, metabolism, excretion, mechanism of action, drug-drug interactions, dosage form formulation(s), stability, cost, and use.

**RXPS 652. Principles of Medicinal Chemistry II. 4 Units.**

The second in a three-course sequence that focuses on the chemistry of drug entities. Effects of a drug's chemistry on its various properties, such as pharmacology, toxicology, absorption, distribution, metabolism, excretion, mechanism of action, drug-drug interactions, dosage form formulation(s), stability, cost, and use. Prerequisite: RXPS 651.

**RXPS 653. Principles of Medicinal Chemistry III. 3 Units.**

The third in a three-course sequence that focuses on the chemistry of drug entities. Effects of a drug's chemistry on its various properties, such as pharmacology, toxicology, absorption, distribution, metabolism, excretion, mechanism of action, drug-drug interactions, dosage form formulation(s), stability, cost, and use. Prerequisite: RXPS 652.

**RXPS 710. Dietary Supplements. 2 Units.**

Introduces the use of herbals and other supplements in patient health. Topics include key regulatory and practical concerns; resources for supplement information; and evidence-based use and adverse effects of commonly used supplements for CNS, digestive, reproductive, immune, fitness, and other conditions.

**RXPS 719. Nutrition and Metabolic Syndrome. 2 Units.**

Introduces the role of nutrition, including dietary supplements, in patient health. Topics include the basics of nutrition and nutritional adequacy; vegetarian diets, including the Adventist Health Study; and nutritional considerations related to metabolic syndrome.

**RXPS 730. Current Topics in Medicinal Chemistry and Drug Design. 1 Unit.**

Focuses on discovery and design of new drugs for new therapeutic targets, and on development of new approaches for treatment of diseases.

**RXPS 782. Special Topics in Pharmaceutical Sciences. 1-4 Units.**

Lecture and discussion on a current topic in pharmaceutical sciences. May be repeated for a maximum of 6 units.

**RXPS 783. Special Topics in Pharmaceutical Sciences. 1-4 Units.**

Lecture and discussion on a current topic in pharmaceutical sciences. May be repeated for a maximum of 6 units.

**RXPS 784. Special Topics in Pharmaceutical Sciences. 1-4 Units.**

Lecture and discussion on a current topic in pharmaceutical sciences. May be repeated for a maximum of 6 units.

## Pharmacology (PHRM)

### Courses

**PHRM 501. Pharmacology and Therapeutics SD. 4 Units.**

Principles of drug action: drug receptors, absorption and fate of drugs, drug toxicity, and drug development. Systematically considers the pharmacology and clinical applications of the major drugs used by dental patients. Simulations illustrating the effects of drugs in animals and man.

**PHRM 503. Clinical Pharmacology in Dentistry. 2 Units.**

Review of medications used for the treatment of common medical disorders, and their effect on the management of the dental patient—including the use of local anesthetics, antibiotics, and analgesics.

**PHRM 515. Medical Pharmacology. 6 Units.**

Supports the organ system curriculum in the sophomore year. Applies basic science knowledge learned in the organ system curriculum to the selection of optimal pharmacologic and nonpharmacologic therapy for patients. Introduces students to fundamental principles of pharmacology, including pharmacodynamics and pharmacokinetics. Emphasizes specific concepts—including drug mechanism of action, mechanism of side effects, and indications. Teaches students to integrate an understanding of these concepts with their basic science knowledge and patient-specific factors in order to appropriately select the most effective therapeutic strategies. Develops students' skills through formal didactic sessions, active learning sessions, and patient-based simulation laboratories—affording students the opportunity to engage in the practices of self-directed learning, team building, and interdisciplinary team-based patient care.

**PHRM 554. Neuropharmacology. 4 Units.**

Systematically discusses drugs that affect primarily the nervous system, with major emphasis on mechanism of action.

**PHRM 564. Cardiovascular and Renal Pharmacology. 3 Units.**

Systematically discusses drugs that affect primarily the cardiovascular and renal systems, emphasizing mechanism of action. Offered on demand.

**PHRM 584. Drug Metabolism and Biochemical Pharmacology. 4 Units.**

Discusses in detail the fate of drugs in the body, together with related aspects of biochemical actions of drugs.

**PHRM 684. Special Problems in Pharmacology. 2-6 Units.**

Assignments in literature reviews and/or laboratory exercises.

**PHRM 697. Research. 1-6 Units.****PHRM 699. Dissertation. 1-6 Units.****PHRM 891. Pharmacology Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of pharmacology, including research.

## Pharmacy Conjoint (RXRX)

### Courses

**RXRX 501. School of Pharmacy Forum. 0 Units.**

Offered each quarter throughout the four-year program. Weekly meetings to provide opportunity for presentations and discussions on current topics affecting pharmacy, health care, and students' career paths. Serves as a forum for students to network and be informed of activities and developments within the School of Pharmacy and Loma Linda University. Exposes students to leaders within the profession, reputable practitioners from various settings, top researchers, and other renowned individuals who discuss important issues, career opportunities, latest research results, and the practice of pharmacy.

**RXRX 506. Introduction to Pharmacy Leadership. 1 Unit.**

Offers academic credit for activities related to leadership development associated with the California Pharmacy Student Leadership Program. Strengthens leadership behavior. Students invited to take part in this program must register for this course and complete it as a condition of their participation. May be repeated once for a maximum of 2 units. Prerequisite: Permission of the Office of Student Affairs; PY-1 Spring Quarter professional year standing.

**RXRX 507. Professional Development. 1 Unit.**

A nine-sequence course that occurs each quarter during the PY1 through PY3 years. Emphasizes professional knowledge, skills, abilities, behaviors, and attitudes required to produce a competent, practice-ready professional; and to develop a successful career in pharmacy.

**RXRX 601. School of Pharmacy Forum. 0 Units.**

Weekly meetings provide opportunity for presentations and discussions on topics currently affecting pharmacy, health care, and students' career paths. Serves as a forum for students to network and be informed of activities and developments within the School of Pharmacy and Loma Linda University. Exposes students to leaders within the profession, reputable practitioners from various settings, top researchers, and other renowned individuals who will discuss important issues, career opportunities, latest research results, and the practice of pharmacy. Offered each quarter throughout the four-year program. Prerequisite: P2; AQ standing.

**RXRX 604. Professional Development. 1 Unit.**

A nine-sequence course that occurs each quarter during the PY1 through PY3 years. Emphasizes professional knowledge, skills, abilities, behaviors, and attitudes required to produce a competent, practice-ready professional; and to develop a successful career in pharmacy.

**RXRX 701. School of Pharmacy Forum. 0 Units.**

Required weekly meetings provide opportunity for presentations and discussions on current topics affecting pharmacy, health care, and students' career paths. Serves as a forum for students to network and be informed of activities and developments within the School of Pharmacy and Loma Linda University. Exposes students to leaders within the profession, reputable practitioners from various settings, top researchers, and other renowned individuals who will discuss important issues, career opportunities, latest research results, and the practice of pharmacy. Repeated through the third professional year. Offered each quarter throughout the four-year program.

**RXRX 704. Professional Development. 1 Unit.**

A nine-sequence course that occurs each quarter during the PY1 through PY3 years. Emphasizes professional knowledge, skills, abilities, behaviors, and attitudes required to produce a competent, practice-ready professional; and to develop a successful career in pharmacy.

**RXRX 798. Independent Study with Faculty. 1-4 Units.**

Individual student research or project directly mentored by a faculty member. Must include a half-page description of the research or project and associated budget (if any), and must specify the means of assessment of the student's achievement of the research or project requirements. Requires approval of the respective department chair and the student's faculty advisor. May be repeated to a total of 4 units toward the 9-unit elective requirement. Prerequisite: P2 standing and approval of the project by the respective department chair and the student's faculty advisor.

## Pharmacy Practice/Drug Information (RXDI)

### Courses

**RXDI 664. Drug Information and Literature Evaluation. 3 Units.**

Introduces drug information resources. Trains students to retrieve and critically evaluate literature related to providing pharmaceutical care to patients. Introduces multiple forms of drug literature, including primary, secondary, tertiary, and Internet resources. Trains students to document drug information requests and report adverse drug reactions. Discusses issues related to herbal medicine and alternative therapeutic options. Using knowledge obtained through classroom course assignments, students examine published information to answer common drug information questions.

## Pharmacy Practice/Experiential Education (RXEE)

### Courses

**RXEE 591. Introduction to Community Pharmacy Practice I. 2 Units.**

Part of a two-course sequence for practical exposure to community pharmacy practice. Student learns through practicum and reflection the basic skills required in community pharmacy practice.

**RXEE 592. Introduction to Community Pharmacy Practice II. 2 Units.**

Part of a two-course sequence for practical exposure to community pharmacy practice. Student learns basic skills required in community pharmacy practice through practicum and reflection.

**RXEE 690. Introduction to Hospital Pharmacy Practice. 2 Units.**

Exposes students to the various clinical, administrative, and distributive roles and responsibilities of a hospital pharmacist. Prerequisite: P2 standing.

**RXEE 790. Introduction to Clinical Pharmacy Practice. 2 Units.**

Exposes students to a variety of clinical pharmacy services—including ambulatory care, medicine, and a number of specialty practice areas. Prerequisite: P3 standing.

**RXEE 821. Advanced Pharmacy Practice Experience I. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

**RXEE 822. Advanced Pharmacy Practice Experience II. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

**RXEE 823. Advanced Pharmacy Practice Experience III. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

**RXEE 824. Advanced Pharmacy Practice Experience IV. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

**RXEE 825. Advanced Pharmacy Practice Experience V. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

**RXEE 826. Advanced Pharmacy Practice Experience VI. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

**RXEE 827. Advanced Pharmacy Practice Experience VII. 6 Units.**

Supervised clinical pharmacy practice experience that provides advanced pharmaceutical care skills and opportunities in a specific area of pharmacy practice.

## Pharmacy Practice/Pharmaceutical Care (RXPC)

### Courses

**RXPC 561. Pharmaceutical Care I. 4 Units.**

The first in a sequence of three courses that uses early practice experiences to expose students to career opportunities and issues currently shaping the profession. Introduces foundational concepts and attitudes—balanced with real-world observation—necessary to understand the practice of pharmaceutical care, the essence of being a professional, and the challenges of applying these ideals. Designed to instill a sense of professionalism, promote positive practice philosophies, develop relationships with practitioners, evaluate potential career paths, and foster appreciation for the lifelong-learning nature of pharmacy. Substantial organized, early practice experiences reinforce knowledge and skills taught in didactic course work and encourage reflection. Oral and written communication practice through presentations and class discussions. Students required to learn the top 200 drugs by brand and generic names, therapeutic and drug classifications, and manufacturer.

**RXPC 571. Pharmacist Guided Self-Care I. 3 Units.**

Familiarizes the student with nonprescription health care products. Emphasizes patient assessment, indicated medical conditions, pharmacology, product selection, self-administration techniques, and patient counseling/follow-up. Lecture/discussion to simulate patient encounters.

**RXPC 572. Pharmacist Guided Self-Care II. 3 Units.**

Continues RXPC 571.

**RXPC 760. Clinical Pharmacokinetics. 2 Units.**

Focuses on initiating and adjusting individualized drug dosages for selected medications based on patient demographics, organ function, concomitant medications, disease states, and measured drug-plasma levels. Addresses altered drug disposition in special patient populations, i.e., pediatrics, geriatrics, and the obese. Challenges students to critically apply mathematical modeling and clinical pharmacotherapy knowledge at higher levels of sophistication. Students apply knowledge acquired in classroom to longitudinal case study while following patients in the pharmaceutical care laboratory. Prerequisite: P3 standing.

**RXPC 761. Pharmacy Practice I. 2 Units.**

The first of three quarters of laboratory course work that familiarizes students with and educates them about major issues in contemporary pharmacy practice. Teaches the important roles of the pharmacist in drug-therapy management—including evaluating patient medication profiles, monitoring patient outcomes, patient counseling, and disease-state management. Stresses the application of appropriate communication and computer skills in conjunction with these activities. Emphasizes the role of the pharmacist as a health educator. Student gains experience in other practical situations—such as drug-administration techniques, devices, and compounding techniques.

**RXPC 762. Pharmacy Practice II. 2 Units.**

The second of three quarters of laboratory course work that familiarizes students with and educates them about major issues in contemporary pharmacy practice. Teaches the important roles of the pharmacist in drug-therapy management—including evaluating patient medication profiles, monitoring patient outcomes, patient counseling, and disease-state management. Stresses the application of appropriate communication and computer skills in conjunction with these activities. Emphasizes the role of the pharmacist as a health educator. Student gains experience in other practical situations—such as drug-administration techniques, devices, and compounding techniques.

**RXPC 763. Pharmacy Practice III. 2 Units.**

The third of three quarters of laboratory course work that familiarizes students with and educates them about major issues in contemporary pharmacy practice. Teaches the important roles of the pharmacist in drug-therapy management—including evaluating patient medication profiles, monitoring patient outcomes, patient counseling, and disease-state management. Stresses application of appropriate communication and computer skills in conjunction with these activities. Student gains experience in other practical situations—such as drug-administration techniques, devices, and compounding techniques.

## Pharmacy Practice/Therapeutics (RXTH)

### Courses

**RXTH 570. IPDM I: Introduction to Disease Management. 2.5 Units.**

Introduces students to medical terminology, physical examination, interpretation of major diagnostic tests/laboratory results, and important patient safety considerations. Familiarizes students with various disease states—such as benign prostatic hyperplasia, urinary incontinence, glaucoma, gout, osteoarthritis, and rheumatoid arthritis. Prepares students to assess patients and determine the appropriate nonpharmacologic and pharmacologic treatment options for specific conditions.

**RXTH 603. Interprofessional Dental Clinic. 2 Units.**

Provides opportunity for pharmacy and dentistry students to work and learn together in the setting of an urgent care dental facility. Students interview patients and collect data (chief complaint, medical history, medication history, etc.) pertinent to the patients' dental care. Emphasizes the collaboration of different professions to deliver health care and improve the health of patients. Develops communication skills between health care providers.

**RXTH 604. Medical Missions. 3 Units.**

Prepares students to participate in an organized, interprofessional, cross-cultural medical mission trip, health-care experience, or international health program. Includes hands-on, experiential learning that enhances competence in physical assessment. Reviews major chronic diseases encountered in select medical mission destinations, including the appropriate role for student pharmacists in diagnosis and treatment.

**RXTH 606. Antimicrobial Stewardship. 1 Unit.**

Develops an understanding of the role of the pharmacist in antimicrobials stewardship programs (ASP), as well as the process of ASP. Includes hospital practice and administrative duties associated with ASP.

**RXTH 609. Advanced Literature Evaluation. 1 Unit.**

Provides an opportunity for students to critically evaluate journal articles in a systematic format. Introduces students to the journal club format of presenting literature and learning how to assess the merit of studies with respect to design, statistical methods, and potential applications.

**RXTH 610. Introduction to Pharmacy Informatics. 1 Unit.**

Provides a foundation for understanding health information technology (HIT) and pharmacy informatics. Presents the HIT and specific informatics language that make up the infrastructure for real-world information management and health information exchange.

**RXTH 611. Introduction to Nuclear Pharmacy. 2 Units.**

Provides a brief introduction to the principles behind radiopharmaceutical application and use, and introduces various types of diagnostic and therapeutic agents that patients will experience as part of routine medical care. Students evaluate radiopharmaceuticals in depth to learn about their indications, dosages, side effects, drug interactions, and potential for pharmacist intervention. Introduces students to basic scientific principles, practice guidelines, and regulatory requirements applicable to radiopharmaceuticals and nuclear pharmacy. Discusses the diagnostic and therapeutic utility of radiopharmaceuticals. Incorporates several active learning strategies—such as case studies, group discussions, primary literature evaluation, and writing assignments—to enhance student learning.

**RXTH 614. Parenteral and Enteral Nutrition. 1.5 Unit.**

Provides a comprehensive review of malnutrition in critically ill patients, and discusses the treatment approach based on patient's medical and nutritional status and requirements. Introduces students to therapy-related complications and discusses how to prevent and manage them.



**RXTH 671. IPDM II: Fluids and Electrolytes. 2 Units.**

As part of a twelve-course integrated pharmacology and disease-state management sequence, covers the pathophysiology and management of conditions related to fluid, electrolyte, anemia, acid-base, and nutritional disorders. Discusses pharmacotherapy, dietary requirements, and sources of electrolytes. Prepares the student to manage these disorders, establish and employ rational treatment, and provide parameters to monitor progress of recommended therapies.

**RXTH 674. IPDM VI: Renal and Respiratory Diseases. 3.5 Units.**

Part of a twelve-course sequence. Includes pathophysiology, pharmacology, pharmacokinetics, pharmacotherapy, and clinical trial evidence as related to renal and respiratory diseases. Enables students to integrate their knowledge of these disciplines to manage renal and respiratory diseases by establishing and employing rational treatment and providing parameters to monitor progress of the regimens.

**RXTH 683. IPDM IV: Endocrine. 3.5 Units.**

Part of a twelve-course sequence. Introduces students to the pharmacology, pharmacokinetics, and pharmacodynamics of agents used in the treatment of endocrine and GI dysfunction; as well as management (evaluation, treatment, monitoring, and follow-up) of patients with endocrine and GI dysfunctions. Students integrate knowledge, attitudes, and skills in a variety of ways to accomplish course outcomes. Includes pathophysiology, pharmacology, pharmacokinetics, pharmacotherapy, and clinical-trial evidence as they relate to endocrine and GI drugs. Enables students to integrate their knowledge of the disciplines studied in the context of formulating an individualized pharmacotherapeutic plan for a given patient. Prerequisite: completion of all P1 and Autumn Quarter P2 courses.

**RXTH 684. IPDM III: Cardiovascular I. 3.5 Units.**

Part of a twelve-course sequence. Introduces students to the pharmacology, pharmacokinetics, and pharmacodynamics of cardiovascular agents; as well as management (evaluation, treatment, monitoring, and follow-up) of patients with common cardiovascular disorders. Students integrate knowledge, attitudes, and skills in a variety of ways to accomplish course outcomes. Includes anatomy, physiology, pharmacology, pharmacokinetics, pharmacotherapy, and clinical-trial evidence as they relate to cardiology. Enables students to integrate their knowledge of the disciplines studied in the context of formulating an individualized pharmacotherapeutic plan for a given patient. Prerequisite: P2, Spring Quarter standing.

**RXTH 685. IPDM V: Cardiovascular II. 3.5 Units.**

Part of a twelve-course sequence. Introduces students to the pharmacology, pharmacokinetics, and pharmacodynamics of agents used in the treatment of endocrine and GI dysfunction; as well as management (evaluation, treatment, monitoring, and follow-up) of patients with endocrine and GI dysfunctions. Students integrate knowledge, attitudes, and skills in a variety of ways to accomplish course outcomes. Includes pathophysiology, pharmacology, pharmacokinetics, pharmacotherapy, and clinical-trial evidence as they relate to endocrine and GI drugs. Enables students to integrate their knowledge of the disciplines studied in the context of formulating an individualized pharmacotherapeutic plan for a given patient.

**RXTH 701. Pediatrics. 3 Units.**

Introduces the core concepts involved in the care of pediatric patients and expands students' therapeutic knowledge regarding common pediatric disease states. Prepares students to identify and address common drug-related problems in pediatric patients.

**RXTH 702. Advanced Topics in Neurology and Therapeutics. 2 Units.**

Develops the knowledge and skills necessary for scientific inquiry and promotes an enduring attitude of self-learning. Elements include creative and critical thinking, literature analysis, and discussion of findings. Students assigned projects and activities. Prerequisite: RXTH 771.

**RXTH 703. Advanced Topics in Critical Care. 2 Units.**

Presents the clinical pearls of common disease states and treatments observed in critically ill patients. Builds on students' knowledge of disease states such as stroke, myocardial infarction, shock, hypertensive crisis, and electrolyte disorders from previous IPDM courses. Focuses on the treatment of critically ill patients through lectures provided by critical care experts, intensive care practice site visits, and medical simulation participation. Prepares students for clinical rotations and inpatient pharmacy practice.

**RXTH 704. IPDM XIII: Special Populations. 3 Units.**

Introduces students to the core concepts involved in the care of pediatric and geriatric patients, and expands their therapeutic knowledge regarding common pediatric and geriatric disease states. Broadens students' knowledge base of pharmacology, pharmacokinetics, and pharmacodynamics of drugs used in pediatric and geriatric populations. Includes anatomy, physiology, pharmacology, pharmacokinetics, pharmacotherapy, and clinical trial evidence as they relate to the care of pediatric and geriatric populations. Helps students integrate knowledge, attitudes, and skills in a variety of ways to accomplish the course outcomes and formulate individualized treatment plans for pediatric and geriatric patients.

**RXTH 757. Advanced Cardiovascular Life Support. 3 Units.**

Focuses on the development of skills necessary for the management of patients with acute cardiovascular emergencies.

**RXTH 770. IPDM VII: Infectious Diseases I. 3.5 Units.**

Part of an eleven-course sequence. Introduces students to the pharmacology, pharmacokinetics, and pharmacodynamics of anti-infectives; as well as management (evaluation, treatment, monitoring, and follow-up) of patients with neurological diseases. Students integrate knowledge, attitudes, and skills in a variety of ways to accomplish course outcomes. Includes anatomy, physiology, pharmacology, pharmacokinetics, pharmacotherapy and clinical trial evidence as they relate to anti-infectives. Enables students to integrate their knowledge of the disciplines in the context of formulating individualized pharmacotherapeutic plans. Prerequisite: P3, Autumn Quarter standing.

**RXTH 771. IPDM X: Neurology. 3.5 Units.**

Part of a twelve-course sequence. Introduces students to the pharmacology, pharmacokinetics, and pharmacodynamics of agents used in the treatment of endocrine and GI dysfunction; as well as management (evaluation, treatment, monitoring, and follow-up) of patients with endocrine and GI dysfunctions. Students integrate knowledge, attitudes, and skills in a variety of ways to accomplish course outcomes. Includes pathophysiology, pharmacology, pharmacokinetics, pharmacotherapy, and clinical-trial evidence as they relate to endocrine and GI drugs. Enables students to integrate their knowledge of the disciplines studied in the context of formulating an individualized pharmacotherapeutic plan for a given patient.

**RXTH 772. IPDM IX: Infectious Diseases II. 3.5 Units.**

Part of a twelve-course sequence. Introduces students to the pharmacology, pharmacokinetics, and pharmacodynamics of agents used in the treatment of endocrine and GI dysfunction; as well as management (evaluation, treatment, monitoring, and follow-up) of patients with endocrine and GI dysfunctions. Students integrate knowledge, attitudes, and skills in a variety of ways to accomplish course outcomes. Includes pathophysiology, pharmacology, pharmacokinetics, pharmacotherapy, and clinical-trial evidence as they relate to endocrine and GI drugs. Enables students to integrate their knowledge of the disciplines studied in the context of formulating an individualized pharmacotherapeutic plan for a given patient.

**RXTH 773. IPDM VIII: Psychiatry. 3.5 Units.**

Part of an eleven-course sequence. Introduces students to the pharmacology, pharmacokinetics, and pharmacodynamics of agents used in the treatment of psychiatric disease and addictions; as well as management (evaluation, treatment, monitoring, and follow-up) of patients with these conditions. Students integrate knowledge, attitudes, and skills in a variety of ways to accomplish the course outcomes. Presents pathophysiology, pharmacology, pharmacokinetics, pharmacotherapy and clinical trial evidence as they relate to the drugs used for these miscellaneous conditions. Enables students to integrate their knowledge of the disciplines in the context of formulating an individualized pharmacotherapeutic plan for a given patient. Prerequisite: P3, Autumn Quarter standing.

**RXTH 774. IPDM XII: Miscellaneous Conditions and GI Disorders. 2.5 Units.**

Part of a twelve-course sequence. Introduces students to the pharmacology, pharmacokinetics and pharmacodynamics of agents used in the treatment of gastrointestinal disorders and various other conditions—including but not limited to arthritis, gout, glaucoma, dermal conditions, incontinence, SLE, MS, and BPH; as well as management (evaluation, treatment, monitoring, and follow-up) of patients with these conditions. Students integrate knowledge, attitudes, and skills in a variety of ways to accomplish the course outcomes. Includes pathophysiology, pharmacology, pharmacokinetics, pharmacotherapy, and clinical-trial evidence as they relate to the drugs used for the conditions indicated. Enables students to integrate their knowledge of the disciplines studied in the context of formulating an individualized pharmacotherapeutic plan for a given patient. Prerequisite: P3 Spring Quarter standing.

**RXTH 775. IPDM XI: Oncology. 2.5 Units.**

As part of the twelve-course integrated pharmacology and disease-state management sequence, introduces student pharmacists to the pathophysiology, pharmacology, and therapeutic management of the common hematologic malignancies and solid tumors. Helps students understand the management of adverse side effects due to chemotherapy, as well as transplant. Provides an avenue for student pharmacists to practice critical thinking skills and clinical decision making using interactive, case-based lecturing and recitation cases.

**RXTH 782. Special Topics in Pharmacy Practice. 1-4 Units.**

Lecture and discussion on a current topic in pharmacy practice. May be repeated for a maximum of 6 units.

**RXTH 783. Special Topics in Pharmacy Practice. 1-4 Units.**

Lecture and discussion on a current topic in pharmacy practice. May be repeated for a maximum of 6 units.

**RXTH 784. Special Topics in Pharmacy Practice. 1-4 Units.**

Lecture and discussion on a current topic in pharmacy practice. May be repeated for a maximum of 6 units.

# Pharmacy/Social and Administrative Sciences (RXSA)

## Courses

**RXSA 545. Public Health and Lifestyles. 3 Units.**

Introduces the first-year pharmacy student to fundamental principles of public health and public health practice, as well as to how pharmacy practice interfaces with public health delivery in a variety of settings. Student identifies and evaluates public health education and health promotion programs, as well as identifies where the pharmacist plays a significant role in ensuring the conditions under which all peoples can be healthy. Introduces the student to the fundamentals of public health principles and practice, while examining how the pharmacist is an integral player to public health-systems delivery and practice.

**RXSA 547. Pharmacy Law. 2 Units.**

Introduces students to the most relevant federal and state laws and regulations that define legal and ethical pharmacy practice. Provides students with the tools necessary to practice pharmacy consistent with these standards. Includes lectures, discussions, small-group problem solving, assignments, and examinations.

**RXSA 600. Philippines Medical Mission Preparation. 1 Unit.**

Emphasizes preparation activities designed to orient student team members to the cultural, professional, and clinical experiences that may be encountered in the Philippines. Includes a survey of the geographical, cultural, and epidemiological history of the Batangas people, as well as a review and preparation of medications that will be dispensed during the mission. Prepares student pharmacists to describe the pharmacist's scope of practice in the medical mission, as well as provide competent pharmacy care to the local population. Develops and implements mission responsibilities, tasks, and itineraries.

**RXSA 618. Writing for Publication. 3 Units.**

Students seeking residency and positions in academic pharmacy will be required to write extensively and must possess the skills necessary to write an article worthy of publication in an academic or scholarly journal. This course is designed to teach students how to write effectively for the purpose of publication. Specific topics covered will include pre-writing exercises, basic components of articles, journal style sheets, bibliographies, citing works within a text, and writing conventions (mechanics, usage, sentence formation). Dual degree (PharmD/Bioethics) students will find this course especially useful.

**RXSA 640. Epidemiology and Biostatistics. 3 Units.**

Introduces epidemiology, basic statistical concepts, analytical methods, and medical literature-evaluation techniques. Exposes students to biostatistical concepts through clinical application of statistics, using SPSS7 or other currently available statistical packages. Prerequisite: Successful completion of all P1-level courses; P2; Autumn Quarter standing.

**RXSA 646. Principles of Management. 3 Units.**

Introduces pharmacy students to the five core managerial sciences, i.e., human resource management, operations management, marketing, accounting, and finance. Particularly emphasizes human resource management and operations management skills. Lectures incorporate real-life management cases for discussion, followed by lecture on the principles of management topics.

**RXSA 743. Health Systems, Reimbursement, and Pharmacoeconomics. 3 Units.**

Presents fundamental concepts of health outcomes research and pharmacoeconomic analysis, and provides a basic framework to optimize health care resource allocation. Discusses principles of measuring and analyzing costs and outcomes and techniques used to evaluate them across drug treatments. Includes various interactive group assignments to illustrate the methodologies discussed in lecture. Reviews current practice guidelines for pharmacoeconomic evaluation and describes "real world" contexts in which pharmacoeconomic research is conducted. Reviews the structure of the American health system and the role that pharmacists play in it. Presents and evaluates basic concepts of drug reimbursement and clinical pharmacy reimbursement for different pharmacy practice settings.

**RXSA 748. Advanced Topics in Pharmacy Law. 1 Unit.**

Exposes the student to current issues in pharmacy law and regulation both at the federal and state levels. Introduces pending legislation at both the state and federal levels. Assigned legal articles and pending legislation read and presented during class allow the student to become familiar not only with the issue(s) being presented, but also to analyze and present the issues' impact on the practice of pharmacy in general and on the student's personal practice of pharmacy.

**RXSA 750. Wall Street Journal. 1 Unit.**

Students read selected Wall Street Journal health-related articles and discuss the events that have resulted in news coverage each week in the areas of pharmaceutical/biotechnology, providers/insurance, research, policy, and medical products.

**RXSA 751. Social-Behavioral Aspects of Pharmacy Practice. 3 Units.**

Focuses on models and theories of behavior change, with particular emphasis on primary models of behavior change relative to public health, health education, preventive health, health promotion, and pharmacological practice. Combining pharmacological and public health practice, student gains a broad understanding of the various health-behavior models and theories that can be applied to assessing a patient's level of behavior change and meeting his/her needs. Students use knowledge to meet the individual needs of the patient.

**RXSA 757. Clinical Research and Methodology (CRM). 2 Units.**

Builds on the principles of biostatistics and drug information to develop the skills necessary for a practitioner to design and develop a clinical research study worthy of scholarly publication and presentation. Highly recommended for students who wish to pursue a career in managed care, pharmacy practice in an academic setting, or as a clinical coordinator in hospital settings. Offered Spring Quarter of PY3. Prerequisite: Completion of RXDI 664 and RXSA 640 with a grade of B- or better.

## Philosophy (PHIL)

### Courses

**PHIL 616. Seminar in the Philosophy of Science. 2 Units.**

Explores the meaning(s) of scientific facts, laws, and theories—with special attention to the development of scientific thought, the nature of scientific discovery, contrasting interpretations of scientific inquiry, and the ethical ramifications of scientific discovery.

## Physical Education Activity (PEAC)

### Courses

**PEAC 110. Independent Activities. 1 Unit.**

Develops an appropriate fitness/activity program in conjunction with the instructor. Develops motor skills and physical stamina in a manner that will promote lifelong involvement in physical activity.

**PEAC 128. Recreation Swimming. 1 Unit.**

Covers the mechanics of a variety of strokes, training methods, training principles, and safety through swim techniques that maximize fitness outcomes and minimize injuries. Designed to teach and apply the principles of lifetime physical fitness, utilizing the five major components of cardiorespiratory endurance, muscular strength, muscular endurance, flexibility, and body composition. Prerequisite: Students must have beginning swimming ability as determined by the instructor.

## Physical Medicine and Rehabilitation (PMRH)

### Courses

**PMRH 891. Physical Medicine and Rehabilitation Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of physical medicine and rehabilitation, including pain management and research.

## Physical Therapist Assistant (PTAS)

### Courses

**PTAS 201. Anatomy. 4 Units.**

Anatomy of the human body, with emphasis on the neuromuscular and skeletal systems, including anatomical landmarks. Basic neuroanatomy of the central nervous system.

**PTAS 203. Applied Kinesiology. 3 Units.**

Introduces functional anatomy of the musculoskeletal system. Applies biomechanics of normal and abnormal movement in the human body. Lecture and laboratory.

**PTAS 204. Applied Gait. 1 Unit.**

Introduces normal phases of gait. Identifies common gait abnormalities. Clinical application towards therapeutic exercises and gait training. Lecture and laboratory.

**PTAS 205. Introduction to Physical Therapy. 1 Unit.**

Physical therapy practice and the role of the physical therapist assistant in providing patient care. Quality assurance. Interpersonal skills. Introduces the multidisciplinary approach. Familiarizes the student with health care facilities and government agencies.

**PTAS 206. Documentation Skills. 1 Unit.**

Introduces basic abbreviations, medical terminology, chart reading, and note writing.

**PTAS 212. Physical Therapy Procedures. 3 Units.**

Principles of basic skills in the physical therapy setting. Goniometry. Sensory- and gross-muscle testing. Mobility skills in bed and wheelchair and transfer training. Gait training and activities of daily living. Body mechanics, positioning, and vital signs. Identifies architectural barriers. Teaching techniques for other health care providers, patients, and families. Wheelchair measurement and maintenance. Lecture and laboratory.

**PTAS 224. General Medicine I. 3 Units.**

Introduction to general medical conditions, including pathology and management of medical problems. Introduction to diseases of the body systems—including urinary, digestive, cardiopulmonary, nervous, endocrine, musculoskeletal systems, integumentary, and congenital; as well as childhood diseases. Theoretical principles and practice application of respiratory techniques, exercises, and postural drainage. CPR certification required before the end of the term.

**PTAS 225. Neurology. 3 Units.**

Introduces neurological conditions, including pathology and management of medical problems of stroke, head injury, Parkinson's disease, spinal cord and nerve injuries, and other conditions.

**PTAS 226. Orthopaedics I. 3 Units.**

Introduces common orthopaedic conditions, pathologies, and surgical procedures involving the peripheral joints. Introduces joint mobilization. Procedures and progression of therapeutic exercises for each specific joint covered as these exercises relate to tissue repair and healing response. Practical laboratory includes integration of treatment plans and progressions.

**PTAS 227. Therapeutic Exercise. 2 Units.**

Introduces therapeutic exercise theories and practical applications. Tissue response to range of motion, stretch, and resistive exercise. Laboratory covers practical applications of various types of exercise techniques and machines used in the clinics, and a systematic approach to therapeutic exercise progression.

**PTAS 231. Physical Therapy Modalities. 3 Units.**

Basic physical therapy modalities—including heat and cold application, hydrotherapy and massage, pool therapy, physiology and control of edema, stump wrapping, standard precautions, and chronic pain management. Lecture and laboratory.

**PTAS 234. General Medicine II. 1 Unit.**

Introduces students to and familiarizes them with equipment, lines, tubes, life-sustaining equipment, and procedures for the treatment of patients in the acute/inpatient setting. Considers various factors and reactions to medical procedures that may affect the treatment of patients in the acute care setting. Mobilization, functional mobility, exercise, and transfers within the acute care setting. Case scenarios with different situations that the physical therapist assistant may encounter in such acute care facilities as ICU, SNF, hospitals, and CCU. Identifies the roles of multidisciplinary team members managing critical care patients.

**PTAS 236. Applied Electrotherapy. 3 Units.**

Principles and techniques of electrotherapy procedures, including basic physiological effects. Indications and contraindications for specific electrotherapy modalities. Practical application and demonstration of modalities in a laboratory setting.

**PTAS 238. Wound Care. 1 Unit.**

Normal structure and function of the skin. Pathology of the skin, including problem conditions, burns, and wounds. Lecture and laboratory to include wound identification, measuring, dressing, treatments, and debridement. Model wounds used for hands-on training.

**PTAS 241. Applied Pediatrics. 2 Units.**

Normal and abnormal development, from conception to adolescence. Emphasizes developmental sequence, testing, and treatment of neurological and orthopaedic disorders. Practical laboratory.

**PTAS 243. Applied Geriatrics. 3 Units.**

Introduces various aspects of geriatric care. Wellness care and adaptation to exercise modalities. Procedures pertaining to the geriatric patient. Diagnosis and aging changes that affect function in geriatric rehabilitation.

**PTAS 244. Introduction to Athletic Training for the Physical Therapist Assistant. 1 Unit.**

Introductory study of the neuromusculoskeletal system as it applies to the athletic population. Student develops and implements a sports medicine program and participates in physical examination. Medical emergencies in the sports medicine setting, criteria for return to play, types and frequency of sport specific injuries, pregame sidelines/courtside setup, techniques of applying athletic tape to various body locations, and on-field examinations.

**PTAS 251. Orthopaedics II. 3 Units.**

Introduces common orthopaedic conditions, pathologies, and surgical procedures of the spine. Treatments, procedures, and progression of therapeutic exercises of the spine as related to tissue repair and healing response. Practical laboratory includes integration of treatment plans and progressions.

**PTAS 252. Applied Neurology. 3 Units.**

Introduces techniques to facilitate neurodevelopmental treatment, proprioceptive neuromuscular facilitation, Brunnstrom, and principles of therapeutic exercise of the cardiac patient. Practical laboratory.

**PTAS 261. Physical Therapy Practice. 1 Unit.**

Student observes evaluations, treatments, and various diagnoses; completes a resume and a state licensing application; and prepares and presents a case study and in-service. Billing procedures and third-party payors.

**PTAS 264. Applied Orthotics and Prosthetics. 2 Units.**

Introduces basic principles in the use of selected prosthetic and orthotic devices. Exposes student to various types of devices; discusses patient adjustment to devices. Examines indications and contraindications for orthotic and prosthetic use with patients seen in physical therapy. Prerequisite: PTAS 203.

**PTAS 265. Professional Seminar. 1 Unit.**

Contemporary theories and practices of physical therapy. Topics covered by faculty and guest lecturers include: sports taping, ortho taping, soft tissue, geriatric experience through affective learning, and vestibular rehabilitation. Lecture and laboratory.

**PTAS 275. Psychosocial Aspects of Health. 2 Units.**

Psychological and sociological reactions to illness or disability. Includes trauma, surgery, and congenital and terminal illness. Individual and family considerations.

**PTAS 293. Physical Therapist Assistant Clinical Experience I. 6 Units.**

One six-week assignment to be completed during the Spring Quarter. Students exposed to a variety of clinical settings. Forty clock hours per week of supervised clinical experience. Combined total of eighteen weeks—including PTAS 293, 294, 295—of clinical experience prepares the student for entry-level performance.

**PTAS 294. Physical Therapist Assistant Clinical Experience II. 6 Units.**

One six-week assignment to be completed during the Summer Quarter. Students exposed to a variety of clinical settings. Forty clock hours per week of supervised clinical experience. Combined total of eighteen weeks—including PTAS 293, 294, 295—of clinical experience prepares the student for entry-level performance.

**PTAS 295. Physical Therapist Assistant Clinical Experience III. 6 Units.**

The terminal, six-week assignment completed during the final quarter of the program. Exposes students to a variety of clinical settings. Forty clock hours per week of supervised clinical experience. The combined total of eighteen weeks—including PTAS 293, 294, 295—of clinical experience prepares the student for entry-level performance.

## Physical Therapy (PHTH)

### Courses

**PHTH 501. Neurology I. 2 Units.**

Physical therapy management of individuals with balance and vestibular disorders resulting in impairments, functional limitations, and disabilities. Emphasizes the application and integration of theoretical constructs, evidence-based practice, examination, evaluation, diagnosis, prognosis, intervention, and outcomes measurement.

**PHTH 502. Neurology II. 3 Units.**

Physical therapy management of individuals with neurological disorders (including stroke, traumatic brain injury, multiple sclerosis, Parkinson's disease, Guillain-Barre syndrome, and amyotrophic lateral sclerosis) resulting in impairments, functional limitations, and disabilities. Emphasizes the application and integration of theoretical constructs, evidence-based practice, examination, evaluation, diagnosis, prognosis, intervention, and outcomes measurement.

**PHTH 503. Neurology III. 3 Units.**

Physical therapy management of individuals with spinal cord injury and amputations resulting in impairments, functional limitations, and disabilities. Emphasizes the application and integration of theoretical constructs, evidenced-based practice, examination, evaluation, diagnosis, prognosis, intervention, and outcomes measurement.

**PHTH 506. Exercise Physiology. 3 Units.**

Increases knowledge and understanding of human physiology and the adaptations that occur during exercise; as well as understanding of how the body responds to acute and chronic exercise during physical therapy intervention. Emphasizes metabolic systems; as well as circulatory, respiratory, and neuromuscular responses to the physical stress of exercise. Stresses understanding of body fat analysis and the risk of disease in the client when obesity is present. Increases understanding of the interactions of metabolism, circulation, and structural adaptations in response to exercise and training when therapeutic interventions are needed. Applies tests and measures to concepts, along with applications of exercise prescriptions.

**PHTH 508. PT Communication and Documentation. 2 Units.**

Introduces principles and dynamics of professional communication. Emphasizes basic skills needed in a clinical setting, including but not limited to the following: evaluations, progress notes, discharge summary, workers compensation, prescriptions, patient interviews, letters of justification, electric formats, and legal considerations related to all aspects of the above.

**PHTH 509. Physical Therapy Modalities. 3 Units.**

Introduces fundamental principles, physiological effects, and application techniques in the use of physical therapy modalities. Physical agents—including thermotherapy, cryotherapy, ultrasound, and electrotherapy procedures. Manual modalities—including basic massage techniques, myofascial and trigger point release. Lecture and laboratory.

**PHTH 510. Kinesiology. 3 Units.**

Functional anatomy of the musculoskeletal system. Analyzes and applies the biomechanics of normal and pathological movement of the human body. Includes introduction to palpatory techniques for bone, ligament, and muscle. Lecture and laboratory.

**PHTH 511. Clinical Orthopaedics. 2 Units.**

Presents the basis for the physical therapist's management of patients with functional impairments stemming from orthopaedic pathologies associated with all body regions. Introduces and considers the components of patient/client management—including examination, evaluation, diagnosis, prognosis, intervention, and outcomes. Includes lectures by orthopaedic surgeons emphasizing postoperative rehabilitation to enhance understanding of surgical procedures utilized in the management of the orthopaedic patient.

**PHTH 512. Clinical Psychiatry. 2 Units.**

Introduces mental and personality disorders. Reviews abnormal behaviors commonly found in a clinical setting.

**PHTH 513. Therapeutic Procedures. 3 Units.**

Blood pressure determination and aseptic techniques. Principles and utilization of posture and body mechanics. Selection and use of wheelchairs, ambulation aids, and other equipment. Progressive planning toward complete activities of daily living.

**PHTH 514. Manual Muscle Testing. 3 Units.**

Methods of evaluating muscle strength and function using specific and gross manual muscle tests. Integrates manual muscle testing with other aspects of patient care. Live patient demonstrations and discussion regarding each patient. Lecture, demonstration, and laboratory.

**PHTH 517. Movement Science. 2 Units.**

An integrative approach to movement impairment and neuromuscular approaches in the evaluation and management of musculoskeletal pain syndromes. Identifies clinical reasoning and examination of movement patterns. Extensive laboratory practice with patient/case studies.

**PHTH 518. Aspects of Health Promotion. 2 Units.**

Dynamics of physical therapy involvement in health promotion for the individual and the community. Factors in the promotion of a healthful lifestyle, including cardiovascular enhancement, stress reduction and coping mechanisms, nutritional awareness, weight management, and substance control. Students design and implement community-based health education program.

**PHTH 519. Locomotion Studies. 3 Units.**

Develops competencies in the identification and evaluation of normal and abnormal gait patterns, progressing to development of treatment programs. Includes physical therapy management of prosthetic and orthotic devices and their assistance with gait.

**PHTH 521A. Orthopaedics 1A. 3 Units.**

Discusses physical therapy examination, evaluation, and interventions relevant to the clinical management of musculoskeletal conditions of the upper extremities. Presents instruction related to orthopaedic physical therapy interventions—including joint mobilization, hand splinting, and other selected manual techniques for specific upper extremity musculoskeletal conditions. Utilizes lecture, laboratory, and case studies to develop and integrate these concepts.

**PHTH 521B. Orthopaedics 1B. 3 Units.**

Students further develop concepts of examination, differential diagnosis, prognosis, and interventions that are expanded to patients with musculoskeletal conditions of the lower extremities. Utilizes lecture, laboratory, and case studies to develop and integrate these concepts.

**PHTH 522. Orthopaedics II. 3 Units.**

Evidence-based theory of spinal examination, evaluation, and physical therapy intervention. Expanded principles of functional anatomy, tissue and joint biomechanics, pathology, and treatment. Differentiates causes of neck and head pain—including temporomandibular joint disorders, myofascial pain dysfunctions, and cervicogenic headaches.

**PHTH 523. Orthopaedics III. 3 Units.**

Evidence-based theory of lumbopelvic, lumbar and thoracic spine examination, evaluation, and physical therapy intervention. Expanded principles of functional anatomy, tissue and joint biomechanics, pathology, and treatment. Differentiates etiology of lumbar, lumbopelvic, and thoracic pain.

**PHTH 525. General Medicine. 3 Units.**

An understanding of medical and surgical disorders for the physical therapist. Basic pathology and/or etiology and clinical manifestations. Medical treatment for conditions within selected specialties of: endocrinology, arthritis, oncology, and integumentary management.

**PHTH 526A. Cardiopulmonary I. 2 Units.**

Identifies and explains anatomy and physiology of the cardiovascular system as it applies to physical therapy patient management. Discusses the medical and PT management of patients diagnosed with various cardiac diseases and complications. Identifies the disease process—including definition, etiology, pathophysiology, clinical presentation and clinical course of CHF, ischemic heart disease and acute coronary syndrome, and various cardiovascular diseases. Analyzes and examines ECGs of various forms, with basic interpretation. Demonstrates and provides rationale for utilization of various examination techniques for patients with heart disease in an effort to establish a PT diagnosis, prognosis, and plan of care. Identifies the goals and outcomes of cardiovascular rehabilitation. includes lecture and laboratory.

**PHTH 526B. Cardiopulmonary II. 2 Units.**

Student identifies and explains the normal anatomy and physiology of the pulmonary system as it applies to physical therapy management; discusses medical and PT management of patients diagnosed with various pulmonary diseases and complications; and analyzes arterial blood gases in a systematic manner, showing how they relate to disease and ventilatory processes. Student discusses and demonstrates understanding of pulmonary function test for obstructive and restrictive diseases; demonstrates and provides rationale for utilization of various examination techniques for patients with pulmonary disease in an effort to establish a PT diagnosis, prognosis, and plan of care; and identifies the goals and outcomes of pulmonary rehabilitation. Lecture and laboratory included.

**PHTH 527. Scientific Foundations for Therapeutic Exercise. 2 Units.**

Analyzes physical, mechanical, and soft-tissue biomechanical considerations in the formulation of exercise prescriptions. Considers the neurophysiological basis of motor control and motor learning acquisition. Selects exercise modes and dosage for treatment of patients with musculoskeletal and neurological disorders and for the nonpathological individual.

**PHTH 528. Therapeutic Exercise I. 2 Units.**

Introduces the principles and foundational concepts of therapeutic exercise. Includes passive ROM, stretching exercises, resistance training, aerobic conditioning, and aquatic rehabilitation. Introduces the Nagi and ICF disablement models to assist the student in selecting appropriate therapeutic exercise. Lecture and laboratory.

**PHTH 530. Therapeutic Exercise II. 3 Units.**

Expands the concepts learned in PHTH 528 Therapeutic Exercise I. Students learn to formulate and implement exercise prescriptions based on impairments and protocols. Uses case studies to design treatment progressions for the extremities. Emphasizes spinal stabilization approaches for the axial skeleton. Lecture and laboratory.

**PHTH 532. Biostatistics I. 2 Units.**

Fundamental procedures of analyzing and interpreting data. Sampling, probability, descriptive statistics, normal distribution, sampling distributions and standard error, confidence intervals and hypothesis testing, power, effect size. Introduction to epidemiological measures to estimate risk and select measures of clinical improvement.

**PHTH 534. Soft Tissue Techniques. 2 Units.**

Physical therapy evaluation and treatment-planning strategies for individuals with orthopedic dysfunction primarily related to soft tissue injury resulting in pathology, impairments, functional limitations, and disabilities. Emphasizes laboratory hands-on application and integration of theoretical constructs, evidenced-based practice, examination, evaluation, intervention, and measurement of outcomes.

**PHTH 540. Concepts of Acute Care. 2 Units.**

Comprehensively familiarizes students with the various procedures, equipment, lines and tubes, treatment, and other factors involved in treating adult and pediatric patients in the acute care setting. Includes case studies utilizing various medications and reactions that the physical therapist may encounter during treatments in acute care. Covers such settings as ICU, NICU, and CCU using the most current research on mobilization and improving function. identifies the roles of multidisciplinary team members managing critical care patients.

**PHTH 555. Differential Diagnosis. 2 Units.**

Emphasizes information gathering from history taking, review of systems, and directed questioning, combined with a focused examination to establish a working diagnosis. Uses a hypothetico-deduction strategy to minimize misdiagnosis and teach problem solving—helping students develop a working list of all possible causes of symptoms, including those from mechanical and visceral origins. Emphasizes clinical pattern recognition for both musculoskeletal and nonmusculoskeletal disorders. Teaches strategies to differentiate between musculoskeletal and nonmusculoskeletal disorders. Highlights knowledge and skills related to screening for medical pathology in patients with musculoskeletal complaints of the lumbar spine, pelvis, lower extremities, thoracic spine, shoulder girdle, and upper extremities.

**PHTH 557. Life Span Studies I: Infant through Adolescent. 3 Units.**

Sequential human development from neonate through adolescence, as applied to normal and abnormal neurological development. Includes concepts of prenatal and postnatal care, delivery, and neonatal assessment; developmental theories, infant reflex testing, and developmental milestones of the infant, toddler, child, and adolescent. Incorporates the interrelationship of the physical, perceptual, and motor components in treatment of the neurologically disabled patient.

**PHTH 558. Life Span Studies II: Developmental Disabilities. 3 Units.**

Discussion and demonstration of physical therapy diagnosis, assessment, and case management of clients with developmental disabilities—such as cerebral palsy, spina bifida, muscular dystrophy, and various other developmental disorders. Includes presentation and demonstration of pediatric NDT, sensory integration, spasticity management, and adaptive equipment options; as well as writing realistic, measurable objectives. Includes laboratory demonstrations.

**PHTH 559. Life Span Studies III: Geriatrics. 2 Units.**

Overview of the normal and pathological changes seen during the aging process as related to physical therapy. Includes theories and demographics of aging, physiological and psychosocial changes, principles of geriatric rehabilitation, pharmacology, orthopedic considerations, fall risk and fall prevention.

**PHTH 561. Physical Therapy Administration. 4 Units.**

Principles of organization and administration in health-care delivery. Multidisciplinary approach to patient management and patient-therapist relations. Administration of physical therapy services. Professionalism, medicolegal considerations, supervision and training of support personnel. Departmental design and budgetary considerations.

**PHTH 563. Scientific Inquiry I. 2 Units.**

Uses a team-based learning approach to introduce students to research terminology, methodology, and skills needed to participate in evidence-based physical therapy practice. Employs practical readiness assurance tests, team application exercises, and group discussions to provide students an opportunity to immediately apply concepts of research methodology. Includes development of research questions, hypotheses, study designs, sampling techniques, study variables, and measurement; as well as reliability, validity, and statistics in the analysis of research literature and evidence.

**PHTH 564A. Scientific Inquiry IIA. 1 Unit.**

Provides students experience in the search, application, and integration of evidence to guide physical therapy practice, commonly known as evidence-based physical therapy practice (EBPTP). Students develop searchable questions, determine and use appropriate databases for searching the best evidence, critically appraise evidence, integrate evidence into practice, and evaluate effectiveness of evidence in preparation for writing a systematic review.

**PHTH 564B. Scientific Inquiry IIB. 1 Unit.**

Students submit a written systematic review of the evidence gathered and appraised in PHTH 564 Scientific Inquiry II – A. The evidence-based physical therapy practice experience culminates in a formal oral presentation of the findings to an audience of faculty and peers.

**PHTH 567. Pain Science. 2 Units.**

Integrates conceptual frameworks pertinent to the clinical transitioning from acute to chronic pain. Presents functional connectivity brain patterns related to various "pain signatures" of the brain. Reviews functional MRI pain research as it relates to clinical presentations of acute pain, chronic pain, neuropathic pain, and pain-prone personality disorders. Utilizes a proposed classification system for identifying chronic pain patients and introduces counseling management strategies intended to match the particular chronic pain group. Integrates clinical reasoning throughout the entire course, allowing students to draw upon clinical reasoning skills to help navigate management of the patient with acute and chronic pain.

**PHTH 571. Physical Therapy Practicum I. 1 Unit.**

A two-week (40 hours/week), supervised clinical experience for Doctor of Physical Therapy (D.P.T.) students done in an affiliated clinic. Introduces students to a variety of physical therapy practice settings and allows them to begin applying and utilizing physical therapy clinical and professional skills learned during the first year of the D.P.T. curriculum.

**PHTH 572. Physical Therapy Practicum II. 2 Units.**

A four-week (40 hours/week), supervised clinical experience for Doctor of Physical Therapy (D.P.T.) students done in an affiliated clinic at the end of the second year of the D.P.T. curriculum. Promotes integration of the physical therapist education curriculum into clinical practice; and allows students to apply knowledge and skills learned in areas of orthopedics, neurology, and general medicine to direct patient/client management in a clinical setting.

**PHTH 573. Physical Therapy Practicum III. 1.5 Unit.**

A three-week, full-time (forty hours/week) clinical education assignment done in an affiliated clinic, with an emphasis in any of a variety of settings: acute care, outpatient care, neurorehabilitation, orthopaedics, geriatrics, pediatrics, sports medicine, and preventive care/wellness, etc. The third of three practicums required, scheduled at the beginning of the Summer Quarter of the third academic year. Full-time supervision by a licensed physical therapist required. Activities include direct patient care, team conferences, demonstrations, special assignments, and observation.

**PHTH 575. Orthopaedics IV. 1 Unit.**

A three-quarter course that integrates examination procedures taught in the orthopaedic curriculum. Culminates in a comprehensive laboratory practical that includes the five elements of patient/client management, as described in the Guide to Physical Therapy Practice: examination, evaluation, diagnosis, prognosis, and intervention.

**PHTH 701A. Physical Therapy Affiliation IA. 4 Units.**

Seven-week clinical assignment to be completed during the third year in affiliated clinical settings. Emphasizes a variety of clinical settings: acute care, rehabilitation, orthopaedics, geriatrics, and pediatrics. Forty clock hours per week of supervised clinical experience, program integrative special assignments, in-services, lectures, demonstrations, and conferences. Student's overall performance facilitated and assessed by the academic coordinators of clinical education, with input and feedback received from clinical instructors who provide direct instruction and documented feedback utilizing a standardized assessment tool. Student receives a grade for Affiliation IA upon completion of Affiliation IB (PHTH 701B).

**PHTH 701B. Physical Therapy Affiliation IB. 1 Unit.**

Three-week clinical assignment to be completed during the third year in affiliated clinical settings. Completes PT Affiliation IA without interruption in the clinical schedule. Emphasizes a variety of clinical settings: acute care, rehabilitation, orthopaedics, geriatrics, and pediatrics. Forty clock hours per week of supervised clinical experience, program integrative special assignments, in-services, lectures, demonstrations, and conferences. Student's overall performance is facilitated and assessed by the academic coordinators of clinical education, with input and feedback by the clinical instructors who provide direct instruction and documented feedback utilizing a standardized assessment tool. Student receives grade for Affiliation IA and IB upon completion of Affiliation IB.

**PHTH 702. Physical Therapy Affiliation II. 5 Units.**

Eleven-week clinical assignment to be completed during the third year in affiliated clinical settings. Emphasizes a variety of clinical settings: acute care, rehabilitation, orthopaedics, geriatrics, and pediatrics. Forty clock hours per week of supervised clinical experience, program integrative special assignments, in-services, lectures, demonstrations, and conferences. Student's overall performance facilitated and assessed by the academic coordinators of clinical education, with input and feedback from clinical coordinators who provide direct instruction and provide feedback utilizing a standardized assessment tool. Expectation for clinical performance higher than expected for PHTH 701A and B. Students must satisfactorily complete PHTH 701 A and B before proceeding to PHTH 702.

**PHTH 703. Physical Therapy Affiliation III. 5 Units.**

Nine-to-ten-week clinical assignment to be completed during the third year in affiliated clinical settings. Emphasizes a variety of clinical settings: acute care, rehabilitation, orthopaedics, geriatrics, and pediatrics. Forty clock hours per week of supervised clinical experience, program integrative special assignments, in-services, lectures, demonstrations, and conferences. Student's overall performance is facilitated and assessed by the academic coordinators of clinical education, with input and feedback received from clinical coordinators who provide direct instruction and provide documented feedback utilizing a standardized assessment tool. Expectation for clinical performance is higher than expected for PHTH 703. Students must satisfactorily complete PHTH 702 before proceeding to PHTH 703.

**PHTH 731. Advanced Orthopaedic Studies. 3 Units.**

Specialty track that provides opportunity to pursue, in greater depth, various topics related to current trends in orthopaedic physical therapy; and to develop advanced clinical skills, where appropriate.

**PHTH 732. Advanced Neurologic Studies. 3 Units.**

Specialty track that provides opportunity to pursue, in greater depth, various topics related to current trends in neurologic physical therapy; and to develop advanced clinical skills, where appropriate.

**PHTH 733. Advanced General Medicine Studies. 3 Units.**

Specialty track that provides opportunity to pursue, in greater depth, various topics related to current trends in general medicine physical therapy; and to develop advanced clinical skills, where appropriate.

**PHTH 736. Residency Level Clinical Experience. 1 Unit.**

Clinical mentorship under the supervision of a master clinician. Didactic instruction that draws upon a variety of strategies, including case reviews, 1:1 patient mentoring, experiential video analysis and feedback, activities that involve scientific inquiry, and interpretation of the literature and/or clinical experiences.

## Physical Therapy – Graduate (PTGR)

### Courses

**PTGR 500. Integrative Approach to Early Rehabilitation. 3 Units.**

Advanced study in acute and subacute rehabilitation as it applies to the early intervention of physical therapy. Emphasizes wound care management and treatment; cardiopulmonary assessment and treatment; ECG interpretation; and the evaluation process for acute rehabilitation, including spinal cord injury and stroke. Reviews comprehensive team approach, with utilization of neuropsychology and case management.

**PTGR 501. Advanced Orthopaedic Specialty Tracks I. 3 Units.**

Presents the newest clinical treatment applications over the spectrum of the patient population in the field of orthopaedic physical therapy. Emphasis on the cervicothoracic spine and the shoulder girdle.

**PTGR 502. Advanced Orthopaedic Specialty Tracks II. 3 Units.**

Presents the newest clinical treatment applications over the spectrum of the patient population in the field of orthopaedic physical therapy. Emphasizes the thoracolumbar and the lumbopelvic regions.

**PTGR 503. Medical Documentation and Billing. 3 Units.**

Expands on basic principles of medical documentation and communication. Emphasizes expanded skills needed in the clinical setting, including but not limited to the following: documentation following Medicare guidelines and the Guide to Physical Therapy Practice, justification of care using measurable objective data, home health episodic payment, billing and reimbursement, workers compensation, interdisciplinary communication, medical dictation, and electronic medical records and documentation as they relate to physical therapy.

**PTGR 504. Science and Biomechanics of the Fascia and the Art of Myofascial Release. 3 Units.**

Bridges the science and art of myofascial release to learn clinically and anatomically based approaches to myofascial release. Focuses on how the fascia and muscle create dysfunction in the human body and increase stress to the system, leading to the occurrence of symptoms encountered clinically in the form of common musculoskeletal pathologies.

**PTGR 505. Orthopaedic Intervention: Regional Interdependency of the Cervical Spine & Upper Extremities. 3 Units.**

Advanced study of the management of orthopaedic disorders of the upper extremities, with emphasis on regional interdependency. Includes biomechanics, examination, and intervention relevant to the clinical management of the cervical spine and shoulder complexes, emphasizing refinement of the cervico-thoracic spine and upper-quarter screen and evaluation. Clinical course that strengthens student's knowledge and application of assessment and treatment. Lecture, laboratory sessions, active learning, and case studies.

**PTGR 506. Soft-Tissue Mobilization. 3 Units.**

Helps practicing physical therapy clinicians optimize skills and refine selection of the most effective soft-tissue mobilization techniques to maximize specific musculoskeletal functional outcomes. Students learn new techniques and refine and master previously learned techniques through lecture, demonstration, practical examinations, and hand-on techniques.

**PTGR 507. Advanced Pediatric Clinical Practice. 3 Units.**

Physical therapy management of the pediatric patient. Emphasizes observation and analysis of typical development, common movement dysfunctions, and evidenced-based interventions and treatment techniques for the developmentally delayed child.

**PTGR 508. Current Topics in Neurological Rehabilitation. 3 Units.**

Presents evidence-based physical therapy treatment applications topics for neurologically impaired patients throughout their lives. Integrates evaluation and treatment of various neurological topics, including acquired brain injury, stroke, spinal cord injury, vestibular disorders, diabetic neuropathies and amputations. Emphasizes the role of the physical therapist in designing treatment plans, integrating family training, and maximizing independence using the International Classification of Functioning, Disability and Health (ICF) model. Teaches integration of various treatment philosophies and techniques and how they apply to patients as they age and navigate the health system.



**PTGR 509. Function-Based Rehabilitation. 3 Units.**

Evidenced-based course that covers physical therapy practice relevant to adult neurological rehabilitation. Emphasizes NDT, motor learning, and clinical decision making. Exposes students to material through problem-based learning, literature review, lecture, discussion, and intensive hands-on sessions focused on mastery of manual therapy application.

**PTGR 510. Neurologic Upper Extremity Management. 3 Units.**

Evidenced-based course that covers physical therapy practice relevant to adult neurological rehabilitation. Emphasizes a PNF perspective with a focus on clinical decision making. Exposes students to material through problem-based learning, literature review, lecture, discussion, and intensive laboratory sessions focused on mastery of manual therapy application.

**PTGR 511. Advanced Clinical Practice I: Orthopaedic Rehabilitation. 3 Units.**

Student demonstrates and practices advanced examination, assessment, and treatment of the lumbar spine, pelvic girdle, and lower extremities. Lecture and demonstration.

**PTGR 512. Advanced Clinical Practice II. 3 Units.**

Physical therapy management of individuals with vestibular disorders resulting in dizziness and postural instability. Emphasizes application and integration of theoretical constructs, evidenced-based practice, examination, evaluation, diagnosis, prognosis, intervention, and outcomes measurement. Learner-centered pedagogy requiring considerable weekly preclass preparation.

**PTGR 513. Advanced Clinical Practice III. 3 Units.**

Advanced clinical decision-making skills, with focus on patient classification, clinical-diagnosis practice parameters, and practice guidelines. Emphasizes development of clinical algorithms, clinical prognostic skills, and outcome measures.

**PTGR 514. Professional Systems in Management I. 3 Units.**

Administering the academic department: personnel selection, development, and evaluation; finance; team development; and leadership theories.

**PTGR 515. Cardiopulmonary Approaches to Assessment, Wellness, and Disease. 3 Units.**

Review of pathology, etiology, and clinical manifestations of cardiopulmonary disorders commonly encountered by the physical therapist. ECG interpretation and assessment. Practical strategies in the management of patients/clients at risk for chronic vascular disease. Comprehensive overview of the epidemiology, risk factor identification, assessment, and intervention to remediate or ameliorate risk and negative health effects of metabolic syndrome. Emphasizes evidence-based research to guide the development of assessment, prevention, and intervention strategies.

**PTGR 516. Movement Science of the Upper Quarter. 3 Units.**

Presents theories, research, and clinical applications related to the pathomechanics of spine and upper extremity injuries. Utilizes clinical reasoning and evidence-based practice to support the role of muscular imbalance in the pathogenesis of common orthopaedic disorders of the upper quarter. Provides an understanding of how faulty biomechanics can contribute to spine and upper extremity injuries. Provides a foundation to assist in the diagnosis of movement-related impairments. Supervises students in hands-on laboratory sessions to teach analysis of normal and abnormal movement patterns of the upper quarter. Provides laboratory time to develop skills needed to perform a thorough evaluation of movement dysfunction, focusing on the upper quarter. Assists in the development and design of specific interventions aimed at changing movement dysfunctions of the upper quarter.

**PTGR 517. Movement Science: Lower Quarter Biomechanical Relationships. 3 Units.**

Presents theories, research, and clinical applications related to the pathomechanics of lumbar spine and lower extremity injuries. Utilizes clinical reasoning and evidence-based practice to support the role of muscular imbalance in the pathogenesis of common orthopaedic disorders of the lower quarter. Provides an understanding of how faulty biomechanics can contribute to lumbar spine and lower extremity injuries. Provides a foundation to assist in the diagnosis of movement-related impairments. Supervises students in hands-on laboratory sessions to teach analysis of normal and abnormal movement patterns of the lower quarter. Provides laboratory time to develop skills needed to perform a thorough evaluation of movement dysfunction focusing on the lower quarter. Assists in the development and design of specific interventions aimed at changing movement dysfunctions of the lower quarter.

**PTGR 518. Topics in Rehabilitation. 1-6 Units.**

Lecture and discussion of current topics relating to the practice of physical therapy. Content varies from quarter to quarter. (May be repeated for additional credit for a maximum 6 quarter units.)

**PTGR 519. Home Health Physical Therapy for the Post-Acute Patient. 3 Units.**

An in-depth course for physical therapy students interested in the home health setting. Special emphasis on Medicare guidelines and the requirements necessary to excel in this progressive and growing setting.

**PTGR 520. Cervical Spine. 3 Units.**

Expands and applies the framework for examination and intervention to patients with musculoskeletal conditions of the cervical spine. Presents knowledge and skills—evidence-based and best practice; and the format for evaluation and treatment of a patient using advanced orthopedic skills for the cervical spine. Differentiates clinical conditions and enhances clinical decision making—thus helping the student integrate manual therapy into a patient's plan of care. Links clinical practice guidelines to the International Classification of Functioning, Disability, and Health. Emphasizes clinical guidelines for impairment and function-based diagnosis, examination, and intervention.

**PTGR 521. Lumbar Spine. 3 Units.**

Expands and applies the framework for examination and intervention to patients with musculoskeletal conditions of the lumbar spine. Presents knowledge and skills—evidence based and best practice; and the format for evaluation and treatment of a patient using advanced orthopedic skills for the lumbar spine. Differentiates clinical conditions and enhances clinical decision making—thus helping the student integrate manual therapy into a patient's plan of care. Links clinical practice guidelines to the International Classification of Functioning, Disability, and Health. Emphasizes clinical guidelines for impairment and function-based diagnosis, examination, and intervention.

**PTGR 522. Assessment and Management of the Knee. 3 Units.**

Expands and applies the framework for examination and intervention to patients with musculoskeletal conditions of the knee. Presents knowledge and skills—evidence based and best practice; and the format for evaluation and treatment of a patient, using advanced orthopedic skills for the knee—including tibiofemoral and patellofemoral joints. Differentiates clinical conditions and enhances clinical decision making—thus helping the student integrate manual therapy into a patient's plan of care. Links clinical practice guidelines to the International Classification of Functioning, Disability, and Health. Emphasizes clinical guidelines for impairment and function-based diagnosis, examination, and intervention.

**PTGR 523. Advanced Neurological Rehabilitation. 3 Units.**

Studies in-depth the patient with spinal cord injury, including etiology, current treatment techniques in acute and outpatient settings, and principles of exercise physiology. Reviews research activities with regard to a cure for spinal cord injury, as well as the legal aspects of ADA and the individual with a spinal cord injury.

**PTGR 524. Women's Health Issues I. 3 Units.**

Clinical aspects of women's health issues. How to develop a women's health program in the clinical setting. Introduces various pathologies and treatment strategies for specific diagnoses that could be encountered in the clinical setting. Women's health during adolescence, the reproductive years, and the geriatric years.

**PTGR 525. Women's Health Issues II. 3 Units.**

Advanced course further exploring women's health issues—including treatment strategies for women during various phases of their lives. Anatomy and physiology during adolescence, the reproductive years, and the geriatric years.

**PTGR 526. Health-related Quality of Life and Health Satisfaction in Health Care. 3 Units.**

Involves students in the incorporation of Loma Linda University's motto, "To make man whole," as a critical aspect of improving quality of life. Emphasizes ways to improve quality of life in aging and disabled populations. Uses quality-of-life and health-satisfaction instruments and outcomes to inform students' decision making and patient care across the life span and as an indicator of successful aging. Students develop a quality-of-life intervention program.

**PTGR 527. Skilled Nursing Facility Physical Therapy Practice, Interventions and Outcomes. 3 Units.**

An advanced-level course that helps the physical therapist understand and thrive in the skilled nursing clinical setting. Topics include Medicare, Medicaid/Medi-Cal, and private insurance billing and regulations; resource utilization groups (RUGs); common patient populations; treatment strategies; and outcome measurements. Discusses and integrates evidence-based practice into all aspects of the skilled nursing facility stay to maximize outcomes, compliance, and patient satisfaction. Exposes students to material through literature review, lecture, discussion, case studies, and hands-on sessions.

**PTGR 528. Residency Level Advanced Seminars. 1 Unit.**

Didactic instruction that facilitates students' ability to accurately interpret emerging evidence and contextually apply these principles to a variety of physical therapy conditions by drawing upon a variety of strategies, including traditional classroom instruction, group activities and projects, case presentations, live demonstrations, case-based problem-solving sessions, and role-play activities. Prepares students for specialization in their respective field of clinical interest, and prepares residents to meet the requirements for certification by the American Board of Physical Therapy Specialists.

**PTGR 531. Advanced Orthopaedic Procedures I. 3 Units.**

Student demonstrates and practices advanced examination and treatment of the lumbar spine, pelvic girdle, and lower extremities.

**PTGR 532. Advanced Orthopaedic Procedures II. 3 Units.**

Student demonstrates and practices advanced examination and treatment of the cervical spine, shoulder girdle, and upper extremities.

**PTGR 533. Advanced Orthopaedic Procedures III. 3 Units.**

Student demonstrates and practices advanced examination and treatment of the lumbar spine, thoracic spine, and rib cage.

**PTGR 550. Introduction to Psychoneuroimmunology: The Science of Whole Person Care. 3 Units.**

Studies the effect of the neurological system on physical health, with a focus on psychoneuroimmunology. Summarizes scientific disciplines that study brain, immune system, and health behavior interactions that provide the health-care professional with an integrative understanding of lifestyle, whole person care for immune system function, and wellness.

**PTGR 551. Clinical Translation of Pain Science. 3 Units.**

Provides a clinically translational understanding of pain science, as well as insight into unraveling the mysteries of the silent epidemic of chronic pain. Introduces the neurobiology of pain and the variety of pain mechanisms that affect an average of 77 million patients each year. Explores the psychology and cognitive aspects of pain and how to measure and assess important aspects that contribute to the chronic pain problem. Incorporates a special topic on neuropathic pain and its contribution to the silent pain epidemic as a vehicle to help understand the "centralized pain" component and cognitive behavioral therapies. Discusses pharmacology and its role in the treatment of pain. Introduces basic concepts that help "retrain the brain" in a variety of patients suffering acute pain, while preventing the progression to chronic pain.

**PTGR 552. Pain Science: Interactions of the Brain and Body. 3 Units.**

Provides an organized framework to enhance understanding of the underpinnings behind the transition from acute to chronic pain states. Presents a comprehensive understanding of the differences between peripheral neurogenic, central, and somatic pain mechanisms. Provides a foundation to help with the clinical decision-making process in the management of patients with acute or chronic pain. Draws on research related to functional MRI and neurocognitive function to understand the relationships between the brain, personality disorders, and acute and chronic pain. Introduces concepts related to the management of peripheral neurogenic, central, and somatic pain disorders.

**PTGR 553. Clinical Reasoning and Critical Thinking in Physical Therapy. 3 Units.**

Presents theories, research, and clinical applications related to the "cognitive engine" that drives the decision-making process in the evaluation and management of orthopaedic physical therapy patients. Utilizes purposeful and goal-directed thinking that challenges the learner to ask and answer higher-level analytical and evaluative questions. Provides a clinically relevant and intentional line of questioning used for problem solving in the absence of pattern recognition. Provides a framework and foundation that will assist in solidifying the reasoning process of data gathering, data interpretation, evaluation methodology, treatment planning, treatment execution, and prognosing. Assists in providing the learner with a defensible means to justify and rationalize clinical decisions that result in wise actions.

**PTGR 554. Writing for the Physical Therapy Professional and Educator. 3 Units.**

Enables the student to develop writing processes and techniques that are clear, precise, and audience appropriate. Students practice and reflect on writing in professional and academic genres—such as literature reviews, case studies, and protocols relevant for physical therapists, other health professionals, and educators. Includes discussion regarding various aspects of writing mechanics and structure. Links practical applications to common writing situations found in the health professions and education, ranging from intradisciplinary written communication to preparing an abstract and manuscript for submission.

**PTGR 555. Grant Writing for Health Professionals. 3 Units.**

Helps students develop effective grant-writing skills essential for acquiring competitive funding from government agencies and private foundations—including content knowledge, writing proficiency, research skills, originality, creativity, and a compelling proposal. Provides students with the background necessary to develop a competitive funding application that demonstrates a systematic, organized approach that is aligned with what is desired by the granting agency. Following the indicated guidelines for submission, students prepare a competitive grant proposal to be submitted to a public or private agency.

**PTGR 556. Research and Journal Club Seminars. 1 Unit.**

Scientific presentations on novel and emerging research topics by well-established as well as emerging investigators. Student-facilitated journal club seminars provide opportunity for sustained engagement around a shared set of research materials and articles, including recent or innovative publications in the field of rehabilitation and medicine. Topics and materials designed to encourage innovative approaches and thinking in rehabilitation scholarship, with emphasis on physical therapy research and innovations.

**PTGR 557. Doctoral Dissertation Seminar. 1 Unit.**

A year-long course intended to assist doctoral students at various stages of the dissertation process. Emphasizes development of the dissertation chapters, as well as the oral defense of the dissertation. Prepares the doctoral student for all the components of a multiple chapter dissertation, with emphasis on the literature review, research design, committee formation, institutional review board training, time and project management, framing of the chapters, dissertation format standards, and dissertation defense etiquette.

**PTGR 570. Muscle Energetics and Biochemistry. 3 Units.**

Surveys the biochemistry and metabolic pathways in regards to muscle function under various types of exercise and at rest. Includes muscle biochemistry, glycolysis, gluconeogenesis, beta oxidation, protein metabolism, and nutritional requirements of the cell. Emphasizes metabolic, cardiac, pulmonary, and neurological disorders that limit optimal muscle function and development of physical therapy protocols to minimize limitations. Covers any needed prerequisites in organic and cellular chemistry.

**PTGR 571. Advanced Physiology I: Neurobiology. 3 Units.**

Surveys cell and whole-body physiology. Includes physiology of the neuron and nerve conduction, molecular transport at the cellular level, cardiovascular and renal physiology, gastrointestinal physiology, endocrinology, and neurophysiology. Emphasizes muscles and neurophysiology as they relate to the cardiovascular, respiratory, and endocrine systems.

**PTGR 572. Advanced Physiology II: Exercise and Thermoregulation. 3 Units.**

Focuses on energy sources utilized by the body for exercise, neural and mechanical structures of mechanisms that control body movements, environmental influences on exercise performance, the physiology of thermoregulation, and principles of aerobic and anaerobic exercise. Applies concepts and principles to normal and disabled human conditions.

**PTGR 573. Pathokinesiology of Gait. 3 Units.**

Advanced observational analysis of normal and abnormal human locomotion, with comparison of pathological differences.

**PTGR 574. Current Issues in Basic Science. 3 Units.**

Studies the current issues in basic science, as related to physical therapy. Topics may include current advances in biomechanics, cell and molecular biology, tissue engineering and transplants, pharmacology, and presentation of basic science research. Content includes scientific literature reviews and participation in a wet lab activity that includes development of a question or hypothesis and experimental plan, possible execution of the plan, and interpretation of results.

**PTGR 575. Upper Quarter Biomechanics. 3 Units.**

An in-depth study of the upper quarter biomechanical characteristics of the musculoskeletal system; as well as study of the performance of physical skills through utilization of investigative research tools, including: anthropometry, accelerometry, electromyography, 3-dimensional motion capture, muscle performance dynamometer, and force platform. Fulfills the upper quarter biomechanical analysis needs and interest of Ph.D. degree students in physical therapy who want to pursue research in biomechanics and motor control of the upper quarter.

**PTGR 576. Lower Quarter Biomechanics. 3 Units.**

An in-depth study of the lower quarter biomechanical characteristics of the musculoskeletal system; as well as study of the performance of physical skills through utilization of investigative research tools, including: anthropometry, accelerometry, electromyography, 3-dimensional motion capture, muscle performance dynamometer, and force platform. Fulfills the lower quarter biomechanical analysis needs and interest of Ph.D. degree students in physical therapy who want to pursue research in biomechanics and motor control of the lower quarter.

**PTGR 577. Pharmacology in Physical Therapy. 3 Units.**

Principles of pharmacology as related to diagnosis, prevention, and treatment of disease, including a presentation of the pharmacology and therapeutic value of drugs used in rehabilitation medicine. Related topics include pharmacokinetics, pharmacodynamics, adverse effects, drug interactions, and drug toxicity—with special consideration given to pediatric and geriatric pharmacology.

**PTGR 578. Medical Screening for Physical Therapists. 3 Units.**

Screening for nonneuromusculoskeletal origins for the musculoskeletal complaints of patients who commonly seek rehabilitation in the physical therapy setting. Particularly emphasizes components of the history and physical examination that suggest medical pathology requiring referral and/or physician consultation. Knowledge and skills related to screening for medical pathology in patients with musculoskeletal complaints of the lumbar spine, pelvis, lower extremities, thoracic spine, shoulder girdle, and upper extremities.

**PTGR 579. Clinical Imaging for Physical Therapist. 3 Units.**

Explores modern imaging techniques used to assess musculoskeletal disorders and cardiovascular pathologies. Includes radiographs, CAT scans, MRIs, bone densitometry, PET scans. Emphasizes clinical ultrasound imaging as used in physical therapy.

**PTGR 590. Political Advocacy and Health Policy for Physical Therapists. 3 Units.**

Focuses on health-care advocacy at the national, state, grassroots, and local levels as it promotes the interests of patients, professionals, and organizations involved in health-care delivery. Emphasizes physical therapy advocacy that encompasses not only health-care delivery, but also protection and defense of physical therapy practice acts; as well as political advocacy, which is a complex amalgamation of recognizing the need for change, developing the content for change, identifying the barriers to change, convincing decision makers to adopt change, and then implementing the change—while responding to changes in public policy, that is laws, scope of practice, and regulations. Highlights ways that physical therapists can increase their professional visibility in various environments while supporting the causes of their clients and persons with disabilities. Students examine and discuss policy issues and strategies relevant to physical therapists and other health professionals and educators; and learn a systematic, comprehensive approach to political advocacy and policy activism.

**PTGR 599. Comprehensive Examination. 0 Units.**

Required written examination to be completed at the end of the second didactic year for the Doctor of Science degree and the Doctor of Philosophy degree in physical therapy science. Comprehensively evaluates student's knowledge in four domains without the assistance of outside resources: education, research, clinical practice/science, and ethics/professionalism. Successful completion required for continuation in the program. Prerequisite: PTH 535 or AHCJ 530; PTH 536 or AHCJ 531; AHCJ 599.

**PTGR 690. Research Rotations. 1-3 Units.**

Involves students in the research and discovery culture of the University and clinical settings through observation of and/or participation in ongoing faculty research and grant projects; as well as graduate student research projects. Includes research data-collection equipment, mentorship, dissertation defenses, research-finding presentations, and/or pilot studies that students design for this practicum experience.

**PTGR 693. Research and Statistics III: Development and Approval of Research Topic and Questions. 3 Units.**

Research-topic selection, development of research questions, literature review, oral defense of research topic, questions and proposed research design, and approval. Prerequisite: AHRM 582.

**PTGR 694. Proposal Development and Institutional Review Board Approval. 3 Units.**

With oversight by the research guidance committee, student develops a written research proposal that describes the problems to be investigated, the hypotheses and assumptions to be developed, and the proposed experimental design; and that subsequently is submitted to the Office of Sponsored Research for Institutional Review Board approval. Prerequisite: PTGR 693.

**PTGR 695. Research and Statistics V: Data Collection. 3 Units.**

Research data planning, setup, standardization of procedures, collection, electronic data capture, management, and storage leading to dissertation.

**PTGR 696. Research and Statistics VI: Data Analysis. 3,6 Units.**

Individual arrangements for doctoral students to work with their research guidance committee on analysis and presentation of research data. Student prepares manuscript presenting results of doctoral research study.

**PTGR 699. Research and Statistics VII - Dissertation. 3 Units.**

Individual arrangements for doctoral students to work with their dissertation chair and research guidance committee to submit a substantial and acceptable preliminary written doctoral dissertation—either in the traditional formal dissertation or multiple chapter format—in accordance with published guidelines of the Faculty of Graduate Studies, and in the format of the journal in which the candidate hopes to publish. Students prepare and present an oral defense of their research findings.

## Physicians Assistant (PAST)

### Courses

**PAST 504. Primary Care Pediatrics. 2 Units.**

Introduces common medical and surgical disorders encountered in pediatric medicine. Emphasizes primary care concepts in the care of children. Introduces rare disorders that the physician assistant may encounter in primary care. Presentation of disease processes mirrors adult medicine by discussing etiology, pathophysiology, clinical presentation, diagnostic work-up, and management.

**PAST 505. Women's Health Care. 2 Units.**

Common problems encountered in caring for women; management of these problems. Etiology, pathophysiology, clinical presentation, and diagnostic work-up.

**PAST 516. Physician Assistant Professional Issues. 2 Units.**

A historical perspective of the physician assistant (PA) profession, as well as current trends and issues; the PA's role in health-care delivery; political and legal factors that affect PA practice; intraprofessional factors and the PA's role in relation to physicians and other providers. Importance of professional responsibility and of biomedical ethics in relation to the PA's role as health-care provider. Content relating to PA professional organizations, program accreditation, and graduate certification and recertification; employment considerations; and professional liability.

**PAST 518. Anatomy for Physician Assistants I. 3 Units.**

Gross and microscopic anatomy of the human body. Lecture, laboratory with cadaver dissection, demonstration, and slides. Orientation to structure of various systems of the body.

**PAST 519. Anatomy for Physician Assistants II. 3 Units.**

Gross and microscopic anatomy of the human body. Lecture, laboratory with cadaver dissection, demonstration, and slides. Orientation to structure of various systems of the body. Continues PAST 518. Prerequisite: PAST 518.

**PAST 540. Introduction to Clinical Medicine for Physician Assistants. 2 Units.**

Introduces study of common medical and/or surgical disorders encountered in general adult medicine. Sets the foundation for clinical medicine courses—evaluating typical clinical presentation, etiology, pathophysiology, diagnostic work-up, EKG interpretation, and management of disorders.

**PAST 541. Clinical Medicine for Physician Assistants I. 5 Units.**

Study of common medical and/or surgical disorders encountered in general adult medicine. Typical clinical presentation, etiology, pathophysiology, diagnostic work-up, EKG interpretation, and management of disorders.

**PAST 542. Clinical Medicine for Physician Assistants II. 5 Units.**

Part II of the three-quarter sequence introducing the student to a study of common medical and/or surgical disorders encountered in general adult medicine. Includes typical clinical presentation, etiology, pathophysiology, diagnostic work-up, EKG interpretation, and management of disorders. Prerequisite: PAST 541.

**PAST 543. Clinical Medicine for Physician Assistants III. 3 Units.**

Part III of the three-quarter sequence introducing the student to the study of common medical and/or surgical disorders encountered in general adult and pediatric medicine. Includes typical clinical presentation, etiology, pathophysiology, diagnostic work-up, and management of disorders. Prerequisite: PAST 541, PAST 542.

**PAST 544. Pharmacology for Physician Assistants I. 3 Units.**

Part I of a two-part course that covers basic concepts of pharmaceuticals used in the diagnosis, prevention, and treatment of disease. Systematic presentation of the pharmacology and therapeutic value of drugs used in medicine. Related topics—with special consideration of pediatric and geriatric pharmacology—include drug legislation, PDR, routes of administration, pharmacokinetics, pharmacodynamics, adverse effects, drug interactions, and drug toxicity. Overview of physician assistant's responsibilities in prescribing and/or dispensing pharmaceuticals.

**PAST 545. Pharmacology for Physician Assistants II. 3 Units.**

Part II of a two-part course that covers basic concepts of pharmaceuticals used in the diagnosis, prevention, and treatment of disease. Systematic presentation of the pharmacology and therapeutic value of drugs used in medicine. Related topics—with special consideration of pediatric and geriatric pharmacology—include drug legislation, PDR, routes of administration, pharmacokinetics, pharmacodynamics, adverse effects, drug interactions, drug toxicity. Overview of physician assistant's responsibilities when prescribing and/or dispensing pharmaceuticals. Prerequisite: PAST 544.

**PAST 547. Basic Medical Science. 3 Units.**

Provides an overview of scientific principles as they pertain to the practice of clinical medicine. Emphasizes microorganisms commonly encountered by physician assistants in clinical practice. Provides a foundation for principles of clinical medicine and pharmacology.

**PAST 551. Pathophysiology for Physician Assistants I. 3 Units.**

Provides a foundation for clinical medicine through the evaluation of normal human physiology, followed by the pathology of diseases important to each major organ system. Addresses fundamental mechanisms of health and disease.

**PAST 552. Pathophysiology for Physician Assistants II. 3 Units.**

Provides a foundation for clinical medicine through the evaluation of normal human physiology, followed by the pathology of diseases important to each major organ system. Addresses fundamental mechanisms of health and disease. Continues PAST 551. Prerequisite: PAST 551.

**PAST 554. Clinical Skills for Physician Assistants. 5 Units.**

Introduces the basic skills and knowledge needed to evaluate and treat common illnesses and injuries. Safety, aseptic technique, BLS, ACLS, wound care, local anesthesia, suturing, casting, splinting, use of various tubes and drains, and emergency medicine; and surgery for physician assistants. Includes participation in clinical simulations for enhanced skill development.

**PAST 556. Preventive Medicine and Health Promotion. 2 Units.**

Selected topics dealing with aspects of disease prevention. Relevance of statistics, epidemiology, research designs, and clinical trials; as well as selected disease trends and lifestyle modification. Includes the role of physical activity, nutrition, immunization, and public health approaches to communicable diseases. Provides practical information about how to perform clinical preventive services and allows the physician assistant student to gain skills in designing a tailored health maintenance plan for the individual patient.

**PAST 558. Psychiatry for Physician Assistants. 3 Units.**

Focuses on diagnosis and treatment of major psychiatric and mental disorders. Topics include depression, anxiety, phobias, substance and eating disorders, somatoform, psychoses, neuroses, and personality disorders.

**PAST 571. Multicultural Competencies for Physician Assistants. 3 Units.**

Reviews and evaluates strategies for providing culturally and linguistically competent care in clinical practice. Emphasizes care of the Spanish-speaking patient.

**PAST 572. Cultural Immersion for Physician Assistants. 3 Units.**

Emphasizes health and medicine as PA students obtain a cross-cultural experience while interacting with non-English-speaking patients and gaining a greater understanding of their patients' culture. Requires completion of a community-based service project and immersion within the local community. Begins in Winter Quarter with culmination in the Summer Quarter. Prerequisite: PAST 571.

**PAST 580. Clinical Correlation for Physician Assistants. 1 Unit.**

Teaches students to apply knowledge gained throughout the didactic curriculum via an interactive learning experience. Emphasizes the critical thought process needed for diagnosis and management of clinical problems. Taught from the Fall Quarter through Summer Quarter of the didactic year.

**PAST 581. Physical Diagnosis for Physician Assistants I. 2 Units.**

Part one of a four-part sequence of lecture, demonstration, and practice in the art and science of obtaining a complete medical history and performing the physical examination.

**PAST 582. Physical Diagnosis for Physician Assistants II. 3 Units.**

Part two of a four-part sequence of lecture, demonstration, and practice in the art and science of obtaining a complete medical history and performing the physical examination. Prerequisite: PAST 581.

**PAST 583. Physical Diagnosis for Physician Assistants III. 2 Units.**

Part three of a four-part sequence of lecture, demonstration, and practice in the art and science of obtaining a complete medical history and performing the physical examination. Prerequisite: PAST 582.

**PAST 584. Physical Diagnosis for Physician Assistants IV. 2 Units.**

Part four of a four-part sequence of lecture, demonstration, and practice in the art and science of obtaining a complete medical history and performing the physical examination. Requires satisfactory completion of the comprehensive physical examination and the didactic year objective structured clinical examination (OSCE). Prerequisite: PAST 583.

**PAST 601. Evidence-Based Medicine for Physician Assistants I. 2 Units.**

Introduces student to evidence-based practice, emphasizing the use of medical literature to evaluate and improve the practice of clinical medicine. Teaches student to assess medically oriented information online, as well as evidence-based medicine databases.

**PAST 602. Evidence-Based Medicine for Physician Assistants II. 2 Units.**

Continuation of PAST 601, with discussions and application of evidence-based medicine. Student develops a topic; completes a full review of the literature; and in consultation with a faculty mentor, produces an analytic paper related to evidence-based medicine in physician assistant practice. Begins in Winter Quarter with completion in the Summer Quarter. Prepares student for the capstone project. Prerequisite: PAST 601.

**PAST 603. Capstone. 2 Units.**

Course commences during Fall Quarter of the clinical year and culminates in the Summer Quarter with completion of the capstone project. Project requires investigation of a topic related to an area of interest within primary care or the PA profession using an evidence-based, investigational approach; as well as completion of a personal portfolio reflective of the values of Loma Linda University. Requires satisfactory completion of the clinical year objective structured clinical examination (OSCE). Prerequisite: PAST 602.

**PAST 701. Rotation I. 6 Units.**

A required four-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotations through a medical or surgical service of choice.

**PAST 702. Rotation II. 6 Units.**

A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

**PAST 703. Rotation III. 6 Units.**

A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

**PAST 704. Rotation IV. 6 Units.**

A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

**PAST 705. Rotation V. 6 Units.**

A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

**PAST 706. Rotation VI. 6 Units.**

A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

**PAST 707. Rotation VII. 6 Units.**

A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

**PAST 708. Rotation VIII. 6 Units.**

A required six-week rotation in outpatient and/or inpatient settings in any of the following areas of concentration: family medicine, internal medicine, pediatrics, obstetrics and gynecology, general surgery, emergency medicine, psychiatry/behavioral medicine; and elective rotation through a medical or surgical service of choice.

## Physiology (PHSL)

### Courses

**PHSL 503. Biochemical Foundations of Physiology. 4 Units.**

Engenders an appreciation of the molecular processes as a foundation for adequate understanding of physiology. Reviews biomolecules, enzymology, and metabolism. Introduces regulatory motifs, genetic principles, and expression of genetic information by employing examples relevant to dentistry.

**PHSL 504. Physiological Systems of the Human Body. 5 Units.**

Physiological bases of normal function. Lectures and laboratory demonstrations illustrating the physiological principles and systems in man.

**PHSL 505. Homeostatic Mechanisms of the Human Body. 5 Units.**

Physiological basis of homeostatic control mechanisms. Lectures and laboratory demonstrations illustrating how the various systems of the body are controlled.

**PHSL 506. Advanced Physiology and Pathophysiology for Nurse Anesthetist I. 5 Units.**

Overview of physiology and pathophysiology (cell, neuro, cardiovascular, pulmonary, GI, renal, endocrine, and reproductive systems).

**PHSL 507. Advanced Physiology and Pathophysiology for Nurse Anesthetist II. 4 Units.**

Part II of physiology and pathophysiology (cell, neuro, cardiovascular, pulmonary, GI, renal, endocrine, and reproductive systems). Prerequisites: PHSL 506.

**PHSL 519. Medical Physiology. 7.5 Units.**

Physiological basis of normal and selected pathological conditions, modern concepts of homeostasis, and negative feedback control systems.

**PHSL 526. Medical Physiology. 7.5 Units.**

Supports the organ system curriculum in the first year. Examines the physiological function and regulation of major organ systems, as well as the integration and interaction of these systems with one another. Discussions include cardiovascular, respiratory, gastrointestinal, renal, endocrine, reproductive, and exercise physiology. Presents essential concepts at various levels of organization, ranging from cellular and molecular to tissue and organ system levels. Emphasizes mechanistic and integrative functions that enable adaptation and survival in the face of changing needs and resources—a process accomplished through formal didactic instruction; self-directed learning activities; and laboratory sessions using student volunteers, simulation, and case studies.

**PHSL 537. Neuroscience. 4 Units.**

Integrated approach to the fundamentals of neuroanatomy and neurophysiology, with applications to clinical neurology.

**PHSL 541. Cell and Molecular Biology. 4 Units.**

Prerequisite: Organic chemistry and one of the following: biochemistry, molecular biology, or cell biology. Physics desirable. Prerequisite: Organic chemistry and one of the following: biochemistry, molecular biology, or cell biology. Physics desirable.

**PHSL 560. Bone Physiology. 3 Units.**

Studies bone cells and bone as an organ. Lectures and discussions include functions of bone cells, effects of growth factors, hormones and physical forces on bone, growth and repair of bone, osteoporosis, and other clinical conditions involving bone. Reviews current literature.

**PHSL 587. Physiology of Reproduction. 2 Units.**

Studies the development of the male and female reproductive systems, neural and hormonal control of reproductive function, fetal development, and parturition. Offered alternate years. Prerequisite or concurrent: PHSL 511, PHSL 512 or PHSL 521, PHSL 522.

**PHSL 588. Pathophysiology. 4 Units.**

Provides graduate students with an integrated understanding of normal human physiology and the most common pathological changes that occur throughout the lifespan. Focuses on using pathophysiological concepts to explain clinical observations and management.

**PHSL 595. Readings in Physiology. 1-4 Units.**

Assigned reading and conferences on special problems in physiology.

**PHSL 694. Special Problems in Physiology. 2-4 Units.****PHSL 697. Research. 1-8 Units.****PHSL 699. Dissertation. 2-4 Units.****PHSL 891. Physiology Elective. 1.5-24 Units.**

Offers fourth-year medical students the opportunity to explore various areas of physiology, including research.

## Play Therapy (PLTH)

### Courses

**PLTH 513. Introduction to Play Therapy. 3 Units.**

Provides content on the history and various theoretical underpinnings of play therapy while emphasizing the importance of professional ethics and legal guidelines when conducting play therapy. Gives attention to the explanatory nature of theories as informing methods and techniques used in assessment and healing processes. Introduces three of the most widely used theories of play therapy—Child Centered Play Therapy, Cognitive-Behavioral Play Therapy, and Gestalt Play Therapy. Designed for students who have already taken the theory courses required in their respective degree areas. Requires permission of instructor.

**PLTH 515. Play Therapy III: Assessment and Diagnosis. 2 Units.**

Foundational play therapy course that provides content on structured and informal assessment processes and techniques. Social and symbolic play provides balance of content and process of differential diagnosis from a neurocognitive basis of development, including variations in the developmental sequence caused by developmental disorders.

**PLTH 516. Child-Centered Play Therapy. 3 Units.**

A foundation play therapy course that provides a systematic treatment approach to child-generated play. Combines didactic presentations and experiential activities that detail the four major elements of CCPT technique: structuring, reflective listening, fantasy play, and limit setting. Gives attention to history and theory of CCPT, the benefits of the model, assessment, and combining CCPT with other models of child therapy.

**PLTH 517. Sandplay: A Therapeutic Process. 3 Units.**

Foundational play therapy course providing didactics on the theoretical basis, content, and process of sandplay. Active learning experiences provide students with opportunities to observe and engage in sandplay with children.

**PLTH 546. Child-Parent Relationship Therapy-CPRT (Filial Therapy). 3 Units.**

Provides students with an understanding of evidence-based play therapy interventions that support filial (parent-child) communication and relationships as children experiencing social, emotional, and behavioral difficulties are treated. Builds upon a previous foundation of play therapy course work.

**PLTH 547. Play Therapy Approaches for Treating Developmental and Behavioral Disorders. 2 Units.**

Advanced play therapy course that provides content on the theory, methods, and techniques used in Developmental Play Therapy. Content emphasizes methodologies that provide children with developmental experiences essential to physical and social-emotional growth, as well as a secure attachment in the child-parent relationship in situations where a diagnosis may affect the quality of the child-parent relationship. Emphasizes techniques used to promote sensory integration and self-regulation, as well as adaptations of play techniques for use with children diagnosed with learning challenges, autism, and other developmental delays. Explores adjunctive resources and concrete methods for working with parents and school personnel in a manner that assists in the generalization of skills learned through play therapy. Completion of foundational play therapy courses required prior to taking this course.

**PLTH 548. Child Psychosocial Play Therapy. 2 Units.**

Advanced play therapy course that provides content on strategies and methods used to help children and families address environmental and life/stress adjustment issues. Includes support that enhances child and family wellness by helping children and families understand and develop self-regulation toward improved functioning. Presents a wide range of structured play therapy techniques and their theoretical underpinnings. Completion of foundational play therapy courses required prior to taking this course.

**PLTH 549. Therapeutic Play for Children Affected by Illness and Injury. 3 Units.**

Teaches the developmental aspects of play therapy, in collaboration with the developmental stages of the child/teen and family in the context of a health-care setting. Provides student with an experiential understanding of play therapy, recreation therapy, education, and practice.

**PLTH 550. Trauma Focused Play Therapy. 3 Units.**

This course covers play therapy techniques used to help children prevent or resolve psychosocial challenges following trauma and achieve optimal growth and development. The course utilizes current trauma research and will consist of basic principles of intervention as well as ethical/legal guidelines for the assessment and treatment of traumatized children. Expressive play therapies such as drawings, games, and other symbolic techniques which enable children to externalize and process trauma related experiences in a nonthreatening way will be covered along with aspects of the trauma resiliency model. A emphasis on techniques that can be use within a global context will also be provided.

**PLTH 650. Play Therapy with Adolescents and Adults. 3 Units.**

Advanced play therapy course that emphasizes play therapy with adolescents and adults. Topics include play therapy techniques to engage adolescents/adults, including: transitional objects using a nondirective stance; games of rapport, courtesy, and good habits; metaphorical thinking; grounded play therapy; poetry and drama; cognitive-behavioral interventions for anger, bullies, victims, and bystanders; and filial therapy with adolescents. Foundational play therapy courses required prior to taking this course.

**PLTH 700. Practicum in Play Therapy. 2 Units.**

Provides 45 contact hours of practice in play therapy assessment, diagnosis, and intervention techniques with children and their parents enrolled in services at the Behavioral Health Institute. Students, practicing under the direct supervision of a qualified instructor, receive 5 contact hours of supervision by a registered play therapist. An In Progress (IP) notation recorded during the five quarters usually needed to complete this practicum experience. Foundational play therapy courses required prior to taking this course.

## Polysomnography (RSPS)

### Courses

**RSPS 210. Foundation of Polysomnography and Sleep Medicine. 2 Units.**

Covers the history of sleep medicine (polysomnography) from its inception and development to current practice. Enhances understanding of the role and differences of the polysomnographer. Teaches the documentation process in sleep laboratory facilities and understanding of the data required for monitoring patient and charting results during the study. Lectures include physiological factors that identify normal sleep pattern in adult and pediatric populations.

**RSPS 216. 3- and 12-Leads ECG Interpretation. 2 Units.**

Reviews 3-leads interpretation with advancement to 12-leads ECG. Reviews cardiac anatomy and physiology, underlying pathophysiology, and basic rhythm recognition with an overview of related treatments. Emphasizes skills needed by the bedside practitioner to differentiate between benign and life-threatening cardiac dysrhythmias. Teaches the principles of application and interpretation of the 12-lead system. Emphasizes recognition of the acute myocardial infarction. Additional topics include identifying axis deviation, acute ischemic conditions, electrolyte imbalances, bundle-branch block, and infarct impostors. Practical application of information to bedside care of cardiac patients, emphasizing patient assessment, data collection, and use of the 12-lead to guide rapid intervention.

**RSPS 227. Neuroanatomy and Physiology of Sleep. 3 Units.**

Covers the basic neuroanatomy of the brain and nervous system that is involved in the various normal and abnormal sleep patterns. Additional topics include: sleep pharmacology and medications; pharmacokinetics, drug mechanism of action; review of basic cardiac physiology and waveforms; respiratory anatomy and physiology and its relation to the central nervous system.

**RSPS 230. Polysomnography Science Methodology. 2 Units.**

Covers the procedures of patient preparation before the sleep study, such as: proper electrode placement; principles of the conduction system, signal derivation, and amplification; signal processing, filter, and sensitivity; calibration; and AC/DC instrumentation. Includes the principle of electroneurodiagnostic equipment and correct patient connection and the biophysics and mechanical principles behind equipment used in polysomnography laboratory. Provides thorough basic laboratory training on various types of equipment used in the sleep center.

**RSPS 234. Polysomnography Patient Education and Safety. 1 Unit.**

Covers the management of patient safety in the sleep laboratory. Topics include: patient education about sleep, common chief complaints relative to sleep disorders, infection control, cultural differences and interactions, ethics, and professionalism in the sleep laboratory.

**RSPS 256. Polysomnography Monitoring and Scoring. 2 Units.**

Teaches student to manage and identify device monitoring, such as: vital signs; EEG, ECG, EOG, and EMG waveforms; visual, arousal, cardiac, movement, and respiratory scoring criteria and applicable protocols for observation and documentation. Assessing, monitoring, and recording patient-movement disorders, parasomnias, psychiatric sleep disturbances, and sleep. Data interpretation and recognition and their relation to sleep disorders. Prerequisite: EMMC 314, RSPS 210, RSPS 230.

**RSPS 274. Polysomnography Diseases. 3 Units.**

Teaches students to recognize and distinguish between sleep disorders and their pathophysiologies, such as obstructive sleep apnea in adults and pediatrics; hypopneas; respiratory effort-related arousals; central apneas; complex sleep apnea; and other normal and abnormal respiratory breathing patterns, such as Cheyne-Stokes. Introduces the treatment of sleep disorders, including CPAP and titration methods, bilevel ventilation, oxygen therapy, and surgical intervention. Additional topics include understanding and recognizing nonrespiratory sleep disorders, such as narcolepsy, hypersomnia, insomnia, seizure, and epilepsy. Prerequisite: RSPS 210, RSPS 227.

**RSPS 286. Polysomnography Case Study. 2 Units.**

Student presents patient-case studies based on patient-information gathering that includes history and physical, review of systems, rationale for diagnostics and treatment, vital signs, PMH, questionnaire, scores, waveform, treatments, and study data.

**RSPS 295. Polysomnography Practicum I. 4 Units.**

Introduces students to sleep center facilities, working hours, documentation, and facility personnel. Students perform patient assessment and obtain patient history; as well as correctly perform complete set up, data acquisition, and reporting processes. Covers waveform interpretation (ECG, EEG, EOG, and EMG) skills. Patient monitoring, vital signs: heart rate and rhythm, blood pressure, respiratory rate, oxygen saturation, and carbon dioxide monitoring. Students apply interventional modalities, such as CPAP or bi-level therapy, with appropriate titration to relieve relative sleep disorders. Students practice scoring sleep studies. Prerequisites: RSPS 210, RSPS 227, RSPS 230; EMMC 314.

**RSPS 296. Polysomnography Practicum II. 4 Units.**

Gives students opportunities to perform advanced clinical procedures in the sleep center and perform complete polysomnogram independently under supervision of the sleep center staff. Prerequisites: RSPS 210, RSPS 227, RSPS 230, RSPS 295; EMMC 314.

**RSPS 510. Sleep Neurophysiology and Pathologies. 4 Units.**

First course in a three-course series that can be taken independent of the series. Case study-based analysis that covers advanced neurophysiology involved in various normal and abnormal sleep patterns and respiratory drive. Discusses common sleep pathologies and pharmacological interventions at the macro and molecular levels.



**RSPS 511. Methodologies in Sleep Disorder Assessment and Intervention. 4 Units.**

Second course in a three-part series, but can be taken independent of the series. Introduces the foundations of patient preparation for various polysomnogram evaluations. Includes detailed discussion of the physical principles employed in acquiring and interpreting cardiac, neuro, and respiratory diagnostics. Uses case studies to reiterate the components of a PSG, cardiac diagnostics (include 3/12-lead ECG), and certain neurodiagnostics important for thorough evaluation of sleep and respiratory patterns; as well as to distinguish between respiratory and nonrespiratory sleep disorders while introducing the pharmacology, noninvasive and invasive modalities, and behavioral/cognitive therapy commonly used in the treatment of sleep disorders.

**RSPS 512. Advanced Polysomnography Practicum. 4 Units.**

Third course in a three-course series. Clinic-based practicum in which students perform a variety of sleep assessments—including patient set up, observation/monitoring, data acquisition, evaluation, and scoring. Students apply interventional modalities, such as CPAP or bi-level therapy with appropriate titration to relieve respiratory-related sleep disorders. Gives students opportunities to perform advanced clinical procedures in the sleep center and to perform complete polysomnographs independently under supervision of the sleep center staff. Students present case studies based on patient-information gathering that include history and physical, review of systems, rationale for diagnostics and treatment, vital signs, medical history, questionnaire, scores, waveform, treatments, and study data. Program director provides approval for distance education students' mentorship and site assignment. At least half of the clinical activity mentored by a board-certified sleep specialist (MD/DO/PhD).

## Population Medicine (PMED)

### Courses

**PMED 521. Population Medicine I. 4 Units.**

Provides a framework for health practitioners to manage the health of a population. Includes an approach to critically review and interpret medical literature, demonstrate the methodology for selecting the appropriate statistical test, analyze the evidence for clinical preventive services, incorporate considerations of cost and risk/benefit analysis, and convey complex health information. Includes practical use of advanced applied epidemiology (to include acute and chronic disease), advanced biostatistics, advanced health services management, clinical preventive services, and risk/hazard control and communication. Prerequisite or Concurrent: PCOR 501.

**PMED 522. Population Medicine II. 4 Units.**

Builds on foundational population medicine concepts. Includes applied skills to characterize the health of a population, provide methodology for selecting appropriate clinical preventive services, perform selected complex statistical analyses, inform and educate populations about health threats and risks, and develop policies that support health efforts. Includes practical use of advanced applied epidemiology (to include acute and chronic disease), advanced biostatistics, advanced health services management, clinical preventive services, and risk/hazard control and communication. Prerequisite or Concurrent\*: PMED 521; PCOR502\*.

**PMED 523. Population Medicine III. 4 Units.**

Applies advanced knowledge and skills in managing the health of a population. Includes integration of skills to implement and evaluate population based health services, utilize surveillance systems and outbreak investigations, identify high-risk populations using selected statistical methods, convey risk to populations, and develop policies that support health. Includes practical use of advanced applied epidemiology (to include acute and chronic disease), advanced biostatistics, advanced health services management, clinical preventive services, and risk/hazard control and communication. Prerequisite or Concurrent\*: PMED 522; PCOR 503\*.

**PMED 541. Preventive Medicine in Public Health I. 2 Units.**

Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 542. Preventive Medicine in Public Health II. 2 Units.**

Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 543. Preventive Medicine in Public Health III. 2 Units.**

Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 544. Preventive Medicine in Public Health IV. 2 Units.**

Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 545. Preventive Medicine in Public Health V. 2 Units.**

Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 546. Preventive Medicine in Public Health VI. 2 Units.**

Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 547. Preventive Medicine in Public Health VII. 2 Units.**

Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 548. Preventive Medicine in Public Health VIII. 2 Units.**

Provides a selection of preventive medicine topics. Includes a framework for critical review of scientific literature, as well as opportunities to develop additional skills for the public health professional.

**PMED 699. Research. 1-10 Units.**

Independent research with a population medicine focus. Arranged with faculty member(s).

## Preventive Medicine (PRVM)

### Courses

**PRVM 517. Lifestyle and Preventive Medicine. 4 Units.**

Provides students with a broad foundation in epidemiology and biostatistics skills as it contributes to the organ system curriculum in the second year. Students formulate effective and evidence-based preventive medicine strategies in preparation for treating individual patients and communities. Utilizes a combination of lecture, case-based learning, online self-directed modules, and active learning modules to teach current preventive medicine approaches.

**PRVM 791. Applied Preventive Medicine. 2 Units.**

Longitudinally integrated course. Improves students' ability to identify and apply key concepts in preventive medicine and public health through practical application to patient cases, specifically focusing on literature analysis, preventive services selection, and motivational interviewing. Submitted work included in a portfolio that demonstrates growth in the discipline.

**PRVM 891. Preventive Medicine Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various aspects of preventive medicine and public health, including nutrition, mission opportunities, functional medicine, lifestyle medicine, and research.

## Prosthodontics (PROS)

### Courses

**PROS 500. Prosthodontic Literature Review. 2 Units.**

Discusses assigned topics from classic and current prosthodontic and course-related literature, led by students and moderated by faculty member in charge. Repeated registrations required to fulfill the total units.

**PROS 501. Removable Partial Prosthodontics Literature Review. 2 Units.**

Discusses assigned topics from classic removable partial denture literature, led by students and moderated by faculty member in charge.

**PROS 502. Complete Denture Prosthodontics Literature Review. 2 Units.**

Discusses assigned topics from classic complete-denture literature, led by students and moderated by faculty member in charge.

**PROS 505. Patient Presentation Seminar (Prosthodontics, Implant, Perio). 1 Unit.**

Presents patient treatment. Discusses alternate methods of rehabilitation, as well as related literature. Repeated registrations required to fulfill the total units.

**PROS 515. Practice Teaching in Prosthodontics. 1,2 Unit.**

Teaching experience in the areas of fixed and removable prosthodontics. Repeated registration required to fulfill the total units.

**PROS 525. Dental Materials Science. 2 Units.**

Elements of materials science. Properties of structural solids, metals, ceramics, and polymers related to their structure—using basic laws and principles from physics, chemistry, and engineering science.

**PROS 527. Clinical Application of Dental Materials. 2 Units.**

Discusses clinical application and manipulation of dental materials. Identifies and explains specific clinical problems and behavior based on the acquired knowledge of basic properties.

**PROS 546. Occlusion and Morphology. 2 Units.**

Lecture, seminar, and laboratory course that includes waxing techniques and axial and occlusal morphology of natural teeth. Concepts of occlusal function and dysfunction related to prosthodontic therapy.

**PROS 547. Occlusion: Principles and Instrumentation. 2 Units.**

Continues PROS 546—emphasizing occlusal equilibration, jaw movements, determinants of occlusion, and articulators commonly used.

**PROS 555. Removable Partial Prosthodontics. 2 Units.**

Lecture, seminar, and laboratory course covering principles, concepts, and techniques used to design and fabricate removable partial dentures.

**PROS 556. TMJ Function and Dysfunction. 1 Unit.**

Provides students with information about the function and dysfunction of the temporomandibular joint and associated structures. Prepares students to obtain history, perform clinical examination, recognize disorders, and prescribe treatment. Introduces students to diagnosis and treatment of sleep apnea, as well as neuropathic and neurovascular pain. Students complete a term paper on a related topic.

**PROS 557. Advanced Removable Partial Prosthodontics. 2 Units.**

Advanced clinical and laboratory procedures, emphasizing intracoronal attachments, rotational path, and alternate removable partial-denture design.

**PROS 565. Complete Denture Prosthodontics. 2 Units.**

Clinical and laboratory procedures for the fabrication of complete dentures, including setting and balancing denture teeth.

**PROS 566. Advanced Complete Denture Prosthodontics. 2 Units.**

Lecture and clinical course, with seminar covering the treatment of immediate denture and overdenture, and treatment of difficult and unusual complete denture situations.

**PROS 575. Fixed Partial Prosthodontics. 2 Units.**

Tooth preparation for and fabrication of extracoronal restorations and fixed prostheses, including partial coverage gold crowns, complete coverage gold crowns, pinledge retainers, metal-ceramic crowns, metal-ceramic pontics, and sanitary pontics.

**PROS 576. Advanced Fixed Partial Prosthodontics I (MC Aesthetics). 2 Units.**

Clinical and laboratory procedures, emphasizing advanced metal-ceramic restorations.

**PROS 595. Maxillofacial Prosthetics. 2 Units.**

Design and fabrication of obturators for partial maxillectomy patients, both edentulous and dentulous. Introduces fabrication of extraoral prostheses.

**PROS 604. Literature Review in Implant Dentistry for Prosthodontists. 2 Units.**

Gives the postdoctoral student a deeper understanding of the research and literature currently available on the restoration of implants. Emphasizes biomechanics of implant restorations. Repeated registrations required to fulfill the total units.

**PROS 634. Diagnosis and Treatment Planning. 2 Units.**

Didactic and clinical aspects of diagnosis and treatment planning for patients with complex dental problems. Repeated registrations required to fulfill the total units.

**PROS 637. Geriatric Dentistry. 1 Unit.**

Lectures selected to enhance the knowledge base in the expanding area of elder care. Problems of chronic diseases combined with multiple drug regimens that complicate care for this population.

**PROS 696. Scholarly Activity in Prosthodontics. 1 Unit.**

Selected didactic, clinical, and/or laboratory activity developed by the program director or a designated program faculty member. Primarily designed for students to fulfill the certificate requirements for scholarly activity/research in prosthodontics. Multiple registrations may be needed to complete these activities.

**PROS 697A. Research. 1 Unit.**

Student identifies a research project, prepares a proposal, and obtains approval for the protocol. Multiple registrations may be needed to complete these research activities.

**PROS 697B. Research. 1 Unit.**

Conducting the actual research project, including the data collection. Multiple registrations may be needed to complete these research activities.

**PROS 697C. Research. 1 Unit.**

Student completes research project, holds a public presentation of research, and submits a publishable paper to his/her research guidance committee (RGC) for approval. Multiple registrations may be needed to complete the publishable paper.

**PROS 698. Thesis. 2 Units.****PROS 710. Clinical Practice of Prosthodontics. 6 Units.**

Advanced clinical practice in the treatment of individuals with fixed, removable, maxillofacial, or implant prostheses. A minimum of 180 clock hours per quarter. Repeated registrations required to fulfill total units.

## Psychiatry (PSYT)

### Courses

**PSYT 525. Fundamentals of Behavioral Science. 3 Units.**

Supports the organ system curriculum in the freshman year. Provides a basic introduction to human development across the life cycle; mind-body interaction, including psychosomatic issues; patient adherence; the doctor-patient relationship and boundaries; and pain management, end-of-life care, child and elder abuse, domestic violence, and sexuality. Utilizes lecture, patient interview, a reflection paper, and roundtable discussion with clinicians from various specialties to help students integrate these often difficult concepts into real-life experience.

**PSYT 526. Psychopathology. 4.5 Units.**

Supports the organ system curriculum in the sophomore year. Covers details of mental status examination using lecture and video materials to ensure students are equipped with the basic tools for psychiatric information gathering. Provides advanced exposure to and understanding of psychiatric disease and diagnosis through a systematic, in-depth approach to psychiatric disorders that follows the structure of the DSM-V—including mood, anxiety, psychotic, trauma, childhood, somatic, personality and sexual disorders. Uses a combination of lecture, film, small-group activities, case presentations, in-class faculty-led interviews, faculty-observed student interviews, and several psychodynamic formulations to teach diagnostic criteria, etiology, and clinical course—including common comorbidities and psychopharmacologic and psychodynamic treatment options for each disorder.

**PSYT 599. Psychiatry Directed Study. 1.5-18 Units.****PSYT 701. Psychiatry Clerkship. 1.5-9 Units.**

Third-year, six-week clerkship that is paired with a separate four-week neurology clerkship—with clinic sites chosen based on students' interest. Includes a required one-week addiction medicine rotation, as well as a two- and three-week rotation that provides exposure to child, adolescent, and adult populations. Student participation in an interactive, case-based lecture series that includes text readings with time-limited online quizzes. In-house quizzes and examinations that focus on identifying student areas of strength and weakness while on rotations, as well as meetings with the clerkship director prior to completion of the clerkship to assist students struggling on these structured examinations. Requires a clinical OSCE with a focus on the student's ability to diagnose mental illness, develop patient rapport, and identify risk factors for suicide and homicide; as well as two reflection papers identifying ongoing issues of interpersonal transference toward patients, conflict management in patient care, and other recommended topics.

**PSYT 891. Psychiatry Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to take electives with psychiatry faculty in child and adult settings. An intensive reading/discussion course in religion and psychiatry.

## Psychology (PSYC)

### Courses

**PSYC 101. Introduction to Psychology. 4 Units.**

A general overview course focusing on the scientific study of both the behavioral and mental processes of human beings and animals. Covers history of psychology and scientific thought, biological basis of behavior, research methodology, sensation and perception, states of consciousness, memory, language and intelligence, developmental psychology, learning, personality, and abnormal psychology.

**PSYC 226. Lifespan Development. 4 Units.**

Life-span course emphasizing the physical, mental, emotional, social, and religious/moral development from conception through adulthood, aging, and death.

**PSYC 305. Psychological Foundations of Education. 4 Units.**

Explores educational psychology through application of development and learning theories to instruction, achievement motivation, self-esteem, classroom management, supportive and disruptive processes on school sites, campus standards, disciplinary practices, legal/ethical issues. Requires research on effective educational practices and related foundations. Additional research for graduate credit. Prerequisite: General psychology.

**PSYC 460. The Exceptional Individual. 3 Units.**

Studies the determinants, characteristics, problems, and adjustments of individuals who deviate markedly from the norm in their mental, physical, emotional, or social aptitudes, traits, and tendencies. Emphasizes education and career planning. Open to upper division graduate and postgraduate students only.

**PSYC 479. Human Neuropsychology. 4 Units.**

Introduces brain-behavior relationships, including cerebral asymmetry, disconnection syndromes, disorders of memory and language, biological substrates of affective behavior, motor and perceptual dysfunction, and drug actions.

**PSYC 501. Advanced Statistics I. 4 Units.**

General introduction to statistical analysis—detailing the descriptive/inferential distinction; and covering sampling distributions (e.g., normal, binomial), hypothesis testing, and basic parametric and nonparametric techniques.

**PSYC 502. Advanced Statistics II. 4 Units.**

Thorough introduction to regression analysis and analysis of variance (ANOVA), with emphasis on hypothesis testing and the development of general models that partition overall variability. Topics covered include simple and multiple regression, one-way and factorial, repeated-measures ANOVA, and analysis of covariance. Evaluation of assumptions and nonparametric alternatives. Prerequisite: PSYC 501; must be a Psychology student; or consent of instructor.

**PSYC 503. Advanced Multivariate Statistics. 4 Units.**

Broad introduction that applies linear (matrix) algebra to maximum likelihood estimation generally, using several important multivariate statistical techniques, including but not limited to multivariate analysis of variance, multivariate regression, path analysis and structural equations causal modeling, log-linear models, and time series analysis. Evaluates alternatives to maximum likelihood estimation. Prerequisite: PSYC 501, PSYC 502; must be a Psychology student; or consent of instructor.

**PSYC 505. Research Methods in Psychological Science. 4 Units.**

Comprehensive examination of research methods in psychology—from the formulation of research problems to the design, execution, and report of findings. Includes experimental and quasi-experimental designs, as well as field and case studies. The exploratory-confirmatory distinction in scientific epistemology, and its implications for research and theory. Reviews and critically analyzes research literature from various areas of contemporary psychological science.

**PSYC 511. Psychometric Foundations. 3 Units.**

Advanced orientation to psychological instruments; their theoretical derivation, construction, and use. Emphasizes reliability, validity, and factor structures.

**PSYC 512. Cognitive/Intellectual Assessment. 2 Units.**

Instruction in administering, scoring, interpreting, and report writing relevant to various adult and child intelligence and achievement instruments, such as WAISIII, WISC-III, WPPSI-R, KBIT, Stanford-Binet, WIAT, PIAT, KABC, WRAT-3, and the Woodcock-Johnson batteries. Considers the empirical reliability and validity data for each instrument.

**PSYC 512L. Cognitive/Intellectual Practice Laboratory. 1 Unit.**

Supervised experiences in administering, scoring, interpreting, and report writing relevant to various adult and child intelligence and achievement instruments.

**PSYC 513. Objective Personality Assessment. 2 Units.**

Instruction in administering, scoring, interpreting, and report writing relevant to various adult and child objective personality instruments, such as MMPI-2, MMPI-A, MACI, PIC, 16PF, CDI, BDI, and BAI. Considers the empirical reliability and validity data for each instrument. Prerequisite: PSYC 571.

**PSYC 513L. Objective Personality Practice Laboratory. 1 Unit.**

Supervised experiences in administering, scoring, interpreting, and reporting relevant to various adult and child objective personality instruments. Prerequisite: PSYC 571.

**PSYC 516. Neuropsychological Assessment. 2 Units.**

Administering, scoring, interpreting, and report writing relevant to various adult and child neuropsychological instruments. Considers the empirical reliability and validity data for each instrument. Focuses on the use of flexible test collections tailored to assess neuropsychological disorders (such as depression and psychosis) and neurological disorders (such as dementia, attention disorders, and stroke). Emphasizes neuropsychological test integration, case conceptualization, and diagnostic inference. Prerequisite: PSYC 512, PSYC 512L.

**PSYC 516L. Neuropsychological Assessment Practice Laboratory. 1 Unit.**

Supervised experiences in administering, scoring, interpreting, and report writing relevant to various adult and child neuropsychological instruments. Prerequisite: PSYC 512, PSYC 512L.

**PSYC 524. History, Systems, and Philosophy of Psychology. 2 Units.**

Builds on the coverage of the history and systems of psychology provided in most undergraduate courses. Focuses on how different approaches to psychology (e.g., the schools of psychology) have defined the field, what topics and information they have considered as a part of psychology, and what mechanisms and criteria for advancing the field these approaches have considered acceptable. Examines current trends in light of their contributions to the development of psychology as a science and as a profession.

**PSYC 526. Ethics and Legal Issues in Clinical Psychology. 3 Units.**

Overviews current ethical and legal standards for the conduct of psychology. Guidelines and standards drawn from APA Ethical Guidelines, Standards for Providers of Psychological Services, and Standards for Educational and Psychological Tests, as well as relevant California and civil licensing laws.

**PSYC 537. Applied Behavioral Medicine. 2 Units.**

Provides students with a set of applied tools for use in the practice of behavioral medicine/health psychology, including: assessment and treatment of risky health behaviors, such as use of tobacco; consult-liaison skills; relaxation training; preparation of notes for medical settings; symptom management; motivational interviewing; brief diagnostic assessments; determination of capacity; and time-limited psychotherapy. Prerequisite: PSYC 721.

**PSYC 545. Cognitive Foundations. 4 Units.**

Reviews the major theories, methods, and findings in perception, cognition, and memory, including an introduction to contemporary cognitive science. Applications to the understanding of normal as well as abnormal behavior and psychological interventions.

**PSYC 546. Clinical Psychology and Practice in Medical Settings. 2 Units.**

Provides an understanding of how the behavioral and biological sciences interact to influence health care. Provides an overview of the application and practice of clinical psychology in hospital settings, with special attention to the primary care setting from an integrated sciences model for uniting the contributions of the biomedical and the behavioral sciences in teaching and practice.

**PSYC 547. Health Psychology Assessment. 2 Units.**

Covers the use of assessment instruments for research and clinical applications. Topics include behavioral medicine interviewing, the administration and interpretation of standardized instruments such as the Million Behavioral Health Inventory, quality-of-life assessment, and integrated report writing for medical settings.

**PSYC 551. Psychobiological Foundations. 4 Units.**

Basic course in psychobiology. Neuroanatomy, the physiology of the neuron, and neural communication. Includes consideration of structure and function of visual, auditory, and somesthetic sensation and perception. Concludes with coverage of the structure and function of motor systems. Considers visuospatial, visuoperceptual, and visuoconstructive disorders; and apraxia.

**PSYC 553. Cognitive Neuroscience. 4 Units.**

An advanced overview of the discipline that bridges cognitive psychology and neuroscience. Begins with neuroanatomy and the methodologies of electrophysiology and structural and functional imaging; and examines their application to perception, memory, language, cognitive control, attention, decision making, and motivational and emotional behavior.

**PSYC 554. Health Psychology. 4 Units.**

Overviews the field of clinical health psychology. The biopsychosocial model and the management of chronic illness used as a framework in which to address assessment and intervention principles, cultural influences, bioethics, and dying and death issues.

**PSYC 555. Psychopharmacology. 2 Units.**

Advanced coverage of neurotransmitter systems, with particular emphasis on the mechanism of action of various psychoactive substances.

**PSYC 564. Foundations of Social and Cultural Psychology. 4 Units.**

Surveys research, theory, and applications of social psychology within the context of other areas of psychology and related disciplines. Emphasizes scientific study of how people think about, influence, and relate to each other—both at the interpersonal and intergroup levels—within the context of cultural, social, and related phenomena. Applications to areas of psychology, such as clinical, health, and organizational psychology; as well as to economics, politics, and social issues.

**PSYC 566. Cultural Psychology. 4 Units.**

Examines cross-cultural variations in psychological processes and human behavior in light of the role of culture and implications for the universality of psychological principles. Examines cross-cultural research, theory, and interventions in terms of their implications for the understanding of cross-cultural variations and the universality of psychological knowledge; the implications for the study and practice of psychology in a multicultural society and interdependent world. Includes basic areas—such as personality, developmental, and social psychology—as well as clinical and other professional areas.

**PSYC 567. Human Diversity. 3 Units.**

Surveys theories, research, and interventions dealing with culture and ethnicity in mental health and clinical practice. Focuses on working with ethnic minorities, while emphasizing the effects of culture, ethnicity, and socioeconomic factors in the behavior of all ethnic minority as well as mainstream individuals and groups. The role of cultural and socioeconomic factors in psychological processes, psychopathology, psychological assessment, and intervention examined within the context of human diversity and community.

**PSYC 571. Adult Psychopathology. 4 Units.**

Advanced overview of the major theoretical and empirical approaches to the understanding and classification of adult psychopathology in light of contemporary psychological research and the context of culture. The DSM-IV provides the basic structure for analysis of the various major types of adult psychopathology, including schizophrenia and other psychotic disorders, mood disorders, anxiety disorders, dissociative disorders, personality disorders, adjustment disorders, and cognitive disorders.

**PSYC 572. Child Psychopathology. 2 Units.**

Advanced overview of the major theoretical and empirical approaches to the understanding and classification of child psychopathology in light of contemporary psychological research and the context of culture. The DSM provides the basic structure for analysis of the major types of child psychopathology, including: mental retardation, learning disorders, pervasive developmental disorders, conduct disorders, and eating disorders.

**PSYC 575. Foundations of Human Development. 4 Units.**

Considers human development from conception through old age including personality as well as social, cognitive, and physiological aspects of development. Emphasizes contemporary developments in research, theory, and applications.

**PSYC 581. Evidence-Based Psychological Practice I. 2 Units.**

Theory, evidence-based practice, and empirically supported treatment protocols of the cognitive and behavioral aspects of the integrated biopsychosocial-spiritual therapy model. Prerequisite: PSYC 571; and consent of instructor.

**PSYC 581L. Evidence-Based Psychological Practice I. 1 Unit.**

Supervised experience observing and/or engaging in laboratory assignments. Prerequisite: PSYC 571.

**PSYC 582. Evidence-Based Psychological Practice II. 2 Units.**

Theory, evidence-based practice, and empirically supported treatment protocols of the child and family aspects of the integrated biopsychosocial-spiritual therapy model.

**PSYC 582L. Evidence-Based Psychological Practice II. 1 Unit.**

Supervised experience observing and/or engaging in laboratory assignments. Prerequisite: PSYC 571.

**PSYC 583. Evidence-Based Psychological Practice III. 2 Units.**

Theory, evidence-based practice, and empirically supported treatment protocols of the phenomenological and couple aspects of the integrated biopsychosocial-spiritual model. Prerequisite: PSYC 582; or consent of instructor.

**PSYC 583L. Evidence-Based Psychological Practice III. 1 Unit.**

Supervised experience observing and/or engaging in laboratory assignments. Prerequisite: PSYC 582.

**PSYC 584. Evidence-Based Psychological Practice IV. 2 Units.**

Theory, evidence-based practice, and empirically supported treatment protocols of the child and family aspects of the integrated biopsychosocial-spiritual therapy model. Prerequisite: PSYC 571; or consent of instructor.

**PSYC 584L. Evidence-Based Psychological Practice IV. 1 Unit.**

Supervised experience observing and/or engaging in laboratory assignments. Prerequisite: PSYC 571. Corequisite: PSYC 584.

**PSYC 591. Colloquia. 1 Unit.**

Students participate in a series of lectures presented by distinguished speakers in the various areas of scientific and professional psychology. Students prepare a report critiquing each of the presentations attended. Enrollment is for 1 unit each year for three years.

**PSYC 594. Readings in Psychology. 1-4 Units.****PSYC 595. Directed Research. 1-13 Units.**

Academic credit for research leading to the second-year project. Requires a total of 13 units.

**PSYC 596. Directed Study. 1-4 Units.**

Academic credit for specific research projects arranged between individual students and faculty members. May include readings, literature review, and/or laboratory research. Not to be used for the second-year project.

**PSYC 597. Supervised Research. 1 Unit.**

Academic credit for research for those students who have not yet advanced to doctoral candidacy. Not to be used for the second-year project.

**PSYC 604. Advanced Topics in Multivariate Analyses. 2 Units.**

Advanced topics in statistical analysis and research methods in psychology. Prerequisite: PSYC 503, PSYC 505.

**PSYC 654. Behavioral Neurology. 2 Units.**

Examines the intersection of the fields of neurology and neuropsychology. Focuses on the pathophysiology, assessment, diagnosis, and treatment of various adult and child brain disorders. Covers material useful for neuropsychological test integration, case conceptualization, and diagnostic decision-making; as well as information necessary for the neuropsychologist to function as a member of a clinical team.

**PSYC 676. Geropsychology. 1 Unit.**

Covers human development from late adulthood through old age and death, with particular emphasis on the physical and psychological factors inherent in the aging process. Social, cognitive, physical, and psychological changes examined in light of contemporary research and theory. Required for California psychology licensure.

**PSYC 681. Clinical Supervision and Consultation. 2 Units.**

Provides instruction in competency-based clinical supervision approaches, as well as in the basic models and related theories of supervision. Assists students to develop an awareness of the professional, ethical, and legal parameters related to supervision, including: principles, methods, and techniques of individual, group, and live supervision. Emphasizes consultation, including models and related theories. Gives attention to professional, ethical, and legal issues involved in interdisciplinary collaboration. Emphasizes issues of diversity in a multicultural context.

**PSYC 681L. Clinical Supervision and Consultation Laboratory. 1 Unit.**

Provides hands-on experience in clinical supervision and consultation as students under instructor supervision apply the knowledge, attitudes, and skills acquired didactically. Utilizes videotaping, class presentations, critiques, and simulations to increase student competency.

**PSYC 683. Management and Professional Practice. 1 Unit.**

Seminar course in management and professional practice. In a variety of settings, exposes students to different management processes; as well as to professional, ethical, and legal requirements. Emphasizes management of integrated health and mental health care-delivery systems. Focuses on varied aspects of professional practice, including the roles psychologists play in developing organizational skills needed to function effectively in the changing health care marketplace.

**PSYC 684. Human Sexual Behavior and Treatment. 1 Unit.**

Human sexuality in contemporary society. Physiological, psychological, sociocultural, and developmental factors associated with human sexuality. Interventions for sexual dysfunctions and sexual well-being. Fulfills California state licensing requirements for psychologists.

**PSYC 685. Drug Addiction and Therapy. 2 Units.**

Overviews the definitions, incidence, detection, assessment, effects, and ethical/legal/therapeutic management of substance abuse. Fulfills California state licensing requirements for psychologists.

**PSYC 686. Child, Partner, and Elder Abuse. 3 Units.**

Overviews the definitions, incidence, detection, assessment, effects, and the ethical, legal, and therapeutic management of child, partner, and elder/dependent-adult abuse. Perpetrator and victim characteristics, including cultural and ethnic diversity factors. Controversies regarding assessment techniques, diagnoses, sequelae syndromes, interventions, and forensic issues. Fulfills California state licensing requirements for psychologists.

**PSYC 694. Seminar in Advanced Topics in Psychology. 1-4 Units.****PSYC 696. Psy.D. Doctoral Research. 1-8 Units.**

Course covers both the Psy.D. research proposal through to the final Psy.D. project defense and completion. Prerequisite: PSYC 502, PSYC 504; and admission to Psy.D. degree program.

**PSYC 697. Doctoral Research. 1-4 Units.**

Academic credit for dissertation research. A total of 43 units required.

**PSYC 721. Practicum Preparation I. 3 Units.**

Required for all Psy.D. and Ph.D. degree students. Helps students learn beginning assessment and counseling skills. Incorporates demonstrations to facilitate learning. Prepares graduate students for both internal and external practicum.

**PSYC 781. Internal Practicum. 2 Units.**

Required unit for Psy.D. degree students; elective clinical training experience for Ph.D. degree students. Second-year practicum provides students with clinical training before they enter the formal practicum sequence. May be repeated three times for a total of 8 units.

**PSYC 782. External Practicum I. 4 Units.**

Provides students with a pre-internship level of clinical psychology training that will be more intensive, extensive, and continuous than anything they have previously experienced in the academic/clinical aspects of the program. A highly integrated component in the student's entire sequence of training and education at Loma Linda University. Provides (a) access to greater numbers of practicing psychologists who can serve as valid role models; (b) further education and experience in the areas of psychological assessment, diagnostic conceptualizations, and scientifically based treatment regimens; and (c) additional training with regard to the ethical, legal, and professional standards of the profession of clinical psychology.

**PSYC 783. External Practicum II. 4 Units.****PSYC 784. External Practicum III. 4 Units.****PSYC 785. External Practicum IV. 4 Units.****PSYC 795. Directed Clinical Experience. 1-3 Units.**

For students who have finished their external practicum and pre-internship but who still desire further clinical training before going on internship. Also open to those occasional students who are not a part of the doctoral degree program but who are seeking a particular clinical experience available through the department. Clinical experience individually designed according to the needs and desires of the student and under the direction of a member of the department's faculty. May be repeated to a maximum of 8 units.

**PSYC 798. Pre-Internship. 4 Units.**

Elective clinical experience for students who have successfully completed the practicum year. May be repeated to a maximum of 16 units.

**PSYC 799. Internship. 0.5,1 Units.**

Must be repeated to a total of 4 units. Prerequisite: Advancement to candidacy and completion of all academic course work.

**PSYC 799A. Internship. 5 Units.**

A one-year internship completed at either an APA- or APPIIC-approved placement. Limited to students who begin their internship mid-Summer Quarter (usually the middle of July). Requires 250 contact hours of clinical experience. Student registers initially for 5 units and registers the following Summer Quarter for an additional 5 units.

**PSYC 799B. Internship. 10 Units.**

A one-year internship completed at either an APA- or APPIC-approved placement. Limited to students who begin their internship either at the beginning of Summer Quarter or the beginning of Fall Quarter. Requires 500 contact hours per quarter of clinical experience. Student registers for 10 units per quarter.

## Public Health—Conjoint (PHCJ)

### Courses

**PHCJ 501. Introduction to On-line Learning. 1 Unit.**

Orientation to on-line instruction programs. Includes introduction to Loma Linda University; the School of Public Health faculties, facilities, and resources; use of library on-line services; Web-based instruction; Blackboard; course formatting; and fellow students.

**PHCJ 524. SPECIAL TOPICS IN PUBLIC HEALTH PRACTICE. 1-4 Units.**

Current topics in public health. Specific content varies from quarter to quarter. May be repeated for additional credit.

**PHCJ 525A. Special Topics in Public Health. 1-4 Units.**

Cross-disciplinary integration of current public health core content. Specific content varies from quarter to quarter. May be repeated for additional credit.

**PHCJ 525B. Special Topics in Public Health. 1-4 Units.**

Cross-disciplinary integration of current public health core content. Specific content varies from quarter to quarter. May be repeated for additional credit.

**PHCJ 525C. Special Topics in Public Health. 1-4 Units.**

Cross-disciplinary integration of current public health core content. Specific content varies from quarter to quarter. May be repeated for additional credit.

**PHCJ 525D. Special Topics in Public Health. 1-4 Units.**

Cross-disciplinary integration of current public health core content. Specific content varies from quarter to quarter. May be repeated for additional credit.

**PHCJ 604. Research Seminar. 2 Units.**

Student develops and critiques research and dissertation proposals, with peer review of research protocols. Limited to doctoral degree students. Prerequisite: PHCJ 534, STAT 514; or consent of instructor.

**PHCJ 605. Overview of Public Health. 1 Unit.**

Selected topics addressing issues, concepts, and recent developments in public health.

**PHCJ 606. Public Health Fundamentals. 3 Units.**

Provides an overview of three areas of public health: health behavior, environmental health, and public health policy. Introduces key health behavior-change theories and psychosocial determinants of health behaviors. Introduces rural and urban environmental factors that affect human-health status, enjoyment of the quality of life, and human survival. Introduces concepts of the health policy process and factors that impact health and access to health care. Open to Non-MPH degree students only.

**PHCJ 630. Concepts and Practical Issues of Secondary Data. 3 Units.**

Introduces concepts and practical issues involved in conducting secondary data analysis. Covers several fundamental concepts and prepares students to become informed and competent researchers who use existing sources of data, known as secondary data, from across disciplines in public health. Topics include: advantages and limitations of secondary analysis, sources of secondary data, developing appropriate hypothesis for such data, sampling methods and subject selection, downloading and cleaning secondary data, issues with missing data, defining the operationalization of relevant variables, applying basic statistical analysis (descriptive analysis, t-test, correlation). Doctoral students only.

**PHCJ 675. Integrated Public Health Capstone. 2 Units.**

Serves as the capstone educational experience for students earning a degree in public health. Integrates the core and cross-cutting competencies, along with the student's specific area of study, to facilitate the transition from the academic setting into the professional world of public health. Student applies and integrates knowledge and expertise through case studies taken from current public health issues in local, national, and global environments. Prerequisite: PHCJ 605; Public health core courses; Successful completion of at least 44 units towards degree.

**PHCJ 695. Community Practicum. 1-4 Units.**

Provides opportunities for students to integrate the multiple skills they have learned with the practice of public health in a community setting. Requires 100 hours of practicum for each unit of credit to receive a grade. A maximum of 4 units applicable to a degree program.

**PHCJ 798A. Public Health Practicum. 2 Units.**

Provides students with the opportunity to integrate and apply classroom learning in a public health work environment through an approved, planned, and supervised practicum—as specified by the program. Course components include: placement in an agency or organization with a plan that develops and applies learned public health skills; a minimum of 100 practicum work hours; an approved learning contract; faculty and agency oversight; a midpoint review; a written abstract; a presentation and/or written report; and evaluations. Practicum course graded as satisfactory or unsatisfactory.

**PHCJ 798B. Public Health Practicum. 4 Units.**

Provides students with the opportunity to integrate and apply classroom learning in a public health work environment through an approved, planned, and supervised practicum—as specified by the program. Course components include: placement in an agency or organization with a plan that develops and applies learned public health skills; a minimum of 200 practicum work hours; an approved learning contract; faculty and agency oversight; a midpoint review; a written abstract; a presentation and/or written report; and evaluations. Practicum course graded as satisfactory or unsatisfactory.

**PHCJ 798C. Public Health Practicum. 6 Units.**

Provides students with the opportunity to integrate and apply classroom learning in a public health work environment through an approved, planned, and supervised practicum—as specified by the program. Course components include: placement in an agency or organization with a plan that develops and applies learned public health skills; a minimum of 300 practicum work hours; an approved learning contract; faculty and agency oversight; a midpoint review; a written abstract; a presentation and/or written report; and evaluations. Practicum course graded as satisfactory or unsatisfactory.

**PHCJ 798D. Public Health Practicum. 8 Units.**

Provides students with the opportunity to integrate and apply classroom learning in a public health work environment through an approved, planned, and supervised practicum—as specified by the program. Course components include: placement in an agency or organization with a plan that develops and applies learned public health skills; a minimum of 400 practicum work hours; an approved learning contract; faculty and agency oversight; a midpoint review; a written abstract; a presentation and/or written report; and evaluations. Practicum course graded as satisfactory or unsatisfactory.

## Radiation Medicine (RDMN)

### Courses

**RDMN 891. Radiation Medicine Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of radiation medicine.

## Radiation Technology Advanced Medical Imaging (RTAM)

### Courses

**RTAM 401. Advanced Clinical. 5 Units.**

Advanced clinical experience in selected areas of professional practice, such as orthopedic radiography, fluoroscopy, trauma, C-arm operation, and pediatrics.

**RTAM 402. Advanced Clinical. 10 Units.**

Advanced clinical experience in selected areas of professional practice, such as orthopedic radiography, fluoroscopy, trauma, C-arm operation, and pediatrics.

**RTAM 403. Advanced Clinical. 10 Units.**

Advanced clinical experience in selected areas of professional practice, such as orthopedic radiography, fluoroscopy, trauma, C-arm operation, and pediatrics.

**RTAM 404. Advanced Clinical. 10 Units.**

Advanced clinical experience in selected areas of professional practice, such as orthopedic radiography, fluoroscopy, trauma, C-arm operation, and pediatrics.

**RTAM 405. Advanced Clinical. 2 Units.**

Advanced clinical experience in selected areas of professional practice, such as orthopedic radiography, fluoroscopy, trauma, C-arm operation, and pediatrics.

**RTAM 454. Advanced Patient Care. 3 Units.**

Addresses patient care topics, such as trauma and medical emergencies, patient assessment, and pharmacology.

**RTAM 458. Advanced Imaging Procedures. 3 Units.**

Introduces students to various imaging procedures and modalities including: anatomy, patient positioning, geometric factors, and radiation protection beyond the level of a basic medical radiographer.

**RTAM 464. Pathology. 3 Units.**

Reviews pathologic processes most commonly found in imaging modalities.

**RTAM 468. Advanced Imaging Principles. 3 Units.**

Provides advanced instruction in the use of digital imaging technology in radiology modalities, including new and emerging technologies and other radiology-related applications.

**RTAM 474. Patient Education and Evidence-Based Medicine. 3 Units.**

Introduces clinical pathways, multidisciplinary clinical practice, and a focus on quality and coordination of care. Includes relationship-centered patient care, effective communication, and patient education.

**RTAM 478. Introduction to Computed Tomography. 3 Units.**

Introduces basic concepts related to computed tomography (CT), including: patient care, communication, principles, and procedures.

## Radiation Technology Education (RTED)

### Courses

**RTED 415. Teaching Practicum in the Radiation Sciences. 3 Units.**

A project-based course in which B.S. degree radiation science students have the opportunity to demonstrate curriculum-related knowledge and skills in applicable settings.

**RTED 474. Instructional Techniques for the Radiation Sciences. 3 Units.**

Prepares B.S. degree students in the Radiation Science Program to create learning environments in medical imaging-related courses and clinical education. Students learn to create course content, develop presentations, design lessons, and evaluate learning.

**RTED 475. Curriculum Development for the Radiation Sciences. 3 Units.**

Prepares B.S. degree students in the Radiation Sciences Program to develop curricula in medical imaging-related programs and clinical environments. Includes curriculum development approaches, implementation, and evaluation for effectiveness in the clinical environment.

**RTED 476. Adult Learning Theory for the Radiation Science Student. 3 Units.**

Examines teaching and learning from theoretical perspectives as B.S. degree students in the Radiation Sciences Program relate to employment within the radiation science education and clinical education fields.

**RTED 477. Learning Activities and Assessment for the Radiation Sciences. 3 Units.**

Investigates active learning techniques, integration, and assessment approaches in imaging-related programs and clinical environments.

**RTED 478. Online Instructional Design. 3 Units.**

Explores the design of online or hybrid courses to incorporate active learning approaches and create community in the online environment.

**RTED 484. Learning Environments for Radiation Science Students. 3 Units.**

Prepares B.S. degree students in the Radiation Science Program in topics related to models, learning environments, and measures of success in medical imaging educational contexts.

**RTED 485. Digital Design for the Radiation Sciences. 3 Units.**

Utilizing a variety of platforms, introduces available digital technologies and explains key elements necessary to engage medical imaging students.

**RTED 487. Issues in Radiation Sciences. 3 Units.**

Prepares B.S. degree students in the radiation sciences to focus primarily on scholarly journal publications as they explore prevailing issues related to classroom and clinical education in the radiation sciences.

## Radiation Technology/Imaging Informatics (RTII)



## Courses

### **RTII 354. Introduction to Informatics. 3 Units.**

Provides students with a challenging introduction to and basic overview of computer fundamentals. Offers In-depth insight into the components that comprise a picture-archiving and communication system (PACS), including but not limited to basic terminology, computed radiography, digital radiography, hospital information systems, radiology information systems, DICOM, and HL-7. Online instruction utilizing Blackboard exposes students to topics via reading, PowerPoint, videos, and other interactive resources. Challenges students to demonstrate critical problem-solving skills required to create and design basic models of a PACS system, as well as to troubleshoot issues related to such systems.

### **RTII 356. Information Technology in Radiology. 3 Units.**

Introduces the basic principles behind developing and maintaining a network within a radiology health care enterprise. Topics include, but are not limited to: basic terminology, network components, network design and implementation, storage and archive assessment, hard- and software implementation databases, IT standards, and IT replacement schedules. Online instruction utilizing Blackboard exposes students to topics via reading, PowerPoint, videos, and other interactive resources. Challenges the student to create and design basic models of a network. Requires the student to demonstrate the critical problem-solving skills required to troubleshoot issues in a network.

### **RTII 358. PACS Planning and Implementation. 3 Units.**

Studies the steps needed to successfully procure a picture-archiving and communications system (PACS) in a radiology department of any size. Focuses on organizational readiness, proposal requests, vendor selection, contracts, and cost strategies. Online instruction utilizing Blackboard, group discussions, and various online learning mediums challenge students to demonstrate not only critical-thinking skills in the planning environment, but also team-building and project management abilities. Includes two major projects.

### **RTII 364. Administrative Issues in Informatics. 3 Units.**

Focuses on issues in informatics faced by a picture-archiving and communications system (PACS) administrator. Facilitates understanding of the architecture of a PACS and the details of running the business aspects of such a system. Topics include, but are not limited to; project management, operations management, relationships in health care, quality-improvement procedures, emergency protocols, and compliance with federal regulations.

### **RTII 368. Communication and Education in Imaging Informatics. 3 Units.**

Focuses on the basic communication skills a picture-archiving and communications systems (PACS) administrator should possess. Topics include, but are not limited to: relationships in health care, medical terminology, educational concerns, feedback mechanisms, evaluation processes, effective communication, and quality education and training programs. Online instruction utilizes Blackboard, text, video, PowerPoint, and other interactive online resources.

### **RTII 374. Image Management in Informatics. 3 Units.**

Focuses on basic image-management tasks that a picture-archiving and communications system (PACS) administrator must complete on a daily basis. Topics include but are not limited to: environmental design, human-computer interface evaluation, database retrieval, and problem solving. Online instruction using Blackboard incorporates text, video, PowerPoint, and other interactive resources.

### **RTII 378. Systems Management in Informatics. 3 Units.**

Focuses on basic systems management tasks that a picture-archiving and communications system (PACS) administrator must complete on a daily basis. Topics include but are not limited to: capacity and throughput, disaster recovery and continuity, problem management, data migration, and data security. Online instruction using Blackboard incorporates text, video, PowerPoint, and other interactive resources.

### **RTII 384. Advanced Imaging Informatics. 3 Units.**

An in-depth study of the advanced imaging informatics skills required of a picture-archiving and communications system (PACS) administrator. Topics include but are not limited to: medical imaging standards, integrated health care, enterprise guidelines, image architecture and design, modality integration, quality control, and environmental hazards. Online instruction using Blackboard incorporates text, video, PowerPoint, and other interactive resources.

## Radiation Technology/Medical Dosimetry (RTMD)

### Courses

#### **RTMD 301. Treatment Planning I. 2 Units.**

Studies in-depth the planning of isodose distributions and dose calculations within different target volumes. Topics covered include IMRT, conformal therapy, and stereotactic radiosurgery.

#### **RTMD 302. Treatment Planning II. 2 Units.**

Develops the student's ability to construct treatment plans using 3D/IMRT planning techniques. Integrates theory with practice. Students required to complete a number of plans that utilize all the major treatment techniques, based on anatomical tumor sites. Lecture includes discussion and plans related to specific tumors, after which students are expected to produce similar plans, compile a notebook of plans, and present plans to the class as a midterm and final examination.

#### **RTMD 305. Special Topics. 2 Units.**

Studies cutting-edge techniques in depth as they apply to therapy—including radiation oncology and the diagnostic modalities that support them. Topics include IMRT, TBI, USGI, IORT, MLC, dynamic wedging, virtual simulation (CT simulation), stereotactic radiosurgery, HDR, proton therapy, MRI, US, and NRM. Students make a weekly presentation from a peer-reviewed journal or discuss a research paper on one of the studied topics. Class paper on a specific area of study due at the end of the quarter.

#### **RTMD 307. Principles of Brachytherapy. 2 Units.**

Includes a two-week rotation at Long Beach Memorial Hospital to observe brachytherapy. Principles of radiation protection as they relate to brachytherapy.

#### **RTMD 309. Radiation Therapy Core—Concept Review. 1 Unit.**

Conducted in the seminar/review format. Students research and present information on weekly schedule of core topics and concepts relating to radiation therapy techniques, oncology, radiobiology, and patient care. Students complete assigned readings and answer general review questions.

#### **RTMD 310. Applied Math for Medical Dosimetry. 1 Unit.**

A review of the higher mathematics skills required for dosimetric calculations. Course conducted in a tutorial format in which students meet regularly with faculty to review problems from an assigned mathematics workbook.

**RTMD 314. Quality Assurance, with Laboratory. 2 Units.**

General overview of quality-assurance management within a radiation oncology department, with specific emphasis on continuous quality assurance (CQI). Examines the theoretical and practical application of quality-assurance techniques as they relate to treatment planning and other dosimetry functions.

**RTMD 355. Physical Principles of Radiation Therapy I. 3 Units.**

Nature and description of the structure of matter and energy. Radioactive decay schemes and interaction of photons and gamma radiation. Instrumentation involved in measurement of ionizing radiation, beam quality, and dose. Laboratory.

**RTMD 356. Physical Principles of Radiation Therapy II. 3 Units.**

Discusses the following areas: calibration techniques of photon, particulate, and electron beams; percentage depth dose, tissue-air ratios, treatment planning, scatter functions, field flatness, and symmetry; field shaping, arc therapy, and tissue inhomogeneities; clinical dosimetric considerations. Includes laboratory.

**RTMD 961. Practicum. 8 Units.**

Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: twenty-eight hours.

**RTMD 962. Practicum. 10 Units.**

Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty-four hours.

**RTMD 963. Practicum. 9 Units.**

Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty-one hours.

**RTMD 964. Practicum. 11 Units.**

Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty-six hours.

**RTMD 965. Practicum. 11 Units.**

Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty-six hours.

**RTMD 971. Practicum. 10 Units.**

Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty-three hours.

**RTMD 972. Practicum. 9 Units.**

Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty hours.

**RTMD 973. Practicum. 10 Units.**

Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty-four hours.

**RTMD 974. Practicum. 11 Units.**

Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty-six hours.

**RTMD 975. Practicum. 11 Units.**

Practical application of the theoretical knowledge of dosimetry. Includes external beam treatment planning, monitor unit calculations, brachytherapy, and quality assurance procedures as they pertain to dosimetry practice. Students integrated into the dosimetry and physics team, with opportunity to work with various kinds of treatments and treatment beams. Per week: thirty-six hours.

## Radiation Technology/Medical Radiography (RTMR)

### Courses

**RTMR 202. Clinical Orientation. 3 Units.**

Clinical orientation to the functions of radiologic technologists. Clinical environment orientation conducted at affiliated clinical sites.

**RTMR 221. Radiologic Patient Care. 2 Units.**

Addresses patient care issues specific to radiographic procedures. Emphasizes patient care in the ER and OR, as well as contrast procedures. Other topics covered include: radiographic professional organizations, ARRT code of ethics, staying balanced and healthy, critical thinking and problem solving, pharmacology, medical abbreviations, spirituality in health care, dealing with challenging patient situations, immobilization techniques, and overview of patient care topics on the ARRT board examination.

**RTMR 224. Legal Issues in Medical Radiography. 1 Unit.**

Presents an overview of legal issues in radiologic technology. Topics include: standards of care, patient rights, informed consent, civil liability, legal doctrines, documentation, confidentiality, scope of practice, and ethical theories.

**RTMR 246. Professional Communication. 2 Units.**

Provides an understanding of the professional communication skills needed to succeed as an entry-level radiographer. Addresses radiologic technology accreditation and University-required student learning outcomes in oral, written, and health care team communication.

**RTMR 247. Languages for Radiographers. 1 Unit.**

Introduces radiography students to the words, phrases, and medical terminology most often used in radiographic patient care situations for the common languages of patients.

**RTMR 253. Medical Radiography Procedures I. 2 Units.**

Introduces students to various radiographic procedures, which include anatomy, patient positioning, geometric factors, exposure techniques, and patient shielding.

**RTMR 253L. Medical Radiography Procedures Laboratory I. 1 Unit.**

Applies principles of patient positioning in a laboratory setting. Students practice optimum positioning practices on classmates. Anatomy covered includes: chest, upper extremity, lower extremity, bony thorax, and shoulder girdle.

**RTMR 254. Medical Radiography Procedures II. 2 Units.**

Introduces students to various radiographic procedures, which include anatomy, patient positioning, geometric factors, exposure techniques, and patient shielding. Continues RTMR 253. Prerequisite: RTMR 253.

**RTMR 254L. Medical Radiography Procedures Laboratory II. 1 Unit.**

Applies principles of patient positioning in a laboratory setting. Students practice optimum positioning practices on classmates and volunteers. Anatomy covered includes: abdomen, spine, skull, and pelvis.

**RTMR 255. Medical Radiography Procedures III. 2 Units.**

Introduces students to various radiographic procedures, which include anatomy, patient positioning, geometric factors, exposure techniques, and patient shielding.

**RTMR 255L. Medical Radiography Procedures Laboratory III. 1 Unit.**

Applies principles of patient positioning and radiographic exposure to the laboratory setting. Uses clinical patient simulation and radiographic phantoms to determine optimal radiographic techniques.

**RTMR 283. Radiologic Physics. 3 Units.**

Provides a background for understanding the physics of man-made radiation production. Addresses the interaction of radiation with matter for both radiation protection and the creation of radiographic images. Covers the electrical circuitry of diagnostic x-ray equipment.

**RTMR 284. Radiation Protection and Biology. 2 Units.**

Addresses the fundamental concepts of radiation protection and biological effects of radiation on patients and occupationally exposed personnel. Topics include: radiation safety procedures, radiation quantities and units, legal exposure standards, and radiation monitoring.

**RTMR 285. Principles of Radiography I. 3 Units.**

Introduces the principles of radiographic theory and technique. Covers the physical factors involved in image exposure and processing, auxiliary equipment used in producing the radiographic exposure, and techniques for obtaining the optimum image under any situation. Weekly laboratory sessions required.

**RTMR 286. Principles of Radiography II. 3 Units.**

Provides advanced instruction in the principles of radiographic theory and technique. Examines the role of image-intensified fluoroscopy in radiology. Weekly laboratory sessions required.

**RTMR 287. Principles of Radiography III. 2 Units.**

Provides advanced instruction in the use of digital imaging technology in radiology, including: digital imaging equipment, picture archival and communications systems, radiology information systems, hospital information systems, and various other radiology-related applications. Advanced techniques focus on operation, quality assurance, and radiation safety.

**RTMR 305. Introduction to Computed Tomography I. 2 Units.**

Introduces an overview of cross-sectional anatomy. Identifies normal anatomy in two- and three-dimensional planes. Addresses the structural and physiological functions of body systems.

**RTMR 306. Introduction to Computed Tomography II. 2 Units.**

Introduces basic principles, physics, imaging parameters, radiological effects, management, and patient protocol of computed tomography (CT).

**RTMR 321. Radiographic Image Evaluation. 2 Units.**

Expands upon the fundamental image evaluation knowledge acquired in RTMR 253, 254, and 255. Advances understanding of image evaluation with reference to radiographic anatomy, patient positioning, geometric factors, exposure techniques, and patient shielding.

**RTMR 324. Radiographic Image Evaluation and Pathology. 3 Units.**

Expands upon the fundamental image evaluation knowledge acquired in RTMR 253, 254, and 255. Advances understanding of image evaluation with reference to pathology, radiographic anatomy, patient positioning, geometric factors, exposure techniques, and patient shielding.

**RTMR 342. Professional Development. 1 Unit.**

Provides an overview of the radiologic specialties, as well as fluoroscopy technology to generate images and treat patients. Examines the state and national radiography organizations, continuing education, and services available to students and technologists. Reviews the values and code of ethics of the radiography profession as it relates to employment. Students develop a professional development plan and resume to be used for their career development.

**RTMR 344. Professional Development and Service Learning. 3 Units.**

Provides an overview of the radiologic specialties. Examines state and national radiography organizations and continuing education requirements. Reviews the values and code of ethics of the radiography profession as they relate to employment. Students create a professional development plan and resume; and complete a service learning project of more than 16 hours that includes involvement in the community, a needs assessment, reciprocation, and reflection for deep learning and transformation. Students also write a synthesis project that addresses the knowledge, skills, attitudes, values, and behaviors necessary to become a radiologic technologist.

**RTMR 345. Radiologic Pathology. 2 Units.**

Reviews the pathologic processes most commonly viewed by radiographers using radiologic imaging methods.

**RTMR 363. Comprehensive Review I. 2 Units.**

Reviews major content areas emphasized on certification examinations. Student evaluation and performance analysis. Time provided to make class presentations, organize study materials, and take simulated registry examinations.

**RTMR 365. Comprehensive Review II. 2 Units.**

Continues review of major content areas emphasized on certification examinations. Student evaluation and performance analysis. Time provided to make class presentations, organize study materials, and take simulated registry examinations.

**RTMR 371. Medical Radiography Affiliation I. 5 Units.**

The first of six affiliation courses that total eighteen months of clinical experience. Students gain hands-on experience in basic patient care, radiographic procedures and positioning, radiation protection, radiographic exposure and techniques, critical thinking and problem solving, and patient and health care team communication. The combined six-part affiliation sequence fulfills state requirements for clinical hours in medical radiography.

**RTMR 372. Medical Radiography Affiliation II. 7 Units.**

Continues RTMR 371.

**RTMR 373. Medical Radiography Affiliation III. 12 Units.**

Continues RTMR 371 and 372.

**RTMR 374. Medical Radiography Affiliation IV. 10 Units.**

Continues RTMR 371, 372, and 373.

**RTMR 375. Medical Radiography Affiliation V. 10 Units.**

Continues RTMR 371, 372, 373, and 374.

**RTMR 384. Topics in Medical Radiography. 1-3 Units.**

Lecture and discussion of a current topic in medical radiography bearing on the theory or practice of one aspect of the discipline. Specific content varies from quarter to quarter.

**RTMR 386. Medical Radiography Affiliation VI. 10 Units.**

Continues RTMR 371, 372, 373, 374, and 375.

## Radiation Technology/Medical Sonography (RTMS)

### Courses

**RTMS 339. Echocardiography I. 4 Units.**

Focuses on normal anatomy, scan techniques, cardiac measurement, and new dynamics. Case study presentations.

**RTMS 344. Introduction to Medical Sonography. 5 Units.**

Introduction to sonography—including ob-gyn, abdomen, vascular, neurosonography, cardiac, and pediatric. Covers terminology and scan techniques for all areas.

**RTMS 345. Ob-Gyn Sonography. 5 Units.**

Ob-Gyn scan techniques, fetal anatomy and pathologies, gynecological anatomy and pathologies. Student case presentations and case studies.

**RTMS 346. Vascular Technology/Doppler/Scan Techniques. 5 Units.**

Covers vascular technology, Doppler, abdomen, and small parts. Continues case studies and case presentations.

**RTMS 347. Echocardiography II. 4 Units.**

Echocardiography, adult and pediatric. Further focuses on anatomy, pathology, hemodynamics, and Doppler. Includes case studies and presentations.

**RTMS 348. Abdomen/Neurosonography. 5 Units.**

Sonography of the abdomen and neonatal neurosonography specialties and scan techniques. Visualizes sonography of the abdomen, cross-section scan techniques, and pathologies on ultrasound. Includes neonatal neurosonography; anatomy and pathologies also included.

**RTMS 379. Ultrasound Physics and Instrumentation I. 2 Units.**

Studies the basic physical principles and instrumentation of ultrasound production and imaging. Selected case study presentations, as assigned.

**RTMS 381. Topics in Medical Sonography I. 1 Unit.**

Surveys selected topics in medical sonography. Procedure summaries, projects, literature reviews.

**RTMS 382. Topics in Medical Sonography II. 1 Unit.**

Surveys selected topics in medical sonography. Procedure summaries, projects, literature reviews.

**RTMS 383. Topics in Medical Sonography III. 1 Unit.**

Surveys selected topics in medical sonography. Procedure summaries, projects, literature reviews.

**RTMS 384. Topics in Medical Sonography IV. 1 Unit.**

Includes board-review sessions; mock boards; and additional lectures in writing a CV, interviewing for a new position, and completing all paperwork associated with taking the national boards.

**RTMS 385. Topics in Medical Sonography V. 1-3 Units.**

Selected projects that may be taken concurrently with RTMS 971-978 Medical Sonography for credit toward the B.S. degree.

**RTMS 387. Ultrasound Physics and Instrumentation II. 2 Units.**

Study and review of the basic physical principles and instrumentation of ultrasound, with additional emphasis on Doppler and artifacts. Prerequisite: RTMS 379.

**RTMS 965. Cardiac Ultrasound Clinical Affiliation. 12 Units.**

Clinical experience in cardiac ultrasound (384 clock hours per quarter) covering a wide variety of technical procedures.

**RTMS 966. Cardiac Ultrasound Clinical Affiliation. 11 Units.**

Clinical experience in cardiac ultrasound (352 clock hours per quarter) covering a wide variety of technical procedures.

**RTMS 967. Cardiac Ultrasound Clinical Affiliation. 11 Units.**

Clinical experience in cardiac ultrasound (352 clock hours per quarter) covering a wide variety of technical procedures.

**RTMS 968. Cardiac Ultrasound Clinical Affiliation. 12 Units.**

Clinical experience in cardiac ultrasound (440 clock hours per quarter) covering a wide variety of technical procedures.

**RTMS 971. Medical Sonography Clinical Affiliation. 11 Units.**

A twelve-week, 384-hour clinical experience in medical sonography, consisting of four days/week rotations covering a wide variety of technical procedures.

**RTMS 972. Medical Sonography Clinical Affiliation. 11 Units.**

Clinical experience in medical sonography (384 clock hours) covering a wide variety of technical procedures. Prerequisite: RTMS 971.

**RTMS 973. Medical Sonography Clinical Affiliation. 11 Units.**

Clinical experience in medical sonography (352 clock hours) covering a wide variety of technical procedures. Prerequisite: RTMS 972.

**RTMS 974. Medical Sonography Clinical Affiliation. 11 Units.**

Clinical experience in medical sonography (352 clock hours) covering a wide variety of technical procedures. Prerequisite: RTMS 973.

**RTMS 975. Medical Sonography Clinical Affiliation. 12 Units.**

Clinical experience in medical sonography (384 clock hours) covering a wide variety of technical procedures. Prerequisite: RTMS 974.

**RTMS 976. Medical Sonography Clinical Affiliation. 11 Units.**

Clinical experience in medical sonography (352 clock hours) covering a wide variety of technical procedures. Prerequisite: RTMS 975.

**RTMS 977. Medical Sonography Clinical Affiliation. 11 Units.**

Clinical experience in medical sonography (352 clock hours) covering a wide variety of technical procedures. Prerequisite: RTMS 976.

**RTMS 978. Medical Sonography Clinical Affiliation. 11 Units.**

Clinical experience in medical sonography (352 clock hours) covering a wide variety of technical procedures. Prerequisite: RTMS 977.

# Radiation Technology/Nuclear Medicine (RTNM)

## Courses

### **RTNM 351. Principles of Nuclear Medicine I. 4 Units.**

Covers the historical developments that led to the field of nuclear medicine. Describes the structure of the atom and the factors that make an atom radioactive. Reviews the laws of physics; periodic chart of the elements; and the trilinear chart of the nuclides, radioactive decay, radionuclide production, and quality control of radiopharmaceuticals.

### **RTNM 351L. Principles of Nuclear Medicine I Laboratory. 1 Unit.**

A laboratory course that emphasizes the material presented in RTNM 351. Structure of the atom, radioactive decay, radionuclide production.

### **RTNM 352. Principles of Nuclear Medicine II. 4 Units.**

Includes the model of the atom, as well as electromagnetic and particle radiation. Lists the types of radioactive decay, along with the radiation interactions with matter. Defines terms that are specific to radioactive decay and performs calculations used in nuclear medicine for pre- and postcalibration of radionuclides.

### **RTNM 352L. Principles of Nuclear Medicine II Laboratory. 1 Unit.**

A laboratory course that emphasizes the material presented in RTNM 352. Electromagnetic and particle radiations, radioactive decay interactions, and calculations.

### **RTNM 353. Nuclear Medicine Procedures I. 2 Units.**

Covers the nuclear medicine procedures used to image, diagnose, and treat disease with radiopharmaceuticals. Teaches students which radionuclides are used to image the various organs in the body—such as the endocrine system, cardiovascular system, respiratory system, and skeletal system. As part of utilizing radiation in patient care, teaches the technologist how to prepare the patient for the scan, the route of administration of the radiopharmaceutical, and the method of localization for organ imaging. Provides a basic understanding of radiopharmacy and quality control of radiopharmaceuticals.

### **RTNM 353L. Nuclear Medicine Procedures Laboratory. 1 Unit.**

A laboratory course that emphasizes the material presented in RTNM 353.

### **RTNM 354. Nuclear Medicine Procedures II. 2 Units.**

Covers the nuclear medicine procedures used to image, diagnose, and treat disease with radiopharmaceuticals. Teaches students which radionuclides are used to image the various organs in the body—such as the endocrine system, cardiovascular system, respiratory system, and skeletal system. As part of utilizing radiation in patient care, teaches the technologist how to prepare the patient for the scan, the route of administration of the radiopharmaceutical, and the method of localization for organ imaging. Provides a basic understanding of radiopharmacy and quality control of radiopharmaceuticals.

### **RTNM 354L. Nuclear Medicine Procedures II Laboratory. 1 Unit.**

A laboratory course that emphasizes the material presented in RTNM 354.

### **RTNM 355. PET/CT. 2 Units.**

Covers the radionuclides, radiopharmaceuticals, and contrast agents used for PET/CT imaging. Topics include: localization, indications, method of administration, standard dose range, quality control, contraindications, patient history, patient preparation, equipment, technical considerations.

### **RTNM 356. Positron Emission Tomography. 2 Units.**

Student learns the fundamental physics, instrumentation, and radionuclide requirements of positron emission tomography (PET).

### **RTNM 357. Instrumentation I. 4 Units.**

Covers the auger/gamma scintillation camera, collimators and crystals used in nuclear medicine. Topics include: photomultiplier tubes, pulse height analyzer, resolution, count rate, field uniformity, Geiger-Mueller counter, ionization chambers, sodium iodide well counter, dose calibrator, image acquisition, matrix size, and filters.

### **RTNM 357L. Instrumentation I Laboratory. 1 Unit.**

A laboratory course that emphasizes material presented in RTNM 357. Gamma camera components, dose calibrator, ionization chambers, and sodium iodide well counter.

### **RTNM 358. Instrumentation II. 4 Units.**

Covers quality control of gamma cameras and dose calibrators. Topics include: data acquisition of single-photon emission computed tomography, image filtering, field uniformity assessment and correlation, X and Y gain calibration, and positron emission tomography.

### **RTNM 358L. Instrumentation II Laboratory. 1 Unit.**

A laboratory course that emphasizes material presented in RTNM 358. Gamma camera quality control protocols, SPECT and CT images, and data acquisition.

### **RTNM 361. Radiopharmacy I. 3 Units.**

Covers nuclear stability and decay, radionuclide production, radioactive decay, radionuclide generator systems, radionuclides, quality control, and legal requirements.

### **RTNM 362. Radiopharmacy II. 3 Units.**

Covers the standard dose ranges, radioactive isotopes, decay tables, distribution, preparing kits, adverse reactions, and new radiopharmaceuticals.

### **RTNM 363. Nuclear Cardiology. 3 Units.**

Covers the principles and clinical application of cardiac imaging. Topics include: patient preparation, radiopharmaceutical, localization of radiopharmaceutical, standard dose range, pharmaceutical stress protocol, exercise stress protocol, clinical applications of myocardial perfusion imaging, and image interpretation.

### **RTNM 364. Nuclear Medicine Statistics. 3 Units.**

Covers the percent error or percent difference, counting rate determination, effects of background on counts, counting rates, standard deviation, and propagation of error.

### **RTNM 366. Medical Informatics. 1 Unit.**

Covers information technology systems used in the health care setting. Reviews the importance of accurate documentation. Discusses the relevance of checking patient history and laboratory results using electronic medical/health record systems.

### **RTNM 382. Topics in Nuclear Medicine II. 1-3 Units.**

Surveys selected topics in nuclear medicine. Procedure summaries, projects, literature reviews. May be taken concurrently with RTNM 971-974 for credit toward the baccalaureate degree.

### **RTNM 421. Comprehensive Review of Nuclear Medicine I. 3 Units.**

Reviews physics, instrumentation, procedures, imaging, and radiopharmaceutical theories in preparation for national registries.

### **RTNM 422. Comprehensive Review of Nuclear Medicine II. 3 Units.**

Surveys selected topics in nuclear medicine. Procedure summaries, projects, literature reviews.

**RTNM 430. Clinical Affiliation Introduction. 1 Unit.**

Introduces a series of six consecutive courses—RTNM 431-436—completed during the program. Provides student with clinical experience one day a week during Winter Quarter working with staff technologists and physicians performing the functions expected of a nuclear medicine technologist and the nuclear medicine procedures involved in patient care.

**RTNM 431. Clinical Affiliation I. 2 Units.**

Second in a series of seven consecutive courses (RTNM 430-436) completed during the program. Provides students with clinical experience working with staff technologists and physicians, performing the functions expected of a nuclear medicine technologist and the nuclear medicine procedures involved in patient care. Clinical assignments two days per week, eight hours per day. Specific days vary each quarter.

**RTNM 432. Clinical Affiliation II. 3 Units.**

Student works eight hours per day, four days per week—specific days vary with the quarter.

**RTNM 433. Clinical Affiliation III. 3 Units.**

Student works eight hours per day, four days per week—specific days varying with the quarter.

**RTNM 434. Clinical Affiliation IV. 3 Units.**

Student works eight hours per day, four days per week—specific days varying with the quarter.

**RTNM 435. Clinical Affiliation V. 4 Units.**

Student works eight hours per day, four days per week—specific days varying with the quarter.

**RTNM 436. Clinical Affiliation VI. 4 Units.**

Student works eight hours per day, four days per week—specific days varying with the quarter.

## Radiation Technology/Radiation Sciences (RTRS)

### Courses

**RTRS 578. Healthcare Financial Management. 3 Units.**

Investigates methods of applying financial management strategies from a radiology perspective. Demonstrates the fundamentals of finance, generating revenue, controlling costs, planning for the future, and financial organizational issues.

**RTRS 584. Management of Imaging Informatics. 3 Units.**

Provides knowledge and understanding of the practical operational and managerial issues essential to the radiology information system (RIS) and the picture archiving and communication system (PACS) as they relate to the electronic health record system (EHRS). Covers basic RIS and PACS architecture concepts, needs assessment and procurement strategies, vendor selection and contract negotiation, workflow assessment and design, implementation and education, and quality assurance (QA) strategies to optimize patient care practices in a filmless environment.

**RTRS 614. Professional Portfolio. 1 Unit.**

An online course designed to assist students in developing a professional portfolio. Students incorporate evidence of personal growth and learning in a comprehensive electronic portfolio.

**RTRS 615. Advances in Technology: Educational and Managerial Issues. 3 Units.**

Student evaluates how the rapidly advancing technology in radiation sciences impacts the educational, managerial, and administrative realms. Student develops a project incorporating advancing technology to his/her specialty. Student evaluates how the rapidly advancing technology in radiation sciences impacts the educational, managerial, and administrative realms. Student develops a project incorporating advancing technology to his/her specialty.

**RTRS 621. Capstone Project I. 3 Units.**

The first of a two-course, online sequence. Students explore a relevant topic of interest, develop a literature review of publishable quality, and examine professional publication avenues.

**RTRS 622. Capstone Project II. 3 Units.**

The second course in a two-course, online sequence. Students explore aspects of professional presentation delivery and incorporate their Capstone I project to develop a presentation of professional quality.

## Radiation Technology/Radiation Therapy (RTTH)

### Courses

**RTTH 332. Radiation Biology. 2 Units.**

The effects of radiation on living systems.

**RTTH 342. Patient-Care Practices in Radiation Therapy. 2 Units.**

Aspects of radiation therapy patient care. Emphasizes equipment, treatment, and psychological support of the patient. Transmission and prevention of AIDS and other communicable diseases, with specific application to radiation therapy.

**RTTH 344. Radiation Therapy Procedures. 2 Units.**

Study and/or practical applications of patient support and immobilization devices. Principles of choosing patient-treatment modalities. Methods of tumor localization. Purposes and utilization of beam direction and modification equipment.

**RTTH 348. Radiation Therapy Review. 1,2 Unit.**

Comprehensively reviews radiation physics, protection, and dosimetry. Applies radioactive materials. Radiobiology. Technical aspects of radiation oncology. Students beginning in Autumn of 2016 are required to take this course for two units.

**RTTH 354. Quality Assurance in Radiation Therapy. 2 Units.**

Focuses on all components of quality improvement programs operating in radiation oncology. Emphasizes development of a culture of safety through continuous quality improvement (CQI) for the clinical and technical aspects of patient care, including treatment delivery and localization equipment, treatment planning equipment, and electronic medical records. Discusses the role of various radiation therapy team members in CQI, as well as the legal and regulatory implications for providing a radiation oncology service.

**RTTH 355. Physical Principles of Radiation Therapy I. 3 Units.**

Nature and description of the structure of matter and energy. Radioactive decay schemes and interaction of photons and gamma radiation. Instrumentation involved in measurement of ionizing radiation, beam quality, and dose. Laboratory.

**RTTH 356. Physical Principles of Radiation Therapy II. 3 Units.**

Discusses the following areas: calibration techniques of photon, particulate, and electron beams; percentage depth dose, tissue-air ratios, treatment planning, scatter functions, field flatness, and symmetry; field shaping, arc therapy, and tissue inhomogeneities; and clinical dosimetric considerations. Includes laboratory. Prerequisite: RTTH 364, RTTH 365.

**RTTH 357. Applied Dosimetry. 2 Units.**

Brachytherapy sources, isotope calibration, protection, and implantation techniques. Teletherapy equipment and protection. Quality assurance for external and brachytherapy procedures. Laboratory.

**RTTH 364. Radiation Oncology I. 2 Units.**

A three-term course covering pathology, etiology, epidemiology, histopathology, metastasis, staging, and treatment of major types of malignant neoplasms. Includes technique/simulation laboratory.

**RTTH 365. Radiation Oncology II. 2 Units.**

A three-term course covering pathology, etiology, epidemiology, histopathology, metastasis staging, and treatment of major types of malignant neoplasms. Prerequisite: RTTH 364.

**RTTH 366. Radiation Oncology III. 2 Units.**

The third in a three-quarter course covering pathology, etiology, epidemiology, histopathology, metastasis, staging, and treatment of major types of malignant neoplasms.

**RTTH 371. Radiation Therapy Affiliation I. 2 Units.**

First of seven clinical affiliations.

**RTTH 372. Radiation Therapy Affiliation II. 3 Units.**

Continues RTTH 371.

**RTTH 373. Radiation Therapy Affiliation III. 3 Units.**

Continues RTTH 371, 372.

**RTTH 473. Radiation Therapy Affiliation VI. 4 Units.**

Continues RTTH 371-371, 471-472.

**RTTH 474. Radiation Therapy Affiliation VII. 5 Units.**

Continues RTTH 371-373.

**RTTH 475. Radiation Therapy Affiliation V. 5 Units.**

Continues RTTH 371-373, 474.

**RTTH 476. Radiation Therapy Affiliation VI. 4 Units.**

Continues RTTH 371-373, 474-475.

**RTTH 477. Radiation Therapy Affiliation VII. 4 Units.**

Continues RTTH 371-373, 474-476.

**RTTH 974. Radiation Therapy Affiliation IV. 12 Units.**

Continues RTTH 971-973.

**RTTH 975. Radiation Therapy Affiliation V. 11 Units.**

Continues RTTH 971-974. Prerequisite: RTTH 971, RTTH 972, RTTH 973, RTTH 974.

## Radiation Technology/Radiologist Assistant (RTRA)

### Courses

**RTRA 510. Cross-Sectional Anatomy I. 1 Unit.**

Identifies normal and abnormal anatomy in two-dimensional as well as three-dimensional planes. Relates cross-sectional view of anatomy and pathology to radiology procedures.

**RTRA 511. Cross-sectional Anatomy II. 1 Unit.**

Identifies normal and abnormal anatomy in two-dimensional as well as three-dimensional planes. Relates cross-sectional view of anatomy and pathology to radiology procedures.

**RTRA 518. Radiobiology and Health Physics. 2 Units.**

Reviews the effects of ionizing and nonionizing radiation and fundamental concepts of radiation protection. Promotes the conscientious operation of radiologic and fluoroscopic devices. Provides a complement to guided practice in operating the fluoroscopic device during clinical mentoring. Procedures and techniques to optimize image quality while reducing radiation exposure to patients, operator, and ancillary personnel.

**RTRA 519. Medical-Legal Issues in Radiology. 1 Unit.**

Introduction to the legal system as it pertains to radiation sciences. Concepts such as malpractice, litigation, informed consent, assault, and battery.

**RTRA 521. Radiology Procedures and Image Evaluation I. 3 Units.**

Provides a framework for various imaging procedures and the role of the radiologist assistant in the radiology department. Provides the framework for systematic observation of static, digital, X-sectional, and dynamic diagnostic images for the purpose of evaluating the presence of abnormalities, anomalies, and pathological conditions.

**RTRA 522. Radiology Procedures and Image Evaluation II. 3 Units.**

Provides a framework for various imaging procedures and the role of the radiologist assistant in the radiology department. Provides the framework for systematic observation of static, digital, X-sectional, and dynamic diagnostic images for the purpose of evaluating the presence of abnormalities, anomalies, and pathological conditions.

**RTRA 523. Radiology Procedures and Image Evaluation III. 3 Units.**

Provides a framework for various imaging procedures and the role of the radiologist assistant in the radiology department. Provides the framework for systematic observation of static, digital, X-sectional, and dynamic diagnostic images for the purpose of evaluating the presence of abnormalities, anomalies, and pathological conditions.

**RTRA 524. Radiology Procedures and Image Evaluation IV. 3 Units.**

Provides a framework for various imaging procedures and the role of the radiologist assistant in the radiology department. Provides the framework for systematic observation of static, digital, X-sectional, and dynamic diagnostic images for the purpose of evaluating the presence of abnormalities, anomalies, and pathological conditions.

**RTRA 525. Fluoroscopy and Radiation Protection. 1 Unit.**

Focuses on the quality assurance and management aspects of fluoroscopy. Includes the following topics: fluoroscopic radiation exposure and protection techniques, technical management, operation of fluoroscopic equipment, and quality control.

**RTRA 526. Radiology Reporting. 1 Unit.**

Student develops and organizes an imaging report for procedures performed under the supervision of a radiologist. Topics include learning to report, style guidelines, and the American College of Radiology guidelines for communication.

**RTRA 531. Pharmacology for RAs I. 2 Units.**

Surveys pharmacological agents currently used in medicine, including their kinetics, dynamics, and therapeutics. Places special emphasis on pharmaceuticals commonly used by and given to radiology patients, including contrast media, antineoplastic agents, and radioactive isotopes.

**RTRA 532. Pharmacology for RAs II. 2 Units.**

Surveys pharmacological agents currently used in medicine, including their kinetics, dynamics, and therapeutics. Places special emphasis on pharmaceuticals commonly used by and given to radiology patients, including contrast media, antineoplastic agents, and radioactive isotopes.

**RTRA 534. Pathophysiology. 2 Units.**

Covers the structures and function of human biology. Assists with developing skills of interpreting laboratory data and increasing understanding of the pathophysiology behind patient care.

**RTRA 541. Patient Assessment I. 2 Units.**

Assists with skills in interviewing, physical examination, and interpreting laboratory data. Increases understanding of the pathophysiology behind patient care. Emphasizes analysis and interpretation of physiological data to assist in patient assessment and management.

**RTRA 542. Patient Assessment II. 2 Units.**

Assists with developing skills in interviewing, physical examination, and interpreting laboratory data. Increases understanding of the pathophysiology behind patient care. Emphasizes analysis and interpretation of physiological data to assist in patient assessment and management.

**RTRA 543. Clinical Management and Education. 2 Units.**

Focuses on analyzing and interpreting physiological data to assist in patient assessment and management. Utilizes critical thinking, action plans, and protocols. Includes relationship-centered patient care, effective communication, and patient education. Introduces clinical pathways, multidisciplinary clinical practice, and a focus on quality and coordination of care.

**RTRA 546. Topics for the Radiologist Assistant. 2 Units.**

Surveys selected topics in the radiologist assistant scope of practice for credit toward the master's degree in radiologist assistant. Topics may include procedures, projects, or literature reviews.

**RTRA 588. Comprehensive Review I. 1 Unit.**

Review of the major content areas covered in the radiologist assistant program. Student evaluation and performance analysis.

**RTRA 589. Comprehensive Review II. 1 Unit.**

Reviews major content areas covered in the radiologist assistant program. Includes student evaluation and performance analysis.

**RTRA 591. Radiologist Assistant Research Project I. 1 Unit.**

Student completes a faculty-facilitated research project related to radiation sciences. Radiation sciences faculty must approve all projects.

**RTRA 592. Radiologist Assistant Research Project II. 2 Units.**

Student completes a faculty-facilitated research project related to radiation sciences. Radiation sciences faculty must approve all projects.

**RTRA 593. Radiologist Assistant Research Project III. 2 Units.**

Student completes a faculty-facilitated research project related to radiation sciences. Radiation sciences faculty must approve all projects.

**RTRA 614. Professional Portfolio. 1 Unit.**

Student develops a portfolio that demonstrates progression toward the student learning outcomes established by Loma Linda University—including wholeness, Christ-centered values, commitment to discovery and lifelong learning, effective communication, embracing and serving a diverse world, and collaboration.

**RTRA 771. Clinical Internship I. 2 Units.**

A twelve-week, one day/week rotation for a total of ninety-six hours of mentored clinical experience. Focuses on a wide variety of competencies that enable students to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

**RTRA 772. Clinical Internship II. 5 Units.**

An eleven-week, two-day/week rotation totaling 176 hours of mentored clinical experience. Focuses on a wide variety of competencies that enable students to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

**RTRA 773. Clinical Internship III. 6 Units.**

An eleven-week, three days/week rotation totaling 264 hours. A mentored clinical experience during which students complete a wide variety of competencies that prepare them to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

**RTRA 774. Clinical Internship IV. 6 Units.**

A thirteen-week, three days/week rotation totaling 312 hours of mentored clinical experience. Focuses on a wide variety of competencies that enable students to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

**RTRA 775. Clinical Internship V. 6 Units.**

An eleven-week, three days/week rotation totaling 264 hours of mentored clinical experience. Focuses on a wide variety of competencies that enable students to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

**RTRA 776. Clinical Internship VI. 6 Units.**

An eleven-week, three days/week rotation totaling 264 hours of mentored clinical experience. Focuses on a wide variety of competencies that enable students to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

**RTRA 777. Clinical Internship VII. 6 Units.**

An eleven-week, three days/week rotation totaling 264 hours of mentored clinical experience. Focuses on a wide variety of competencies that enable students to generate a report stating initial observations of diagnostic images on neonatal, pediatric, adult, and geriatric populations. Students utilize clinical contracts and a clinical portfolio.

## Radiation Technology (RTCH)

### Courses

**RTCH 283. Basic Imaging. 2 Units.**

Covers basic imaging positioning used in radiology. Topics include: radiology positioning techniques and introduction to technical characteristics of common nuclear medicine studies.

**RTCH 283L. Radiation Clinical Basics Laboratory. 1 Unit.**

Hands-on laboratory experience that includes basic positioning, physics, and principles in radiology.



**RTCH 285. The Principles and Physics of Radiation. 4 Units.**

Covers equipment used to generate X-rays for production of radiographic images. Includes the physics of X-ray production, and interactions of X-rays with patient tissues to produce radiographic images. Stresses proper radiation safety for the patient and hospital personnel.

**RTCH 305. CT Fundamentals. 2 Units.**

Overview of computed tomography (CT) concepts, including cross-sectional anatomy, physics, and clinical procedures.

**RTCH 318. Imaging Modalities. 2 Units.**

Covers the correlation and relevance of nuclear medicine to the other imaging modalities. Topics include: cardiovascular, respiratory, gastrointestinal, genitourinary, and skeletal systems.

**RTCH 325. Applications for Managers. 2 Units.**

Introduces prospective radiology managers and administrators to the basic common applications found in health care.

**RTCH 385. Radiologic Trends in Health Care. 2 Units.**

A faculty-facilitated course that includes class discussion, group work, and presentation of projects utilizing the online learning environment. Focuses on current and future trends in the field of radiology.

**RTCH 387. Writing for Health-Care Professionals. 3 Units.**

Expands academic writing experience by building upon student's prior study of health-care administration. Develops a variety of skills, including research and resume writing. Introduces elements of professional communications, such as memo writing, e-mail etiquette, and other types of formal writing for use in a professional work environment. Emphasizes student's public speaking skills through preparation of an oral presentation.

**RTCH 413. Management Practicum I. 3 Units.**

Observation of and discussion with selected administrative personnel in a radiology service. Emphasizes practical application of management theory. Projects assigned.

**RTCH 414. Management Practicum II. 3 Units.**

Observation of and discussion with selected administrative personnel in a radiology service. Emphasizes practical application of management theory. Projects assigned.

**RTCH 415. Radiation Emergency Procedures. 3 Units.**

Covers radiation emergency procedures and guidelines. Topics include: minor spills, major spills, airborne contamination, ingestion and inhalation contamination, firefighting techniques, X-ray injuries, and lessons learned from radiation disasters.

**RTCH 418. Health Information Management and Radiology Coding for Radiology Managers. 3 Units.**

Foundational course for prospective radiology managers and administrators that integrates health information management systems and radiology coding. Familiarizes the student with health information systems and provides them with a sound knowledge of radiology coding—showing how both relate to the smooth running of a radiology department. Introduces the most current guidelines in health information technology and provides students with the tools to better understand the concepts behind accurate coding and policy.

**RTCH 464. Moral Leadership. 4 Units.**

Methods of applying servant leadership to management and educational settings. Within a moral framework, discusses concepts of managing learners and professionals, assessing leadership style, the essence of leadership, leadership skill building, and conflict management. Utilizes assigned readings, discussions, papers, and personal inventories to aid in assessing the learner's leadership skills.

**RTCH 467. Management of a Radiologic Service. 3 Units.**

Techniques of organization, planning, and management, with specific applications to a hospital radiology service.

**RTCH 471. Applied Research Methods I. 2 Units.**

Applies research methods to radiation sciences. Directed experience with a research project. Laboratory.

**RTCH 472. Applied Research Methods II. 2 Units.**

Applies research methods to radiation sciences. Directed experience with a research project. Continues RTCH 471.

**RTCH 485. Digital Management in Radiology. 3 Units.**

A student-centered, faculty-facilitated course that is a continuation of RTCH 385. Class discussion, small-group work, and presentation of student projects/paper. New technology and its impact on the radiology department.

**RTCH 497. Advanced Clinical Experience. 2 Units.**

Advanced clinical experience in selected areas of professional practice.

**RTCH 499. Radiation Technology Independent Study. 0.5-2 Units.**

Student submits a project or paper on a topic of current interest in an area related to radiation technology. Regular meetings provide the student with guidance and evaluation. Elected on the basis of need or interest. The .5 unit of credit designed to offer directed experience in the prevention of AIDS and other communicable diseases in the clinical setting.

**RTCH 567. Leadership Theory and Practice. 3 Units.**

A Web-based course that focuses on the leadership aspect of communication. Examines leadership from a theoretical standpoint while relating, assessing, and applying leadership in present-day professional interactions.

## Radiation Technology/Special Imaging (RTSI)

### Courses

**RTSI 307. Introduction to Computed Tomography Completion Course. 2 Units.**

Provides an overview of patient care in CT imaging, general aspects of patient care, pharmacology and drug administration, and radiation safety as a final requirement of the CT certificate. Examines some areas of radiology management. Prepares students for the additional areas required in the National Registry for the specialty area of CT. Prerequisite: Completion of the LLU Medical Radiography Program. Prerequisite: RTMR 305, RTMR 306.

**RTSI 344. Interventional Pharmacology. 4 Units.**

Studies the various pharmacological agents currently used in diagnosis and treatment during interventional studies of the cardiovascular system. Emphasizes laboratory values relevant to interventional studies.

**RTSI 345. Cardiac/Interventional Procedures. 3 Units.**

Examines the principles of cardiac interventional imaging to students who wish to become registered CI technologists. Includes the concepts of cardiac interventional procedures and how to operate safely in an operating room environment.

**RTSI 351. Angio/Interventional Procedures I. 3 Units.**

Analyzes the principles of vascular radiology, including proper patient care, the fundamentals of properly setting up a sterile table, and evaluation of the equipment most commonly used in the interventional suite. Examines the functions of a pressure injector and explores the procedures performed in vascular intervention.

**RTSI 352. Angio/Interventional Procedures II. 3 Units.**

Continues RTSI 351. Focuses on the procedures performed in the interventional laboratory. Analyzes the different types of pathologies observed in patients in order to determine the appropriate diagnostic and interventional examinations to be performed.

**RTSI 356. Vascular Anatomy and Physiology. 3 Units.**

Explores normal and pathological vascular anatomy and physiology. Emphasizes intracranial, extracranial, spinal, aorta, pulmonary, abdominal, pelvic, and extremity vascular structures; as well as abnormalities of the vascular system.

**RTSI 358. CVI Review Course. 2 Units.**

A comprehensive review course for the ARRT examinations in cardiac interventional radiography (CI) and vascular interventional radiography (VI).

**RTSI 361. MRI Physics I. 2 Units.**

Two-part course dealing with basic principles, physics, imaging parameters, biological effects, management, and patient protocol of magnetic resonance imaging (MRI).

**RTSI 362. MRI Physics II. 2 Units.**

Basic principles, physics, imaging parameters, biological effects, management, and patient protocol of magnetic resonance imaging (MRI). Prerequisite: RTSI 361.

**RTSI 364. CT Patient Care and Procedures. 2 Units.**

Overview of patient care in CT imaging. General aspects of patient care, pharmacology and drug administration, radiation safety. Examines some areas of radiology management. Prepares students for the additional areas required in the national registry for the specialty areas of CT.

**RTSI 365. MRI Patient Care and Procedures. 2 Units.**

Includes patient care, safety, pharmacology, quality control, and procedures involved with magnetic resonance imaging (MRI) for MRI technologists.

**RTSI 367. Cross-sectional Radiographic Anatomy. 2 Units.**

Overview of gross anatomy. Identifies normal anatomy in two-dimensional as well as three-dimensional planes. Relation of the structural as well as the physiological functions of the different body systems.

**RTSI 369. CT Physics. 2 Units.**

Basic principles, physics, imaging parameters, radiological effects, management, and patient protocol of computed tomography (CT).

**RTSI 384. Topics in Special Imaging. 1-3 Units.**

Lecture and discussion of a current topic in special imaging bearing on the theory or practice of one aspect of the discipline. Specific content varies from quarter to quarter.

**RTSI 971. Special Imaging (CT/MRI) Affiliation. 10 Units.**

A four days/week clinical rotation totaling 320 hours of clinical experience in CT (computerized tomography) and/or MRI (magnetic resonance imaging) covering a wide variety of technical procedures.

**RTSI 975. Cardiac/Interventional (CVI) Affiliation. 2.5,10 Units.**

A four-day-per-week clinical rotation, with hours based on registered unit hours—from 80 to 320 hours of clinical experience in cardiac and/or interventional radiology. Covers a wide variety of technical procedures.

## Radiologic Technology Advanced Placement (RTAP)

### Courses

**RTAP 221. Patient Care and Education. 1 Unit.**

Presents an overview of legal issues in radiologic technology. Legal topics include: informed consent, confidentiality, patient rights, civil liability, legal doctrines, and standards of ethics. Provides an understanding of professional communication skills needed to succeed as an entry-level radiographer. Other topics covered include: infection control, contrast media, patient transfers, and medical emergencies.

**RTAP 255. Radiographic Procedures. 2 Units.**

Introduces students to various radiographic procedures and anatomy, patient positioning, geometric factors, exposure techniques, and patient shielding.

**RTAP 283. Equipment Operation and Quality Control. 1 Unit.**

Provides a background for understanding the physics of man-made radiation production. Addresses the interaction of radiation with matter for both radiation protection and the creation of radiographic images. Covers the electrical circuit of radiation equipment.

**RTAP 284. Radiation Protection. 1 Unit.**

Provides a background for understanding the physics of man-made radiation production. Addresses the interaction of radiation with matter for both radiation protection and the creation of radiographic images. Covers the electrical circuit of radiation equipment.

**RTAP 287. Image Production and Evaluation. 2 Units.**

Provides instruction in the principles of radiographic theory and technique. Covers the physical factors involved in imaging processing, as well as techniques for obtaining the optimum radiography under any situation. Examines the role of image-intensified fluoroscopy in radiology. Provides instruction in the use of digital imaging technology in radiology, including: digital imaging equipment, picture archival and communications systems, radiology information systems, hospital information systems, and various other radiology-related applications. Focuses advanced techniques on operation, quality assurance, and radiation safety.

**RTAP 971. Clinical Affiliation. 2 Units.**

Students gain hands-on experience in basic patient care, radiographic procedures and positioning, radiation protection, radiographic exposure and techniques, critical thinking, problem solving, and patient and health care team communication.

**RTAP 972. Clinical Affiliation. 2 Units.**

Students gain hands-on experience in basic patient care, radiographic procedures and positioning, radiation protection, radiographic exposure and techniques, critical thinking, problem solving, and patient and health care team communication.

**RTAP 973. Clinical Affiliation. 2 Units.**

Students gain hands-on experience in basic patient care, radiographic procedures and positioning, radiation protection, radiographic exposure and techniques, critical thinking, problem solving, and patient and health care team communication.

## Radiology (RADS)

### Courses

**RADS 791. Integrated Clinical Radiology. 2 Units.**

Case-based, online, virtual-patient curriculum that is integrated with the required third-year clerkships. Introduces students to the American College of Radiology Appropriateness Criteria, as well as to the principles and applications of medical imaging.

**RADS 891. Radiology Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of radiology, including but not limited to angio/interventional radiology, pediatric radiology, body CT, neuroradiology, and research.

## Rehabilitation Science (RESC)

### Courses

**RESC 517. Profession Advocacy in Allied Health Professions. 4 Units.**

Examines legislative and regulatory bodies that define and regulate health-care practice in California. Identifies techniques to advance the profession's advocacy. Field training experience includes district and state capitol meetings with legislators and policymakers.

**RESC 519. Rehabilitation Theories and Applications in Health Care. 3 Units.**

History of and current trends in health care theory and applications, emphasizing successful approaches to integration of the rehabilitation professions.

**RESC 697. Research. 1-12 Units.**

Must be repeated to complete the total required units.

## Religion/Ethical Studies (RELE)

### Courses

**RELE 155. Introduction to Christian Bioethics. 3 Units.**

Introduces students to ethical issues in health care from the perspective of Christian tradition.

**RELE 257. Health Care Ethics. 2 Units.**

Introduces practical ethics for health-care professionals. Draws on the Bible and other religious and philosophical writings.

**RELE 455. Christian Understanding of Sexuality. 2 Units.**

Interpretations of human sexuality in ancient, medieval, and modern Christian thought, with emphasis on contemporary issues such as marriage, divorce, homosexuality, and artificial human procreation.

**RELE 456. Personal and Professional Ethics. 2 Units.**

The foundations, norms, and patterns of personal integrity and professional responsibility.

**RELE 457. Christian Ethics and Health Care. 2 Units.**

Ethical issues in modern medicine and related fields from the perspective of Christian thought and practice.

**RELE 499. Directed Study. 1-3 Units.**

Individual arrangements for students to study under the guidance of a faculty member. May include readings, literature reviews, written papers, or other special projects. Minimum of thirty hours required for each unit of credit.

**RELE 500. Current Issues in Religion and Society. 3,4 Units.**

Lecture series addresses a particular topic in bioethics from a variety of theological and religious perspectives. Focuses on current controversial topics in society and health-care settings. May be repeated, depending on topic.

**RELE 505. Clinical Ethics. 3 Units.**

Case-based analysis of bioethics, with emphasis on clinical applications. Conceptual and historical readings in bioethics.

**RELE 522. Bioethical Issues in Social Work. 3 Units.**

Theoretical and practical dilemmas in bioethics. Contributions of social workers to these issues.

**RELE 524. Bioethics and Society. 3,4 Units.**

Explores—from Christian and philosophical perspectives—issues confronting both society and patients. Uses case studies to illustrate such themes as health disparities, AIDS policy, end-of-life care, and organ transplantation. Additional project required for fourth unit.

**RELE 525. Ethics for Scientists. 3 Units.**

Ethical aspects of scientific research, with emphasis on Christian contributions.

**RELE 534. Ethical Issues in Public Health. 3 Units.**

Explores the ethical issues relevant to the diverse professions involved in advancing the public's health. Topics of inquiry include: community-based research, professional practices and responsibilities, cultural and socioeconomic issues, distributive justice, vulnerable populations, local and international mission, development, and research projects.

**RELE 535. Ethical Issues in Health-Care Management. 3 Units.**

Considers business ethics within health-care institutions. Seeks to find ways that business professionals and health-care professionals can work well together for the benefit of the patients. Topics of inquiry include: corporate culture and self-interest, health-care culture and altruism, unique setting of American health care as industry, and how Christian virtues can encourage moral leadership.

**RELE 542. Bioethics Integration I. 1 Unit.**

Aids dual degree bioethics students to 1) conceptualize required paper that demonstrates their integrated perspective on a specific professional course and bioethics, and 2) articulate integrative ideas in a coherent manner.

**RELE 543. Bioethics Integration II. 1 Unit.**

Aids dual degree bioethics students to 1) conceptualize required paper that demonstrates their integrated perspective on a specific professional course and bioethics, and 2) articulate integrative ideas in a coherent manner.

**RELE 544. Bioethics Integration III. 1 Unit.**

Aids dual degree bioethics students to 1) conceptualize required paper that demonstrates integrated perspective on a specific professional course and bioethics, and 2) articulate integrative ideas in a coherent manner.

**RELE 545. Bioethics Case Conference I. 1 Unit.**

Engages students in discussion of real-life cases in bioethics.

**RELE 546. Bioethics Case Conference II. 1 Unit.**

Engages students in discussion of real-life cases in bioethics.

**RELE 547. Bioethics Case Conference III. 1 Unit.**

Engages students in discussion of real-life cases in bioethics.

**RELE 548. Christian Social Ethics. 3 Units.**

Relationships between Christian beliefs and social theory and practice.

**RELE 554. Clinical Ethics Practicum I. 4 Units.**

Theories and applications of ethics in the clinical setting.

**RELE 555. Clinical Ethics Practicum II. 4 Units.**

Theories and applications of ethics in the clinical setting. Prerequisites: RELE 554.

**RELE 564. Ethics and Health Disparities. 3 Units.**

Focuses on causes of health disparities and responses to reduce these causes. Gives attention to key health disparities based on race, ethnicity, gender, sexual orientation, and disability. Provides a context for analyzing and understanding health disparities and for ethically evaluating inequalities in health status and responses to them.

**RELE 565. The Good, the Bad, and the Ugly: Moral Aspects of Art and Illness. 3 Units.**

Explores health, illness, and the human body through the mediums of art, photography, personal drawings, sculpture, and visual medical tests such as x-rays, MRIs, and other scans. Using visual representations of the body, students explore various views of health and illness as they relate to concepts of the good, the bad, and the ugly.

**RELE 566. Heroes of Health Care. 3 Units.**

Focuses on the lives of noteworthy figures in the health-care professions. Biographies, diaries, literature, and film used by students to identify and analyze the moral virtues and vision of heroic physicians, nurses, and public health advocates from the ancients to the present.

**RELE 567. World Religions and Bioethics. 3 Units.**

Asks questions pertaining to the relationship between beliefs and ethical decisions, with the aim of clarifying ethical principles that guide decision making within the context of religious diversity. Explores ethical issues related to sickness, health, birth, and death among various religions of the world, such as Christianity, Judaism, Buddhism, Hinduism, Sikhism, Confucianism, and Islam.

**RELE 568. Bioethics and the Law. 3 Units.**

Introduces legal and regulatory issues relevant to the heavily regulated field of health care. Explores the relationship between health care and basic bioethical principles. Topics include negligence, malpractice, child/elder abuse, HIPAA, forced treatment, and professional license/discipline. Discusses classic cases and current biolaw events. Utilizes mock depositions, presentations by visiting lecturers, and visits to selected live hearings.

**RELE 577. Theological Ethics. 3 Units.**

Ethical implications of the primary theological legacies of Western culture.

**RELE 588. Explorers of the Moral Life. 3 Units.**

Critically assesses the various theoretical approaches to ethics in Western culture. Applies theoretical ideas to cases illustrating such dilemmas as poverty and health, health-care justice, and informed consent.

**RELE 589. Biblical Ethics. 3 Units.**

Explores ways—old and new—that the Bible and theology inform moral thought and action. Uses contemporary cases to illustrate the assigned reading and class discussion.

**RELE 598. Master's Seminar I. 3 Units.**

Integrates theological/philosophical presuppositions, ethical themes, and accepted ethical principles. Student demonstrates mastery of a comprehensive knowledge of the field through an examination to be assessed by ethics faculty. Restricted to bioethics graduate students who have completed 36 units of their program.

**RELE 599. Master's Seminar II. 2 Units.**

Requires refinement of a previously submitted class paper for submission to a peer-review journal. Student demonstrates the ability to identify an issue, analyze it, appropriately use literature, and creatively conceptualize or even advance the discussion. Involves effective oral presentation of research results. Restricted to bioethics graduate students who have completed 36 units of their program.

**RELE 624. Seminar in Christian Ethics. 3 Units.**

Advanced study of selected topics in Christian ethics.

**RELE 699. Directed Study. 1-6 Units.**

Individual arrangements for students to study under the guidance of a faculty member. May include readings, literature reviews, written papers, or other special projects. Minimum of forty hours required for each unit of credit.

**RELE 704. Medicine and Ethics. 2 Units.**

Introductory study of Christian medical ethics, emphasizing personal integrity of the physician, the process of moral decision making, and ethical problems facing contemporary medicine, such as abortion and euthanasia.

**RELE 705. Ethics in Pharmacy Practice. 3 Units.**

Ethical issues and principles in the contemporary practice of pharmacy. Christian resources and professional expectations for the ethical decisions of pharmacists.

**RELE 706. Advanced Ethics in Pharmacy Practice. 2 Units.**

Creates an atmosphere of in-depth analysis and discussion of ethics in pharmacy practice. Students bring their own cases to discuss, in addition to course readings, guest lectures, and moral decision-making models.

**RELE 707. Ethics for Allied Health Professionals. 2 Units.**

Ethical issues, cases, and principles in the contemporary practice of allied health professionals. Christian and philosophical resources for ethical decision making.

**RELE 714. Advanced Medical Ethics. 2 Units.**

Advanced study of issues and cases in contemporary medical ethics.

**RELE 734. Christian Ethics for Dentists. 2 Units.**

Ethical issues in contemporary dentistry. Christian resources for ethical decision making.

## Religion/General Studies (RELG)

### Courses

**RELG 504. Research Methods in Religious Studies. 4 Units.**

Studies presuppositions and procedures for scholarship in religion and ethics, with an introduction to research in the natural and behavioral sciences. Practical themes include writing, library and Internet resources, and forms of scholarly papers and articles.

**RELG 505. Qualitative Research in Religious Studies. 3 Units.**

Considers the various qualitative methods used in examining the relationships between religion and the health of individuals and populations. Provides an overview of methods while focusing primarily on grounded theory methods. Students required to conduct their own research and/or be involved in a research project as a component of this course.

**RELG 596. Dissertation Proposal. 1 Unit.**

Development of the dissertation proposal. Research advisor works with students in developing the proposal in accord with the School of Religion and Faculty of Graduate Studies guidelines. Students must successfully defend the proposal relating to religion and health.

**RELG 674. Reading Tutorial. 3,4 Units.**

Reading course for graduate students in religious studies. Topics vary depending on student and instructor interests.

**RELG 696. Project. 4 Units.**

Individual arrangements for advanced students to study under the guidance of a program faculty member. May include preparation of publishable papers or other special projects. Additional work required for second, third, and fourth units.

**RELG 697. Independent Research. 1-8 Units.**

Individual arrangements for students to do research under the guidance of faculty member(s). Written report required. Minimum of forty hours required for each unit of credit. Prerequisite: Consent of instructor and of student's advisor.

**RELG 698. Thesis. 1-4 Units.**

Student prepares report of individual guided research in religion-related topic under direct faculty supervision. Minimum of forty hours required for each unit of credit. Limited to graduate students whose thesis projects have been approved by their research committee.

**RELG 699. Dissertation Research. 1-6 Units.**

Independent research contributing to the field of religion and health. Repeat registrations as needed until unit requirement has been met and/or dissertation has been defended, whichever is later.

**RELG 795. Clinical Internship. 12 Units.**

Supervised clinical internship. Minimum of one hour of individual supervision per week, and a final evaluation from the supervisor at the completion of 400 hours of clinical internship.

**RELG 796. Religion and Health Practicum. 8 Units.**

Theories and applications of religion and health in the clinical and/or research setting.

## Religion/Relational Studies (RELR)

### Courses

**RELR 275. Art and Science of Whole Person Care. 2 Units.**

The integration of psychosocial and spiritual care in the clinical setting. Additional project required for third unit.

**RELR 404. Christian Service. 1,2 Unit.**

Student participates in approved service learning, with written reflection on the Christian reasons for service. Additional project required for second unit.

**RELR 408. Christian Perspectives on Marriage and the Family. 2 Units.**

From a Christian perspective, overviews the family life cycle.

**RELR 409. Christian Perspectives on Death and Dying. 2 Units.**

From a Christian perspective, considers the meaning of death—including the process of dying, cultural issues regarding death and dying, grief and mourning, suicide, and other related issues.

**RELR 415. Christian Theology and Popular Culture. 2 Units.**

Examines concepts and practices in popular culture from a Christian perspective.

**RELR 427. Crisis Counseling. 2 Units.**

Crisis phenomena, current crisis theory, a Christian model of crisis care, and the dynamics and practices of crisis care.

**RELR 429. Cultural Issues in Religion. 2 Units.**

Studies similarities and differences between European-American culture and 'minority' cultures in America, and the differences pertaining to the way religion is perceived and practiced.

**RELR 447. Cross-cultural Ministry. 2 Units.**

Studies the challenges of serving in cross-cultural situations from a Christian mission perspective, using the insights of missiology and cultural anthropology as they relate to personal and professional growth, social change, and effective intercultural communication and service.

**RELR 447A. Service Learning Practicum—International Project. 1 Unit.**

Loma Linda University-sponsored international mission trip, facilitated by SIMS Program. Students engage in service activities, maintain a reflective journal while on the trip, and submit a final report summarizing the social-learning experience upon return. Prerequisite: RELR 447.

**RELR 475. Art of Integrative Care. 2 Units.**

The integration of psychosocial and spiritual care in the clinical setting.

**RELR 499. Directed Study. 1-3 Units.**

Individual arrangements for students to study under the guidance of a faculty member. May include readings, literature reviews, written papers, or other special projects. Minimum of 30 hours required for each unit of credit.

**RELR 500. Religion and Global Health. 4 Units.**

Focuses on an international perspective of the interconnections between religion and health, with special attention to how faith (theological ideas) of a community play a role in how people seek treatment and relate to health and disease.

**RELR 508. Religion, Health-Care Policy, and Advocacy. 4 Units.**

Explores how religious and ethical visions shape definitions of health, concepts of just health-care policies, and attitudes toward the urgency of taking action to improve the health of communities. Encourages students to be participant-observers in programs of effective health-care advocacy.

**RELR 520. Clinical Training in Spiritual Care I. 3 Units.**

Combines theoretical and clinical aspects of spiritual care in the exploration of a theological understanding of health and illness. Students examine cases and learn the theoretical foundations and practical skills needed to provide spiritual care. Designed for students pursuing a career in chaplaincy, mental health, and/or any discipline that benefits from clinical experience related to health care as understood through a theological lens.

**RELR 521. Clinical Training in Spiritual Care II. 3 Units.**

Combines theoretical and clinical aspects of spiritual care in the exploration of a theological understanding of health and illness. Students examine cases and learn the theoretical foundations and practical skills needed to provide spiritual care. Designed for students pursuing a career in chaplaincy, mental health, and/or any discipline that benefits from clinical experience related to health care as understood through a theological lens.

**RELR 524. Clinical Pastoral Education. 6-12 Units.**

Twelve-week course that includes supervised experience with patients, lectures by hospital staff, hospital rounds with physicians, seminars, and conferences. Five eight-hour days per week. [Limited enrollment. Credit earned in this course is recognized by the Association for Clinical Pastoral Education, Incorporated.]

**RELR 525. Health Care and the Dynamics of Christian Leadership. 3 Units.**

Christian principles of leadership in the community and in the practice of health care.

**RELR 526. Pastoral and Professional Formation. 3 Units.**

Introduces students to the professional requirements of working as a chaplain in a healthcare setting. Teaches students to function pastorally within boundaries with pastoral authority. Connects theology of spiritual care to pastoral practice. Teaches students to integrate pastoral care into the institution while taking into account the culture, systems, and relationships that need to be navigated. Teaches appropriate ethical decision making in relationship to other departments, and focuses on development of pastoral care as it relates to group dynamics and organizational behavior. Provides students opportunity to evaluate their strengths and weaknesses in terms of pastoral and professional conduct and formation.

**RELR 527. Crisis Care and Counseling. 3 Units.**

Crisis phenomena, current crisis theory, a Christian model of crisis care, and the dynamics and practices of crisis care.

**RELR 535. Spirituality and Mental Health. 3 Units.**

Explores the interrelationship between spirituality and mental health. Seeks to enhance understanding of the term 'spirituality' in the context of religious traditions; considers the therapeutic effects both of spirituality and of religious traditions.

**RELR 536. Spirituality and Everyday Life. 3 Units.**

Explores the place of spirituality in everyday life through assimilation of information drawn from religious theorists, theology, spiritual and religious practices, and occupation.

**RELR 540. Wholeness and Health. 3 Units.**

Aids student in formulation of a portfolio that incorporates a variety of activities related to biblical concepts of wholeness. Addresses 1) the integration of mind/body/spirit, 2) strengthening relationships, 3) care of the environment, and 4) the healing of the nations from personal and professional perspectives.

**RELR 541. History of Seventh-day Adventist Chaplaincy and Healthcare Policy Making. 4 Units.**

Focuses on the history of chaplaincy, Adventist chaplaincy, and the Adventist approach to critical cases and positions in world church documents.

**RELR 564. Religion, Marriage, and the Family. 3 Units.**

The family in theological, historical, and ethical perspectives—with a Christian assessment of contemporary theories regarding the family.

**RELR 565. Pastoral Theology and Methodology. 3 Units.**

Studies the biblical, theological, and historical foundations for the practice of ministry.

**RELR 567. Pastoral Counseling. 4 Units.**

Provides overview of theology, history, theory, and practice of pastoral counseling.

**RELR 568. Care of the Dying and Bereaved. 3 Units.**

Studies the biblical, theological, cultural, religious, relational, and psychological aspects of dying and death.

**RELR 574. Preaching. 3 Units.**

Examines the biblical and theological foundations for liturgy and preaching, with special attention given to the healing context. Considers liturgical ministry in diverse settings and with diverse faith perspectives. Focuses on the process of study, construction, and delivery of sermons.

**RELR 575. Art and Science of Whole Person Care. 3 Units.**

The integration of psychosocial and spiritual care in the clinical setting.

**RELR 584. Culture, Psychology, and Religion. 3 Units.**

Introduces the major contours of Western culture as they relate to various schools of psychological thought and the influence of religious beliefs.

**RELR 587. Religion and the Social Sciences. 3 Units.**

Introduces classic and contemporary dialogues between religion and the social sciences.

**RELR 588. Personal and Family Wholeness. 3 Units.**

Studies personal spiritual development as the center for individual and family life and professional practice, with special attention to balancing healthy family relationships and professional obligations.

**RELR 590. Quantitative Research in Religious Studies. 3 Units.**

Introduces students to quantitative methods and data used to study the topic of religion and health, and discusses how quantitative methods are used to answer research questions related to the discipline. Students discuss published quantitative studies and explore how to use software programs (Excel, SPSS) to analyze quantitative data. Students analyze quantitative data as a component of the course.

**RELR 591. Qualitative Research in Religious Studies. 3 Units.**

Provides an overview of a variety of qualitative methods that can be utilized to examine relationships between religion and the health of individuals and populations. Focuses primarily on grounded theory methods. Students required to conduct their own research and/or to be involved in a research project.

**RELR 592. Doctoral Portfolio in Religion and Health. 2 Units.**

Lays the groundwork for the doctoral program by exploring the connections between faith and health and the genres specific to each. Acquaints students with the principal theoretical and practical skills necessary for discussing the two fields of religion and health. To be completed in the first quarter of doctoral work.

**RELR 595. Independent Study in Chaplaincy. 1 Unit.**

Students study the processes of various chaplaincy specializations, formulate a personal chaplaincy mission statement, and submit paperwork for endorsement and certification with the Adventist Chaplaincy Ministry of the General Conference of Seventh-day Adventists.

**RELR 692. Seminar in Religion and Health Care Leadership: Current Trends. 4 Units.**

Explores current trends in faith and health-care leadership, such as working with faith communities, developing a values-based health-care system, and understanding current research and hiring mission; as well as other topics. Course taught in seminar fashion, exposing students to various health-care leaders and allowing students to focus on their area(s) of interest.

**RELR 699. Directed Study. 1-6 Units.**

Individual arrangements for students to study under the guidance of a faculty member. May include readings, literature reviews, written papers, or other special projects. Minimum of forty hours required for each unit of credit.

**RELR 701. Orientation to Religion and Medicine. 2 Units.**

Examines the relationship between Scripture and the practice of medicine.

**RELR 709. Christian Perspectives on Death and Dying. 2 Units.**

From a Christian perspective, considers the meaning of death, including: the process of dying, cultural issues regarding death and dying, grief and mourning, suicide, and other related issues.

**RELR 715. Christian Dentist in Community. 2 Units.**

Studies Christian leadership in the local church, surrounding community, and the larger society—emphasizing the practical development of leadership skills.

**RELR 717. Diversity and the Christian Health Professional. 2 Units.**

Facilitates the development of personal and professional understanding and appreciation for the diversity in a multicultural society from a Judeo-Christian perspective.

**RELR 725. Wholeness for Physicians. 2 Units.**

Knowledge, values, attitudes, and skills contributing to the physician's goal of personal wholeness.

**RELR 749. Marriage and Family Wholeness. 2 Units.**

Studies personal spiritual development as the center for individual and family life and professional practice, with special attention to balancing healthy family relationships and professional obligations.

**RELR 775. Art and Science of Whole Person Care. 2 Units.**

The integration of psychosocial and spiritual care in the clinical setting.

## Religion/Theological Studies (RELT)

### Courses

**RELT 101. Jesus, Health, and Healing. 2 Units.**

Examines how Jesus interacted with and healed people, and how this has impacted the history and philosophy of Loma Linda University as a Christian health sciences institution. Acquaints students with the concepts of wholeness and integrative care.

**RELT 404. New Testament Writings. 2 Units.**

Interprets selected letters and passages of the New Testament, with a view to their theological and practical significance for today.

**RELT 406. Adventist Beliefs and Life. 2 Units.**

Fundamental tenets of Seventh-day Adventist faith and the lifestyle that such faith engenders.

**RELT 416. God and Human Suffering. 2 Units.**

Suffering and evil in relation to the creative and redemptive purposes of God for this world.

**RELT 423. Loma Linda Perspectives. 2 Units.**

History and philosophy of Loma Linda University as a Christian health-sciences institution that fosters human wholeness.

**RELT 436. Adventist Heritage and Health. 2 Units.**

Origin and development of Seventh-day Adventist interest in health, from the background of nineteenth-century medicine and health reform to the present.

**RELT 437. Current Issues in Adventism. 2 Units.**

Selected theological, ethical, and organizational questions of current interest in Adventism, with the goal of preparation for active involvement in the life of the Seventh-day Adventist Church. Recommended for students with a Seventh-day Adventist background.

**RELT 440. World Religions. 2 Units.**

Surveys the origins, beliefs, and contemporary practices of the world's major religious systems. Gives attention to the interaction between specific religions and their cultures; and to similarities, differences, and potential for understanding among the religions.

**RELT 464. Paul's Message in Romans. 2 Units.**

Chapter-by-chapter interpretation of Paul's most influential letter, in which the good news of God's salvation is applied to the issues of Christian life and community.

**RELT 470. Visions of Healing in Biblical Prophecy. 2 Units.**

Exploration of the visionary accounts of biblical books such as Isaiah, Jeremiah, Daniel, and Revelation. Content may vary from quarter to quarter.

**RELT 477. Biblical Thought and Today's World. 2 Units.**

Integration of various aspects of biblical thought with the issues and world views faced by those in a health care environment. Content may vary from quarter to quarter. May be repeated for additional credit when content is different.

**RELT 499. Directed Study. 1-3 Units.**

Individual arrangements for students to study under the guidance of a faculty member. May include readings, literature reviews, written papers, or other special projects. Minimum of thirty hours required for each unit of credit.

**RELT 500. Biblical Hermeneutics. 3 Units.**

Explores the principles of interpreting the Bible in relationship to real-life situations.

**RELT 501. Religion and Society. 3 Units.**

The impact of religion on society. Definitions, theories, and typologies of "religion." The role of religion in biblical times. Christianity's relationship with other religions throughout the centuries. Controversial cases.

**RELT 502. Religion and Society. 3 Units.**

The impact of society on religion. Definitions, theories, and typologies of "society." Social constructions of meaning. The significance of societies in shaping Christianity. Premodern, modern, and postmodern worldviews. Globalization and religion.

**RELT 503. Religion and Society. 3 Units.**

The interactions of religion and society. Theories and typologies of the interactions of religion and society. Personal devotion and social change. Influential leaders and transforming movements. Controversial cases.

**RELT 504. Daniel and the Prophetic Tradition. 3 Units.**

Examines the message from the Book of Daniel and the Old Testament prophetic tradition of which Daniel is a part.

**RELT 505. Seventh-day Adventist History. 3 Units.**

Explores the values and practices that shape the Seventh-day Adventist community, with special attention to the life and ministry of Ellen G. White.

**RELT 506. Seventh-day Adventist Beliefs. 3 Units.**

Studies the fundamental tenets of Seventh-day Adventist faith and the lifestyle that such faith engenders.

**RELT 507. The Saga of Adventists and Healthcare: Cornflakes, Baby Fae, and the Healing of the Nations. 3 Units.**

Examines how a biblically based, apocalyptic-believing, countercultural religion changed America's breakfasts, established Protestantism's largest international network of hospitals, and challenged the grip of multinational tobacco companies.

**RELT 508. Contemporary Christian Theology. 3 Units.**

Acquaints students with the principal issues, figures, and movements that have helped shape the development of Christian thought during the past century. Includes the relationships between history and biblical interpretation, between theology and philosophy, and between religion and science. Major figures include Karl Barth, Paul Tillich, Hans Kung, Wolfhart Pannenberg, and Jurgen Moltmann. Considers the growing prominence of Evangelical, Eastern orthodox, and postmodern theologies; as well as the emergence of various "contextual" theologies, such as Black theology, Latin American liberation theology, and feminist theology. Illuminates the characteristic ways in which the central elements of Christian faith—Christ's life, death, and resurrection—provide lasting continuity and continually stimulate reflection within the Christian world.

**RELT 509. Biblical Perspectives in Religion and Health. 4 Units.**

Explores issues related to health, illness, and suffering from theological and biblical perspectives.

**RELT 510. Global Theology. 3 Units.**

Offers critical reflections of dominant Western theological discourse and explores other theological voices from African American, womanist, Asian, African, and South American perspectives.

**RELT 518. Adventist Heritage and Health. 1 Unit.**

Studies the fundamental beliefs and values that led Seventh-day Adventists to become involved in health care, with particular emphasis on the spiritual story and principles leading to the founding of Loma Linda University.

**RELT 520. Church History. 3 Units.**

Traces Christianity's inception with the birth, ministry, death, and resurrection of Jesus Christ; through the first critical 300 years of Christianity; evolving into the pre-Reformation and Reformation; and culminating in the Christian Church of the twenty-first century.

**RELT 524. Religion and Society. 3 Units.**

The impact of society on religion. Definitions, theories, and typologies of "society." Social constructions of meaning. The significance of societies in shaping Christianity. Premodern, modern, and postmodern worldviews. Globalization and religion. No required prerequisites.

**RELT 526. Creation and Cosmology. 3 Units.**

Explores the similarities and contrasts between biblical and scientific views of the world, with special attention to biblical Creation accounts in their historical context.

**RELT 527. The Bible and Ecology. 3 Units.**

Explores the ecology crisis, factory farming, and the extinction of countless species within the context of the Bible's message of promise and hope for nonhuman creation.

**RELT 534. Anthropology of Mission. 3 Units.**

Studies Christian mission, applying the findings of anthropology as they relate to cultural change. Processes of religious development, means of diffusion, factors affecting religious acculturation, and analysis of programs intended to effect changes in religion.

**RELT 534A. Service Learning Practicum—International Project. 1 Unit.**

Loma Linda University-sponsored international mission trip, facilitated by the SIMS Program. Students engage in service activities, maintain a reflective journal while on the trip, and submit a final report summarizing the social-learning experience upon return. Prerequisite: RELT 534.

**RELT 534B. Service Learning Practicum—USA Project. 1 Unit.**

Loma Linda University-sponsored national mission trip, facilitated by SIMS Program. Students engage in service activities, maintain a reflective journal while on the trip, and submit a final report summarizing the social-learning experience upon return. Prerequisite or concurrent: RELT 534.

**RELT 539. Christian Understanding of God and Humanity. 3 Units.**

Studies the nature and attributes of God, with special emphasis on God's relation to the world; and the essential dynamics of human existence in light of the central biblical motifs of creature, image of God, and sin.

**RELT 540. World Religions and Human Health. 3 Units.**

Studies the history, beliefs, and practices of major religions of the world, with an emphasis on theological and ethical issues in the practice of health care ministry.

**RELT 555. The Adventist Experience. 3 Units.**

Introduces the beliefs and values that shape the Seventh-day Adventist community.

**RELT 557. Theology of Human Suffering. 3 Units.**

Suffering and evil in relation to the creative and redemptive purposes of God for this world. Focus on formation of student's theology of human suffering.

**RELT 558. Old Testament Thought. 3 Units.**

Introduces the literature and key theological themes of the Old Testament. Content may vary from quarter to quarter.

**RELT 559. New Testament Thought. 3 Units.**

Introduces the literature and key theological themes of the New Testament. Content may vary from quarter to quarter.

**RELT 560. Jesus the Revealer: The Message of the Gospel of John. 3 Units.**

A study of Jesus as revealer and healer, the basis for the Loma Linda mission, 'To make man whole.'

**RELT 563. Health Care, Humanity, and God. 3 Units.**

Focuses on the centrality of the health professions to the mission of the church, and the ways in which these professions manifest God's saving work and exemplify the ministry of Christ.

**RELT 564. Apostle of Hope: The Life, Letters, and Legacy of Paul. 3 Units.**

A study of the legacy of "the second most influential" person in human history.

**RELT 565. Vision of Healing: The Message of the Book of Revelation. 3 Units.**

A study of Revelation's description of the end of suffering and God's vision for healing a broken world.

**RELT 570. Philosophy of Mind: Bodies, Minds, Souls. 3 Units.**

Explores the following questions: What is a mind? How does the mind relate to the brain and to the world? Are minds free or casually determined? How do minds affect bodies? Could minds exist in different kinds of bodies? Do minds survive death? Discusses answers and arguments that have been offered by philosophers, theologians, and cognitive scientists; as well as the implications of these answers for ethics and theology.

**RELT 574. Love and Sex in the Bible. 3 Units.**

Studies Scripture on the reality, nature, and challenges of love—both divine and human; and key biblical passages on the goodness, meaning, and distortions of human sexuality.

**RELT 615. Seminar in Philosophy of Religion. 3 Units.**

Examines the concept of God, arguments for the existence of God, the relationship of faith and reason, and the nature of religious language.



**RELT 617. Seminar in Religion and the Sciences. 3 Units.**

Explores the interface between religion and the sciences—with attention to the religious origins of modern science, the similarities and contrasts between scientific and religious inquiry, and the particular challenges that the sciences pose for religious belief.

**RELT 699. Directed Study. 1-6 Units.**

Individual arrangements for students to study under the guidance of a faculty member. May include readings, literature reviews, written papers, or other special projects. Minimum of 40 hours required for each unit of credit.

**RELT 706. Adventist Beliefs and Life. 2 Units.**

Fundamental tenets of Seventh-day Adventist faith, and the lifestyle that such faith engenders.

**RELT 707. Medicine, Humanity, and God. 2 Units.**

Role of the practitioner of medicine as a co-worker with God in the healing of humankind.

**RELT 716. God and Human Suffering. 2 Units.**

Suffering and evil in relation to the creative and redemptive purposes of God for this world.

**RELT 717. Christian Beliefs and Life. 2 Units.**

Introduces basic Christian beliefs and life.

**RELT 718. Adventist Heritage and Health. 2 Units.**

Studies the fundamental beliefs and values that led Seventh-day Adventists to become involved in health care, with particular emphasis on the spiritual story and principles leading to the founding of Loma Linda University.

**RELT 726. Jesus. 2 Units.**

Studies Jesus as healer and teacher, prophet and reformer, Son of God and Savior.

**RELT 734. Anthropology of Mission. 2 Units.**

Studies Christian mission, applying the findings of anthropology as they relate to cultural change. Processes of religious development, factors affecting religious acculturation, and analysis of programs intended to effect changes in religion.

**RELT 740. World Religions and Human Health. 3 Units.**

Studies the history, beliefs, and practices of major religions of the world, with emphasis on theological and ethical issues in the practice of health care ministry.

**RELT 764. Paul's Message in Romans. 2 Units.**

Chapter-by-chapter interpretation of Paul's most influential letter, in which the good news of God's salvation is applied to the issues of Christian life and community.

**RELT 767. Apostle of Hope: The Life, Letters, and Legacy of Paul. 2 Units.**

A study of the legacy of "the second most influential" person in human history.

**RELT 775. Spirituality and the Christian Health Professional. 2 Units.**

Explores the meaning of spirituality in the light of Scripture and Christian thought. Studies practices and disciplines that form and mature an individual's spiritual life.

## Respiratory Therapy (RSTH)

### Courses

**RSTH 301. Advanced Respiratory Therapy Science I. 3 Units.**

Comprehensive review of patient-care techniques. Presents and discusses clinical application of respiratory therapy devices in-depth, and their influences on patient care. Reports and discussions of current and advanced developments. Integrates experience with current concepts and develops logical courses for proper equipment and technique application for specific patient care. (Not taught every year.)

**RSTH 304. Cardiopulmonary Anatomy and Physiology. 4 Units.**

Investigates anatomic and physiologic components of the cardiovascular and respiratory systems. Emphasizes histology, embryology, diffusion, gases transported in the blood, acid-base balance, lung volumes and capacities, mechanics of ventilation, ventilation perfusion relationships, regulation of respiration, cardiac cell-membrane action potentials, and excitation-contraction coupling.

**RSTH 315. Pediatric Perinatal Respiratory Care. 2 Units.**

Pathophysiology of the newborn, prenatal risk factors, pediatric cardiopulmonary diseases, diagnostics, monitoring of clinical indices, and treatments used in perinatal/pediatric respiratory care. Advanced information on surfactant administration, high-frequency ventilation, and ECMO. May be used toward postprofessional B.S. degree in respiratory care in place of RSTH 422.

**RSTH 323. Pulmonary Function Methodology. 3 Units.**

Evaluates pulmonary function in health and disease through spirometry, plethysmography, helium dilution, nitrogen washout, single-breath nitrogen, volume of isoflow, and diffusing capacity studies—including blood-gas instrumentation, quality control, quality assurance, and current ATS standards. Lecture and laboratory.

**RSTH 331. Pharmacology I. 2 Units.**

Surveys pharmacologic agents currently used in medicine—including their kinetics, dynamics, and therapeutics. Emphasizes drugs and their effects on the respiratory, cardiovascular, and autonomic nervous systems. Topics include the bronchodilators, anti-inflammatory agents, mucokinetic agents, cardiovascular agents, diuretics, antimicrobials, neuromuscular agents, and agents used to treat nicotine dependence.

**RSTH 332. Pharmacology II. 2 Units.**

Surveys pharmacologic agents currently used in medicine—including their kinetics, dynamics, and therapeutics. Emphasizes drugs and their effects on the respiratory, cardiovascular, and autonomic nervous systems. Topics include the bronchodilators, anti-inflammatory agents, mucokinetic agents, cardiovascular agents, diuretics, antimicrobials, neuromuscular agents, and agents used to treat nicotine dependence.

**RSTH 334. Patient Assessment. 2 Units.**

General introduction to the clinical setting. Assesses and evaluates patients with respiratory disease. Develops clinical practice habits and patient-care techniques. Student must obtain current cardiopulmonary resuscitation (CPR) certification from the American Heart Association before the end of the term.

**RSTH 341. Respiratory Therapy Science I. 5 Units.**

Basic principles of respiratory therapy, as related to gas physics; medical-gas storage and therapy; and administration of humidity, aerosol and airway-pressure therapies, artificial airways, and resuscitation devices. Emphasizes methods of administration of the therapy, with special attention placed on the equipment used, as well as applies this information to the clinical setting.

**RSTH 342. Respiratory Therapy Science II. 5 Units.**

Lecture and laboratory presentation of the principles of respiratory therapy related to lung-inflation therapy; use of artificial airways, and their care and complications. Introduces mechanical ventilatory support, including beginning ventilators, support systems, comparison of methods, and respiratory monitoring. Emphasizes application of this information to the clinical setting. Prerequisite: RSTH 341.

**RSTH 343. Respiratory Therapy Science III. 4 Units.**

Lecture and laboratory presentation of the principles of respiratory therapy related to mechanical ventilatory support, including patient management and ventilatory support systems. Emphasizes methods of ventilatory support, with special attention to the mechanical ventilators commonly used in the students' clinical sites. Applies this information to the clinical setting. Prerequisite: RSTH 341, RSTH 342.

**RSTH 354. Case Studies in Adult Respiratory Care. 2 Units.**

Adult critical-care concepts presented through a case-study approach. Respiratory care plan used to present diseases, treatment, and procedures relevant to respiratory care. Patient rounds further develop critical-thinking skills in a patient-care setting. Prerequisite: RSTH 381.

**RSTH 366. Diagnostic Techniques. 3 Units.**

Continues the clinical use of diagnostic tests and procedures. Emphasizes evaluation of chest radiographs, electrocardiography, and monitoring hemodynamics. Lecture and laboratory. Prerequisite: RSTH 304, RSTH 331.

**RSTH 381. Cardiopulmonary Diseases I. 2 Units.**

Comprehensively studies cardiopulmonary diseases and their adverse effects. Course content includes disease etiology, pathology, pathophysiology, clinical features, prognosis, treatment, and prevention. Prerequisite: RSTH 304, RSTH 331, RSTH 341.

**RSTH 382. Cardiopulmonary Diseases II. 2 Units.**

Comprehensively studies cardiopulmonary diseases and their adverse effects. Course content includes disease etiology, pathology, pathophysiology, clinical features, prognosis, treatment, and prevention. Prerequisite or concurrent\*: RSTH 304, RSTH 381\*, RSTH 342.

**RSTH 391. Respiratory Care Practicum I. 2 Units.**

General introduction to the clinical setting; assessment of patients with respiratory disease. Develops work habits and patient-care techniques. Students must obtain current cardiopulmonary resuscitation (CPR) certification from the American Heart Association before the end of the quarter. Prerequisite: RSTH 341; AHA CPR certification.

**RSTH 392. Respiratory Care Practicum II. 2 Units.**

Applies specific therapeutic techniques, including oxygen and humidity therapy, aerosol therapy, airway management, lung-inflation techniques, and chest physiotherapy. Prerequisite: RSTH 342, RSTH 391; AHA CPR certification.

**RSTH 393. Respiratory Care Practicum III. 5 Units.**

Applies therapeutic techniques in continuous mechanical ventilation; special procedures, operation and postanesthesia room, and arterial blood-gas laboratory. Prerequisite: RSTH 343, RSTH 382, RSTH 392.

**RSTH 401. Cardiopulmonary Intensive Care. 2-4 Units.**

Management of the patient with cardiopulmonary failure. Theory and capabilities of various life support and monitoring systems. Prerequisite: Postprofessional student, senior standing; or consent of instructor.

**RSTH 404. Critical Care. 4 Units.**

Continues the theory, practice, and knowledge of mechanical ventilation—providing an integrated approach to respiratory care in the critical-care arena. A systems-based approach used to incorporate respiratory care concepts, such as planning and implementing of protocols, best-practice guidelines, etc. Presentations, projects, and critical evaluation used to increase critical-thinking skills and patient-care skills.

**RSTH 411. Advanced Cardiac Life Support. 2 Units.**

Principles and techniques of advanced emergency cardiac care: review of basic CPR, endotracheal intubation, and the use of airway adjuncts. Monitoring and dysrhythmia recognition. Essential and useful drugs for cardiac life support. Intravenous techniques. Appropriate use of devices for elective cardioversion or defibrillation, stabilization, and transportation. Use of circulatory adjuncts. Acid-base balance, drug therapy, and therapeutic interventions according to current American Heart Association criteria.

**RSTH 421. Perinatal and Pediatric Respiratory Care. 2 Units.**

Fetal development and circulation. Prenatal risk factors. Newborn resuscitation; newborn and pediatric assessment. Etiology, pathophysiology, course, treatment, and outcome of respiratory diseases as they relate to problems in pediatrics and neonatology. Discusses ECMO, high-frequency ventilation, and nitric oxide. Prerequisite: RSTH 304, RSTH 331.

**RSTH 422. Advanced Perinatal and Pediatric Respiratory Care. 2 Units.**

Pathophysiology of newborn and pediatric diseases likely to be encountered by the respiratory care practitioner. Perinatal risk factors, resuscitation, and research on the transition to extrauterine life. Diagnostics, monitoring of clinical indices, and treatments used in perinatal/pediatric respiratory care. Advanced information on surfactant, high-frequency ventilation, and ECMO. Prerequisite: RSTH 421; or consent of instructor. Does not apply to postprofessional respiratory care students.

**RSTH 424. Exercise Physiology and Pulmonary Rehabilitation. 3 Units.**

Metabolism of carbohydrates, lipids, and proteins in energy production, oxygen consumption, carbon dioxide production, and respiratory quotient applied to measurable counterparts of oxygen uptake, carbon dioxide output, and respiratory exchange ratio at rest and during exercise. Metabolic studies, body-fat composition, exercise studies, and malnutrition in chronic obstructive pulmonary disease utilized as a foundation for evaluation and implementation of pulmonary rehabilitation program. Rehabilitation components include team assessment, patient training, exercise, psychosocial intervention, and follow-up.

**RSTH 431. Senior Project I. 4 Units.**

Introduces the process of proposal development for a respiratory care project. Weekly assignments apply the steps in developing the selected topic. Cardiopulmonary project development incorporates the concepts of evidence-based medicine.

**RSTH 432. Senior Project II. 4 Units.**

Introduces the process of proposal development for a respiratory care project. Weekly application of the steps in project development. Cardiopulmonary project incorporates project design concepts and needs assessment. Prerequisite: RSTH 431.

**RSTH 433. Senior Project III. 4 Units.**

The process of developing a proposal for a respiratory care project. Weekly application of the steps in topic development. Cardiopulmonary project design incorporates the concepts of design implementation and outcome assessment. Prerequisite: RSTH 431, RSTH 432.

**RSTH 434. Advanced Patient Assessment. 2 Units.**

Advanced skills in interviewing, physical examination, and interpretation of laboratory data. Lecture, reading material, and physical examination procedures. Provides insight for better interview and examination of patients with cardiopulmonary disease. Increases understanding of the pathophysiology behind the symptoms. Prerequisite: RSTH 334; Does not apply to postprofessional respiratory care students.

**RSTH 441. Respiratory Therapy Science IV. 3 Units.**

Presents and discusses the clinical application of respiratory therapy devices in-depth, and their influences on patient care. Reports and discussions of current and advanced developments. Emphasizes application of this information to the clinical setting. (Not taught every year.) Prerequisite: RSTH 341, RSTH 342, RSTH 343; or consent of instructor.

**RSTH 444. Case Studies in Neonatal/Pediatric Respiratory Care. 2 Units.**

Develops respiratory care-management skills in caring for the neonatal and pediatric patient through the presentation of student case studies. Clinical staff and faculty review current management of the newborn, infant, and child. Student presents patients and explains implications of care. Develops presentation skills. Prerequisite: RSTH 421; Does not apply to postprofessional respiratory care students.

**RSTH 451. Respiratory Care Affiliation I. 2 Units.**

General care, basic critical care, and advanced critical care in the adult, pediatric, and neonatal setting as practiced at LLUMC. Open to students who are now, or have been recently, employed by LLUMC. Prerequisite: CA RCP licensure.

**RSTH 452. Respiratory Care Affiliation II. 4 Units.**

Specialty clinical assignments selected from adult critical care, cardiopulmonary specialties, trauma, neurology, surgery, postsurgery, research laboratory. Prerequisite: AH CJ 461; RSTH 315, RSTH 422.

**RSTH 453. Respiratory Care Affiliation III. 4 Units.**

Specialty clinical assignments selected from the following areas: cardiopulmonary specialties, pediatrics and neonates, research, and special procedures. Prerequisite: RSTH 315, RSTH 452.

**RSTH 454. Respiratory Care Affiliation IV. 5 Units.**

Specialty elective clinical assignments selected from the following areas: adult critical care, cardiopulmonary specialties, pediatrics and neonates, polysomnography, rehabilitation and patient education, research, and special procedures. Prerequisite: AH CJ 461; RSTH 315, RSTH 452; CA RCP licensure.

**RSTH 462. Management Practicum II. 3 Units.**

Experience in the management of respiratory or emergency medical care management. Clinical application of the theoretical management skills developed during the didactic portions of the training.

**RSTH 463. Management Practicum III. 3 Units.**

Experience in the management of respiratory or emergency medical care management. Clinical application of the theoretical management skills developed during the didactic portions of the training. Includes assisting clinical managers in supervision and management of RCP staff and students.

**RSTH 464. Case Management in Respiratory Care. 2 Units.**

Utilizes a case management approach to patient care in the management and evaluation of treatment and disease. Special emphasis on case management of the respiratory care patient includes discharge planning, utilization review, patient assessment, cost containment, patient education, and integration issues. Prerequisite: RSTH 334, RSTH 424, RSTH 434; Does not apply to postprofessional respiratory care students .

**RSTH 466. Advanced Diagnostic Techniques. 2 Units.**

Advanced diagnostic theory and practice in the following areas: Holter monitoring, echocardiography, bronchoscopy, sleep studies, and other relevant respiratory care diagnostics. Prerequisite: RSTH 366; Does not apply to postprofessional respiratory care students.

**RSTH 471. Instructional Techniques I. 2 Units.**

Develops units of instruction, instructional objectives, and evaluation procedures. Students observe and participate in classroom management; and apply teaching principles through experience in various teaching activities, such as community preventive health care programs, in-service and continuing education, and college classroom and clinical teaching. Conferences and individual guidance.

**RSTH 474. Cardiopulmonary Health Promotion and Disease Prevention. 2 Units.**

Selected topics dealing with aspects of disease prevention. Includes the relevance of statistics, epidemiology, research designs, and clinical trials; as well as selected disease trends, lifestyle modification, the role of physical activity, nutrition and immunization, and public health approaches to communicable diseases. Prerequisite: RSTH 424.

**RSTH 485. Evidenced-Based Medicine in Respiratory Care. 4 Units.**

Provides basic knowledge and experience in the area of evidenced-based medicine as it relates to respiratory care practice and research.

**RSTH 486. Evidenced-Based Medicine in Respiratory Care II. 4 Units.**

Provides advanced knowledge and experience in the area of evidenced-based medicine as it relates to respiratory care practice and research. Emphasizes the neonatal and pediatric areas of respiratory care.

**RSTH 487. Evidenced-Based Medicine in Respiratory Care III. 4 Units.**

Provides advanced knowledge and experience in the area of evidenced-based medicine as it relates to respiratory care practice and research. Emphasizes the adult areas of respiratory care.

**RSTH 491. Education Practicum I. 3 Units.**

Provides experience in clinical education, evaluation, and scheduling. Familiarizes student with hospital affiliation agreements and accreditation issues. Primary experience in the general and adult critical care areas. Prerequisite: CA RCP licensure.

**RSTH 492. Education Practicum II. 3 Units.**

Provides experience in clinical education, evaluation, and scheduling. Familiarizes student with hospital affiliation agreements and accreditation issues. Primary experience in the neonatal and pediatric intensive care units. Prerequisite: CA RCP licensure.

**RSTH 493. Education Practicum III. 3 Units.**

Provides experience in clinical education, evaluation, and scheduling. Familiarizes student with hospital affiliation agreements and accreditation issues. Primary experience in specialty procedures and rehabilitation. Prerequisite: CA RCP licensure.

**RSTH 494. Respiratory Care Practicum IV. 3 Units.**

Students develop professional competence and maturity in the clinical setting. Comprehensive training in all aspects of respiratory care, including the pulmonary function laboratory and home care. Prerequisite: RSTH 343, RSTH 382, RSTH 393, RSTH 404.

**RSTH 495. Respiratory Care Practicum V. 2 Units.**

Specialty training in respiratory care practice. Students rotate to specialized areas of respiratory care, increasing their proficiency and understanding in the following areas: neonatal/pediatric critical care, adult critical care, cardiopulmonary diagnostics, hyperbaric medicine, sleep disorders medicine, cardiopulmonary rehabilitation, and extended care. In addition, students continue their professional development and competency in the general and critical-care settings. Prerequisite: RSTH 494, RSTH 404.

**RSTH 496. Respiratory Care Practicum VI. 3 Units.**

Continues specialty training in respiratory care practice. Students rotate to specialized areas of respiratory care, increasing their proficiency and understanding in the following areas: neonatal/pediatric critical care, adult critical care, cardiopulmonary diagnostics, hyperbaric medicine, sleep disorders medicine, cardiopulmonary rehabilitation, and extended care. In addition, students continue their professional development and competency in the general and critical-care settings. Prerequisite: RSTH 495.

**RSTH 499. Respiratory Therapy Independent Study. 0.5-4 Units.**

Under the direction of the program director, student submits a project or paper on a topic of current interest in an area of respiratory care. Regular meetings provide student with guidance and evaluation in the development of the project or paper. Elected on the basis of need or interest.

**RSTH 501. Advanced Cardiopulmonary Anatomy and Physiology I. 3 Units.**

Clinical approach and application of cardiopulmonary anatomy and physiology to the respiratory care and medical patient. Includes study of respiratory physiology and cardiac and circulatory function, with relevant clinical application. Provides in-depth study of cardiac and pulmonary anatomy and physiology beyond undergraduate gross anatomy and physiology course work, particularly at the molecular mechanistic level.

**RSTH 502. Advanced Cardiopulmonary Anatomy and Physiology II. 3 Units.**

Continues RSTH 501. Clinical approach and application of cardiopulmonary anatomy and physiology to the respiratory care and medical patient. Studies respiratory physiology, cardiac, and circulatory function—with relevant clinical application. Provides an in-depth study of cardiac and pulmonary anatomy and physiology beyond undergraduate gross anatomy and physiology course work, particularly at the molecular mechanistic level. Prerequisite: RSTH 501.

**RSTH 510. Seminar in Translational Cardiopulmonary Science I. 1 Unit.**

First of a four-quarter series of seminars providing an overview of translational cardiopulmonary basic and clinical research. Includes discussion of current cardiopulmonary clinical best practices, scientific and administrative processes that achieve best practices, and current scientific research aimed at progression of cardiopulmonary science at the bedside. Required for MSRC students without a respiratory care background (research track).

**RSTH 511. Seminar in Translational Cardiopulmonary Science II. 1 Unit.**

Second of a four-quarter series of seminars providing an overview of translational cardiopulmonary basic and clinical research. Includes discussion of current cardiopulmonary clinical best practices, scientific and administrative processes that achieve best practices, and current scientific research aimed at progression of cardiopulmonary science at the bedside. Required for MSRC students without a respiratory care background (research track).

**RSTH 512. Seminar in Translational Cardiopulmonary Science III. 1 Unit.**

Third of a four-quarter series of seminars providing an overview of translational cardiopulmonary basic and clinical research. Includes discussion of current cardiopulmonary clinical best practices, scientific and administrative processes that achieve best practices, and current scientific research aimed at progression of cardiopulmonary science at the bedside. Required for MSRC students without a respiratory care background (research track).

**RSTH 513. Seminar in Translational Cardiopulmonary Science IV. 1 Unit.**

Fourth of a four-quarter series of seminars providing an overview of translational cardiopulmonary basic and clinical research. Includes discussion of current cardiopulmonary clinical best practices, scientific and administrative processes that achieve best practices, and current scientific research aimed at progression of cardiopulmonary science at the bedside. Required for MSRC students without a respiratory care background (research track).

**RSTH 541. Advanced Concepts in Critical Care I. 2 Units.**

Explores advanced studies of general medicine, cardiopulmonary, and critical care topics as they relate to cardiopulmonary science. Discusses concepts of physical principles and molecular mechanisms associated with phenotypic changes in compliance, resistance, etc., upon implementation of positive pressure ventilation (PPV); as well as benefits and limitations of techniques offered by advanced, novel modes of ventilation in regard to reduced physiological insult upon PPV. Expands on current understanding of the typical respiratory care practitioner to encourage research questions, data interpretation, and revision of current protocols and modalities.

**RSTH 542. Advanced Concepts Critical Care II. 2 Units.**

Continues RSTH 541 to include advanced understanding of the systemic effects of the critical care patient, their impact on the cardiopulmonary system, and the role of the cardiopulmonary system in maintaining homeostasis. Includes discussion of case study assessment, interpretation, and intervention to encourage improved intensive cardiopulmonary care. Expands on current understanding of the typical respiratory care practitioner to encourage research questions, data interpretation, and revision of current protocols and modalities. Prerequisite: RSTH 542.

**RSTH 550. Advanced Procedures in Cardiopulmonary Science. 2 Units.**

Study and practice of invasive and noninvasive procedures and associated equipment—such as the management of artificial airways, fiberoptic bronchoscopy, thoracentesis, chest tubes, hyperbaric therapy, arterial blood gas sampling, line placements, ACLS procedures, medications, IVs—related to the critical care patient. Emphasizes application to patient situations, assessment of care, and principles of equipment use above that of the entry-level respiratory care practitioner.

**RSTH 560. Advanced Cardiopulmonary Assessment, Diagnostics, and Monitoring. 2 Units.**

An integrated approach to general medicine, cardiopulmonary assessment, diagnostics, and monitoring to include: theory, management, practice, and application to the cardiopulmonary patient. Expands beyond the pulmonary system to include total system assessment, interpretation of diagnostics, and implementation of planning geared toward improved intensive cardiopulmonary care. Expands on current understanding of the typical respiratory care practitioner to encourage research questions, data interpretation, and revision of current protocols and modalities.

**RSTH 571. Advanced Pathophysiology of Cardiopulmonary Diseases I. 3 Units.**

A case study approach of the pathophysiology, clinical signs and symptoms, diagnosis, management, practice, and prognosis of acute and chronic pulmonary and cardiac diseases—with emphasis on respiratory care and comorbidities. Studies cardiopulmonary function as it relates to understanding of the pathophysiology of disease states.

**RSTH 572. Advanced Pathophysiology of Cardiopulmonary Diseases II. 3 Units.**

Continues RSTH 571. A case study approach to explore pathophysiology, clinical signs and symptoms, diagnosis, management, practice, and prognosis of acute and chronic cardiopulmonary diseases and comorbidities. Studies cardiopulmonary function as it relates to understanding the pathophysiology and molecular mechanisms of disease states. Encourages research questions/exploration and protocol/policy modification. Prerequisite: RSTH 571.

**RSTH 574. Nutrigenomics and Cardiopulmonary Health and Disease. 4 Units.**

Discusses nutrition and its effects on epigenetic regulation of genes that determine cardiopulmonary health and disease. Offers a brief overview of epigenetics, with a focus on food as source stimuli for altering the expression of pathway components known to both induce and minimize disease progression of the cardiovascular and pulmonary systems.

**RSTH 580. Research Concept in Respiratory Care Sciences. 3 Units.**

Applies research specific to respiratory care science through the evaluation and comparison of relevant literature to clinical practice.

**RSTH 585. Current Issues in Respiratory and Health Care Policy. 3 Units.**

Addresses emerging issues in medicine, cardiopulmonary science, and health-care policy. Reviews relevant research and new trends in respiratory care management, as well as practice that impacts patient care. Includes inpatient, outpatient, rehabilitation, prevention, and related topics.

**RSTH 587. R Programming for Health Care and Translational Science II. 4 Units.**

Second of a four-part series of courses that provides a basic overview and introduction to programming in R. Discusses acquiring and cleaning data from the internet, subsetting and graphing the data, using statistics in R to analyze data, and generating interpretable reports that can be presented to hospital personnel and lay persons. Introduces the tools necessary to analyze large datasets to answer epidemiological questions, which can be communicated to hospital administrators, physicians, health-care workers, and lay persons.

**RSTH 591. Capstone Project in Respiratory Care I. 3 Units.**

Students address and present a substantial issue related to their professional area of interest, then design and implement scholarly results and presentation. Emphasizes design, literature review, and needs assessment. A thesis option available for students who require a directed research study.

**RSTH 592. Capstone Project in Respiratory Care II. 3 Units.**

Students present the findings of their completed project—emphasizing data collection, implementation, and evaluation. A thesis option available for students who require a directed research study.

**RSTH 593. Capstone Project in Respiratory Care III. 3 Units.**

A continuation of RSTH 592. Graduate student presents findings of the total project, emphasizing data collection, implementation, and evaluation of the project. MSRC faculty and students discuss need for revision or further validation studies.

**RSTH 594. Capstone Project in Respiratory Care IV. 3 Units.**

Students present the findings of their completed project—emphasizing data collection, implementation, and evaluation. A thesis option available for students who require a directed research study.

**RSTH 596. Advanced Clinical Practice in Respiratory Care I. 2 Units.**

Clinical practicum in medicine, pulmonary, and critical care under the direct supervision of a practicing/supervising pulmonologist or other preapproved physician. Emphasizes both inpatient and outpatient assessment, management, practice, and procedures. Requires prior approval of the program director and an approved signed preceptor agreement on file.

**RSTH 597. Advanced Clinical Practice in Respiratory Care II. 2 Units.**

Continues RSTH 597. Clinical practicum in medicine, pulmonary, and critical care—under the direct supervision of a practicing-supervising pulmonologist, or other preapproved physician. Emphasizes inpatient and outpatient assessment, diagnosis, management, practice, and procedures. Requires prior approval of the program director, as well as an approved signed preceptor agreement on file.

## Restorative Dentistry (RESD)

### Courses

**RESD 701. Restorative Dentistry I Lecture. 2 Units.**

Terminology, morphologic characteristics, and interrelationship of permanent teeth.

**RESD 701L. Restorative Dentistry I Laboratory. 2 Units.****RESD 702. Restorative Dentistry II. 2 Units.**

Introduces mandibular movement. Relationship to the anatomy of teeth. Studies source, use, and manipulation of dental materials; and their physical properties relative to dentistry.

**RESD 702L. Restorative Dentistry II Laboratory. 2 Units.**

Laboratory experiences.

**RESD 708. Restorative Dentistry III Lecture. 2 Units.**

Basic principles and techniques of cavity preparation and restoration of teeth with silver alloy and tooth-colored restorative materials. Studies source, use, and manipulation of dental materials; and their physical properties relative to dentistry.

**RESD 708L. Restorative Dentistry III Laboratory. 2 Units.**

Laboratory experiences.

**RESD 709. Restorative Dentistry IV Lecture. 2 Units.**

Basic principles and techniques of cavity preparation and restoration of teeth with silver alloy and tooth-colored restorative materials. Introduces basic casting principles and techniques. Studies the source, use, and manipulation of dental materials; and their physical properties relative to dentistry.

**RESD 709L. Restorative Dentistry IV Laboratory. 2 Units.****RESD 764. Removable Prosthodontics. 3.5 Units.**

Covers the basic concepts of treatment and management of the partially and completely edentulous patient utilizing a removable prosthesis. Covers concepts of anatomy, function, and occlusion. Student performs practical hands-on treatment and simulations of immediate complete dentures, removable partial dentures, and treating the completely edentulous patient. Student observes and performs a simulated treatment of a completely edentulous patient. Removable partial denture design principles and hands-on treatment planning to understand the proper planning and sequencing of treatment for a patient requiring a combination of operative, fixed, and removable prosthodontics.

**RESD 765. Removable Prosthodontics II. 2 Units.**

Fundamentals of surveying and designing removable partial dentures. Individual projects, group exercises, oral and Power Point presentations, and written assignments used to facilitate understanding of the treatment of patients with removable prostheses.

**RESD 771. Single Casting Technique Lecture. 2 Units.**

Basic tooth preparation for single cast restorations, including porcelain fused to metal, tissue management, impression techniques, and casting fabrication.

**RESD 771L. Single Casting Technique Laboratory. 2 Units.**

Laboratory experience in single casting techniques.

**RESD 772. Fixed Prosthodontics Lecture. 2 Units.**

Indications, treatment planning, design and fabrication of metal and porcelain-fused-to-metal restorations, including single units, fixed partial dentures, and single implant restorations.

**RESD 772L. Fixed Prosthodontics Laboratory. 2 Units.**

Laboratory experience in fixed prosthodontics.

**RESD 773. Fixed Prosthodontics II Lecture. 2 Units.**

Continues RESD 772.

**RESD 773L. Fixed Prosthodontics II Laboratory. 2 Units.**

Continued laboratory experience in fixed prosthodontics.

**RESD 801. Fixed Prosthodontics and Occlusion. 1 Unit.**

Introduces additional techniques for fixed prosthodontics, treatment planning, and repair techniques for prosthetic failures.

**RESD 811. Dental Materials II. 1 Unit.**

Selection and uses of current dental materials.

**RESD 822. Operative Dentistry II Lecture. 1 Unit.**

Indications, preparations, and placement of direct core build-up procedures (including endodontically treated teeth), atypical case gold, and complex amalgam restorations. Covers implant overdenture procedures. Provides expanded teaching and hands-on laboratory practice of CAD/CAM procedures.

**RESD 822L. Operative Dentistry II Laboratory. 1 Unit.**

Laboratory experiences introduce students to the MARC simulator, CAD/CAM experience in tooth preparation and image capture, post and core build-up, and implant overdenture procedures; as well as further complex tooth restoration procedures.

**RESD 823. Aesthetic Dentistry. 1 Unit.**

Principles of dental aesthetics, adhesion to tooth tissues, preparation and placement of tooth-colored restorations in anterior and posterior teeth. Resin, gold, ceramic, and CAD/CAM restorations. Emphasizes diagnosis and treatment planning for aesthetic procedures.

**RESD 823L. Aesthetic Dentistry Laboratory. 1 Unit.**

Laboratory experiences focusing on dental photography, diastema closures, bleaching trays, resin restorations, and preparation of teeth for veneer restorations and temporization.

**RESD 844. Restorative Study Club Seminar. 0.5 Units.****RESD 854. Implant Dentistry. 2 Units.**

Focuses on diagnostic and treatment-planning procedures associated with implant dentistry, the benefits of implant dentistry, the scientific and technical foundations for implant surgery and associated advanced procedures, the peri-implant tissues, postplacement care, and clinical complications associated with dental implants.

**RESD 854L. Implant Dentistry Laboratory. 1 Unit.**

Laboratory experience that applies knowledge of diagnosis and treatment planning to the fabrication of radiographic and surgical templates, and provides experience with the analysis of cone-beam radiographic scans and the use of dental implant-planning software. Laboratory additionally provides an implant-placement experience using a manikin—followed by impression making, the fabrication of a working cast, and the formation of a wax pattern for a definitive restoration.

**RESD 861. Senior Topics in Removable Prosthodontics. 2 Units.**

Treatment planning and problem solving in removable prosthodontics and combination cases to prepare fourth-year dental students for dental practice and National Dental Board Examination Part II.

**RESD 875A. Restorative Dentistry Clinic. 1.5 Unit.**

Clinical practice in the restoration of teeth and the replacement of missing teeth—including attendant diagnostic procedures, planning and sequencing of treatment, disease control procedures, and appropriate continuing-care procedures following treatment.

**RESD 875B. Restorative Dentistry Clinic. 8 Units.**

Clinical practice in the restoration of teeth and the replacement of missing teeth—including attendant diagnostic procedures, planning and sequencing of treatment, disease control procedures, and appropriate continuing-care procedures following treatment.

**RESD 875C. Restorative Dentistry Clinic. 28 Units.**

Clinical practice in the restoration of teeth and the replacement of missing teeth—including attendant diagnostic procedures, planning and sequencing of treatment, disease control procedures, and appropriate continuing-care procedures following treatment.

## School of Behavioral Health Global (SBHG)

### Courses

**SBHG 700. Global Behavioral Health Service Learning. 2 Units.**

A short-term service learning elective (approximately ten days) offered during term breaks and summer quarter that provides students with international practice experiences in behavioral health. Utilizes international hospitals and University associations, the Adventist Development Relief Agency (ADRA), and other international humanitarian service organizations with which LLU has a service history. Pre-, concurrent, and postpracticum didactic content provided to deepen students' learning and provide reflective opportunities. Emphasizes recovery, resiliency, and empowerment as the philosophical foundation of global behavioral health interventions. Examines ethical and practice issues associated with global humanitarian service, as well as the use of traditional Western behavioral health interventions. Gives critical attention to interactions with governmental and nongovernmental organizations, the importance of impact research, and responsibilities regarding sustainability. Includes additional topics and issues, depending on the specific sociocultural population; and the practice issues relevant to location of the short-term practice site. Practicum sites, identified and coordinated through the School of Behavioral Health and the Office of the Dean, may vary each time course is offered. Permission to participate in practicum experiences is coordinated by the department—which limits participation to students in good academic and professional performance standing. Number of students participating varies and is subject to change, depending on the practice site. Costs and international visa requirements differ, depending on each country's economic and government differences.

**SBHG 705. Global Behavioral Health Elective Practicum. 4 Units.**

An elective immersion experience (typically three months) in international behavioral health practice, offered during summer quarter. Utilizes international hospitals and University associations, the Adventist Development Relief Agency (ADRA), and other international humanitarian service organizations with which LLU has a service history. Emphasizes recovery, resiliency, and empowerment as the philosophical foundations of global behavioral health interventions. Requires pre- and concurrent seminars. Utilizes telesupervision to support oversight and regular contact with assigned faculty member from LLU. Host site may also require concurrent enrollment in courses that support understanding specific practice methods and population milieus. Portfolio methodology supports students' reflective learning and further exploration of ethical and practice issues associated with global humanitarian service, the use of traditional Western behavioral health interventions, interactions with governmental and nongovernmental organizations, importance of impact research, and responsibilities regarding sustainability. Additional topics and issues assigned for exploration, depending on specific sociocultural population and practice issues relevant to the practicum site. Practicum sites identified and coordinated through the School of Behavioral Health and the Office of the Dean, depending on contractual agreements. Participation in practicum experiences limited to students in good academic and professional performance standing. Number of students participating varies and is subject to change, depending on the practice site. Costs and international visa requirements differ, depending on each country's economic and government differences. Prerequisite: Must be a student in good academic and behavioral standing. Must have an academic plan submitted that illustrates how this elective practicum supports the future employment and mission service goals of the student. Students must receive approval from their program advisor and director, department chair, and dean. Students must have complied with all health immunization, passport and visa requirements set forth by the LLU Global Health Institute, US government and country where the practicum will occur. Students are responsible for financing this practicum experience either through private resources or through preapproval as part of their federal financial aid.

## School of Dentistry—Clinical (SDCL)

### Courses

**SDCL 696. Directed Study. 1-4 Units.**

A directed study (DS) course that can be used in any graduate program either to further study of a particular subject or subjects, or to remediate academic deficiencies without having to repeat an entire course. Program director or his/her designee develops the specific course content and assignments.

**SDCL 711. Clinic Orientation I. 2 Units.**

Introduces direct patient care in the main clinic. Discusses clinic policies and requirements; reviews use and expands understanding of the clinic computing system. Introduces basic patient-management techniques, as well as practice-management issues—including patient financial planning, asepsis technique, and universal precautions. Introduces a private practice model of teamwork between practitioners in patient care; discusses diagnosis and treatment planning, including appropriate sequencing of treatment procedures; discusses professional liability and regulatory compliance in dentistry; reviews patient clinical examinations and standards of care. Introduces various departments and clinical requirements within each department.

**SDCL 712. Clinic Orientation II. 2 Units.**

Builds on SDCL 711 by continuing instruction related to the clinic computing system. Discusses diagnosis and treatment planning of patient cases, as well as sequencing of treatment procedures. Includes intraoral photography, financial planning for patients, disinfection techniques and universal precautions, quality assurance and improvement, long-term assessment of care outcomes. Introduces various departments and requirements within each department.

**SDCL 744. Clinical Training in Advanced Restorative Dentistry. 8 Units.**

A six-month program that is predominantly preclinical and clinical in nature. Provides mission support among Seventh-day Adventist international dentists, as well as training for other foreign dentists who reside outside the United States and will return to their own dental clinics/countries after completion of the program. Allows qualified dentists from other countries to study and treat patients at Loma Linda University School of Dentistry. Course credit not applicable to any other program in the School of Dentistry.

**SDCL 808. Clinical Patient Care. 2 Units.**

Continues SDCL 805, 806, 807.

**SDCL 896. Clinical Directed Study. 1-4 Units.**

A directed study (DS) course that can be used in any graduate program either for advanced clinical activity in selected areas, or to remediate clinical deficiencies without having to repeat an entire course. Program director or his/her designee determines the nature and scope of the clinical activity.

**SDCL 899. Clinic—Continuing Registration for Extended Professional. 4-8 Units.**

Continues registration that allows an extended professional to satisfy clinic requirements for degree completion.

## School of Dentistry—Conjoint (SDCJ)

### Courses

**SDCJ 744. Clinical Training in Advanced Restorative Dentistry. 8 Units.**

A six-month, full-time certificate program that is predominately clinical in nature. Provides mission support among Seventh-day Adventist international dentists, and provides training for other foreign dentists who reside outside the United States and will return to their own dental clinics/countries after completion of the program. Allows qualified dentists from other countries to study and treat patients at Loma Linda University School of Dentistry. Program generates no academic credit and cannot apply toward any other program in the School of Dentistry.

**SDCJ 759A. Clinical Experience. 3 Units.**

A one-month program that offers didactic instruction, laboratory, clinical observation, assisting, and research for interns, externs, and fellows. Fellows may also provide direct patient care at the discretion of the respective program director. Students enroll in one of the following disciplines: biomaterials research, dental anesthesiology, endodontics, implant dentistry, oral and maxillofacial surgery, oral pathology and radiology, orthodontics, pediatric dentistry, periodontics, or prosthodontics. Students spend a minimum of 30 hours per week engaged in the assigned activities. Course generates no academic credit and cannot apply toward any program in the School of Dentistry.

**SDCJ 759B. Clinical Experience. 6 Units.**

A two-month program that offers didactic instruction, laboratory, clinical observation, assisting, and research for interns, externs, and fellows. Fellows may also provide direct patient care at the discretion of the respective program director. Students enroll in one of the following disciplines: biomaterials research, dental anesthesiology, endodontics, implant dentistry, oral and maxillofacial surgery, oral pathology and radiology, orthodontics, pediatric dentistry, periodontics, or prosthodontics. Students spend a minimum of 30 hours per week engaged in the assigned activities. Course generates no academic credit and cannot apply toward any program in the School of Dentistry.

**SDCJ 759C. Clinical Experience. 9 Units.**

A three-month program that offers didactic instruction, laboratory, clinical observation, assisting, and research for interns, externs, and fellows. Fellows may also provide direct patient care at the discretion of the respective program director. Students enroll in one of the following disciplines: biomaterials research, dental anesthesiology, endodontics, implant dentistry, oral and maxillofacial surgery, oral pathology and radiology, orthodontics, pediatric dentistry, periodontics, or prosthodontics. Students spend a minimum of 30 hours per week engaged in the assigned activities. Course generates no academic credit and cannot apply toward any program in the School of Dentistry.

**SDCJ 799. Directed Study. 4-12 Units.**

## Social Policy (SPOL)

### Courses

**SPOL 588. Special Topics in Social Policy and Social Research. 1-5 Units.**

Reviews current knowledge and/or research methodologies in specified areas of social policy and social research.

**SPOL 599. Independent Study. 1-8 Units.**

Limited to Ph.D. degree students who wish to pursue independent investigations in social policy and/or social research under the direction of a department faculty member.

**SPOL 600. Colloquium. 1 Unit.**

Provides students with an academic seminar to explore and discuss relevant topics in the field of social policy and social research. Prerequisite: Program prerequisite in interviewing and counseling.

**SPOL 610. Diversity Theory in Practice and Research. 3 Units.**

Contemporary theories of diversity examined from a critical perspective that also includes intersectionality. Opportunity to apply these theories using a cultural humility framework for engaging diverse populations in policy practice and research.

**SPOL 613. Social Science Concepts I. 4 Units.**

Part one of a two-part sequence. Reviews key theories, writers, conceptual frameworks, and seminal ideas from social science at-large (economics, sociology, psychology, geography, political science, social work) that have laid the foundation for contemporary social policy analysis and social research—particularly applied social science. Students expected to read a wide selection of material under faculty guidance; and extract concepts, tools, methods, and applications useful to social policy analysis or practice. Multiple faculty and guests lead in the discussion and reading, as well as critique writing.

**SPOL 614. Social Science Concepts II. 4 Units.**

Part two of a two-part sequence. Reviews key theories, writers, conceptual frameworks, and seminal ideas from social science at-large (economics, sociology, psychology, geography, political science, social work) that have laid the foundation for contemporary social policy analysis and social research—particularly applied social science. Students expected to read a wide selection of material under faculty guidance; and to extract concepts, tools, methods, and applications useful to social policy analysis or practice. Multiple faculty and guests lead in the discussion and reading, as well as in critique writing. Prerequisite: SPOL 613.

**SPOL 615. Economic Theory and Social Policy. 4 Units.**

Presents the basic ideas and concepts of macroeconomic theory and applies them to understanding current and recent developments in social policy. Students learn to evaluate macroeconomic conditions—such as unemployment, inflation, growth wages, and income distribution—and gain understanding of how such conditions impact the provision of health and human services.

**SPOL 654. Research Methods I. 4 Units.**

Advanced quantitative research methods. Emphasizes experimental and quasi-experimental designs, and examines specific methodologies used in conducting research in the area of social policy and social research. Topics include measurement issues, research design, sampling, and statistical interpretation. Addresses survey research, time-series designs, and more advanced techniques.

**SPOL 655. Research Methods II. 4 Units.**

Advanced course in qualitative and mixed research methods. Emphasizes selected qualitative and mixed research methodologies specific to social policy and clinical and health services research. Topics covered include theoretical bases for conducting qualitative research; research design; data gathering, including interviewing, observation, archival and historical research, and data analysis and writing. Introduces various methods for integrating qualitative and quantitative methodologies.

**SPOL 656. Organizational Theory and Policy. 3 Units.**

Explores the complexities of large organizations; how organizations are born, evolve, and survive. Examines bureaucratic systems, formal and informal structures, communication patterns, and philosophical approaches that influence effectiveness and efficiency of services delivery. Implications of these on the development and implementation of social policies explored.

**SPOL 658. Methods of Policy Analysis and Research. 4 Units.**

Examines approaches to policy analysis and assesses the strengths and limitations of various methods. Explores a range of theoretical frameworks and analytical methods used for understanding and analyzing contemporary policy challenges. Addresses ethical issues and the role of values in shaping analysis. Incorporates the empirical methods used to support policy analysis and structure policy research.

**SPOL 664. Applied Research for Social Policy. 2 Units.**

Provides students with a series of formal exercises simulating primary applied social research strategies used in the development of social policy. Explores the contributions of social research to social policy through studies of public records and data bases; clinical contexts; social experimentation; program planning, development, and evaluation; and action research.



**SPOL 671. Applied/Structured Research I. 2-4 Units.**

Provides students the opportunity to advance knowledge and skills in a specialized area of study. Part of a year-long sequence that culminates in an applied research product at the end of SPOL 673. Research mentor develops with the student a plan for the year, with objectives for each quarter. Research plan approved by the Program Committee. Evaluation based on accomplishment of quarterly objective(s).

**SPOL 672. Applied/Structured Research II. 2-4 Units.**

Provides students the opportunity to advance knowledge and skills in a specialized area of study. Part of a year-long sequence that culminates in an applied research product at the end of SPOL 673. Research mentor develops with the student a plan for the year, with objectives for each quarter. Research plan approved by the Program Committee. Evaluation based on accomplishment of quarterly objectives.

**SPOL 673. Applied/Structured Research III. 2-4 Units.**

Provides students the opportunity to advance knowledge and skills in a specialized area of study. Part of a year-long sequence that culminates in an applied research product at the end of SPOL 673. Research mentor develops with the student a plan for the year, with objectives for each quarter. Research plan approved by the Program Committee. Evaluation based on accomplishment of quarterly objectives.

**SPOL 681. Dissertation Proposal I. 2 Units.**

Development of the dissertation proposal. Research advisor develops with the student mutually agreed-upon objectives. Evaluation based on accomplishment of these objectives.

**SPOL 682. Dissertation Proposal II. 2 Units.**

Development of the dissertation proposal. Research advisor develops with the student mutually agreed-upon objectives. Evaluation based on accomplishment of these objectives. Prerequisite: SPOL 681.

**SPOL 683. Dissertation Proposal III. 2 Units.**

Development of the dissertation proposal. Research advisor develops with the student mutually agreed-upon objectives. Evaluation based on accomplishment of these objectives. In addition, student must successfully defend a dissertation proposal according to program and Faculty of Graduate Studies guidelines. Prerequisite: SPOL 681, SPOL 682.

**SPOL 697. Research. 4,8 Units.**

Credit for dissertation research. Total of 20 units required. May be repeated for credit.

**SPOL 699. Dissertation. 4-12 Units.**

Should be taken during the last quarter of registration prior to completion and defense.

## Social Work (SOWK)

### Courses

**SOWK 513. Human Behavior and Cross-Cultural Environment. 5 Units.**

Provides the basis for understanding human development and life transitions throughout the life span within an ecological perspective. Orients the student to the generalist social work approach to understanding human behavior in a cross-cultural context, with a focus on normal behavior from birth through senescence. Provides a theoretical foundation on which to build social work-practice skills.

**SOWK 514. Social Welfare Policies and Services. 5 Units.**

Provides students with an understanding of the historical foundations of the social work profession, including its influence in the development of the U.S. system of social welfare. Examines the societal perspectives and contradictions that have affected the development and evolution of contemporary social policies and services in the U.S. Emphasizes understanding of the role of race, gender, and perception of human needs in shaping social policy. Analyzes programs, policies, and issues as responses to long-term changes in social and economic conditions in the U.S. and the needs and demands of oppressed groups. Orients students to the structure and process of policy development and legislative advocacy at both the state and federal levels, including the development of UN conventions and the varied international frameworks and challenges affecting policy advocacy and change within international environments.

**SOWK 517. Practice I: Individuals. 3 Units.**

Facilitates understanding of generalist practice in microsystems. Students conduct a biopsychosocial-spiritual assessment, along with a full range of beginning intervention strategies for working with individuals. Emphasizes the special problems experienced by populations at risk, women, and minorities; the unique skills necessary for goal setting and successful interventions; and the cultural values that influence the development and resolution of psychosocial problems. Prerequisite to or concurrent with social work practicum.

**SOWK 518. Practice II: Groups. 3 Units.**

Provides students with an understanding of generalist social work practice with groups. Includes a survey of small-group constructs, research, and principles of ethical application. Emphasizes differentiation among the types of individuals, situations, and presenting problems best served through group processes and intervention methods.

**SOWK 519. Practice III: Organizations and Communities. 3 Units.**

Provides students with an understanding of generalist social work practice in organizational and community settings. Utilizes an ecological systems framework and an empowerment practice model in discussion within the macro context. Students examine neighborhood and community conditions that affect outcomes for populations at risk. Students also examine the role of social service agencies within urban communities, including relationships with other neighborhood institutions and organizations. Students define concepts of community and organization as they develop community organizing and organizational leadership skills that are culturally sensitive and based in social work values.

**SOWK 520. Practice IV: Families. 3 Units.**

Introduces family interventions. Examines views and issues regarding contemporary family structure and function, and focuses on concepts and techniques used to promote change in family functioning. Course meets state requirement for content in family violence.

**SOWK 521. Global Practice. 3 Units.**

Introduces students to social work practice in a global context. Examines the ethical and practice issues associated with utilizing traditional interventions in underdeveloped and developing environments lacking established social services systems. Gives critical attention to interactions with governmental and nongovernmental organizations, importance of impact research, and ethical responsibilities regarding sustainability. Additional topics and issues addressed include: globalization, human rights, social justice, diffusion of innovation and social development versus ecological demise, social exclusion, poverty, movements of people across borders, mental and physical health disparities, human trafficking, effects of war and violence and their aftermath, and disaster response.

**SOWK 548. Research Methods. 5 Units.**

Reviews quantitative and qualitative research methodologies in order to provide students with an understanding of the scientific and ethical approaches to building knowledge. Employs computer-based statistical analysis and data interpretation to assist students in integrating research into social work practice.

**SOWK 578. Field Orientation. 1 Unit.**

Provides students with the policies and procedures for completing the program's practicum requirements. Begins the process of examining social work values and ethics as students are introduced to the NASW code of ethics and fundamental principles of professional behavior prior to beginning their field practicum.

**SOWK 584. Special Topics in Social Work. 1-4 Units.**

Lecture and discussion, under the direction of a faculty member, on a current topic in social work. May be repeated for a maximum of 4 units applicable to degree program.

**SOWK 595. Professional Development. 2 Units.**

Tutorial course work aimed at ameliorating difficulties associated with meeting the professional performance competencies of the M.S.W. degree program (see M.S.W. Student Handbook). Students enrolled in the course as a result of a corrective action plan developed with the Department of Social Work's Academic Standards Committee.

**SOWK 599. Directed Study. 1-4 Units.**

Limited to matriculating master's degree students in social work who wish to pursue independent investigations in social work practice or policy under the direction of a department faculty member.

**SOWK 610. Diversity Theory in Practice and Research. 3 Units.**

Examines contemporary theories of diversity from a critical perspective that includes intersectionality. Using a cultural humility framework for engaging diverse populations at all levels of practice, as well as policy and research, provides students the opportunity to apply the concepts learned. Gives students the opportunity to build self-awareness and self-regulation and to grow beyond the influence of personal biases and values in order to work more effectively with and on behalf of diverse clients and constituencies.

**SOWK 613. Psychopathology, Psychopharmacology, and Diagnosis of Behavioral Health Conditions. 4 Units.**

Focuses on understanding and application of the DSM-5 and Mental Status Examination, as organized from a person-in-the-environment perspective. Integrates recovery and a review of psychopharmacology into the diagnostic process, while enhancing awareness of sociocultural needs and issues of populations at risk. Students enhance their analytic writing and verbal skills via presentations based on the biopsychosocial-spiritual perspective of psychopathologies, and engage in experiential activities aimed at increasing practice skills encountered as a clinical social worker.

**SOWK 648. Co-occurring Processes and Interventions. 3 Units.**

Builds on the practice experiences and foundation courses of the first year by increasing competency in the assessment, diagnosis, and treatment of individuals experiencing mental, emotional, and/or behavioral disturbances with co-occurring chemical dependency. Students learn to utilize behavioral health-treatment strategies and substance-abuse counseling techniques from within a biopsychosocial-spiritual paradigm that integrates an understanding of the recovery process.

**SOWK 651. Medical Social Work. 2 Units.**

Orients students to medical social work in hospitals and other health care environments. Gives attention to the ecological practice perspective, the application of biopsychosocial-spiritual assessment, along with other interventions used to assist patients and families. Examines additional interventions, including connecting patients and families to resources and supports in the community; providing psychotherapy, supportive counseling, grief counseling; practice modalities for populations with various diseases/conditions, or helping patients expand and strengthen their network of social supports. Addresses roles and responsibilities of membership in an interdisciplinary team of health professionals, as well as requirements of follow-up care. Focuses on the needs of high-risk populations (including the poor, ethnic and racial minorities, recent immigrants, and children from high-risk environments). Reviews medical social work's role in the development of community health care systems as an aspect of accountable health care environments.

**SOWK 653. Child Welfare Practice. 2 Units.**

Focuses on practice with children and families in relationship to environmental stability. Examines the association between the physical and mental health of children and family and environmental permanency. Emphasizes development of parental and social support capacities, as well as the requisite professional knowledge and skills to help children deal with identity issues and concerns of joining a new family. Addresses the impacts of race, ethnicity, gender, economic deprivation, physical illness, and disability.

**SOWK 658. Children's Psychotherapy. 2 Units.**

Considers treatment techniques appropriate for young children with a wide range of diagnoses and behavior problems. Emphasizes the integration of theory and practice of psychotherapy with the ecological perspective of social work practice. Discusses diagnosis, phases of treatment, and special communication issues. Research, ethical, and value issues addressed.

**SOWK 659. Recovery in Behavioral Health. 2 Units.**

Facilitates understanding of the issues, theories, and recovery-oriented interventions used with persons experiencing severe and persistent behavioral health conditions. Presents an overview of the historical development of behavioral health perspectives and interventions. Emphasizes understanding and application of contemporary wellness-recovery action plans and techniques.

**SOWK 661. Psychodynamic Therapies. 3 Units.**

Basis for understanding psychodynamic therapy (from object relations therapy to interpersonal therapy to short-term psychodynamic therapy), the concepts and techniques of various types of psychodynamic interventions, and the empirical data regarding the efficacy of this treatment orientation. Prerequisite: Qualifying Review or permission of Academic Standards Committee.

**SOWK 661L. Psychodynamic Practice Lab. 1 Unit.**

Supervised practice simulations observing and/or engaging in psychodynamic therapy. Prerequisite: Qualifying Review or permission of Academic Standards Committee.

**SOWK 662. Behavioral and Cognitive Therapies. 4 Units.**

Provides understanding and practice of cognitive-behavioral therapies (CBT). Reviews CBT theories and interventions, including a range of cognitive-behavioral strategies such as systematic desensitization, cognitive restructuring, and contingency management. Emphasizes more progressive models, such as Dialectical Behavior Therapy (DBT). Prerequisite: Qualifying Review or permission of the Academic Standards Committee.

**SOWK 662L. Behavioral and Cognitive Therapies Practice. 1 Unit.**

Supervised practice simulations observing and/or engaging in cognitive/behavioral therapies. Prerequisite: Qualifying Review or permission of the Academic Standards Committee.

**SOWK 663. Crisis and Trauma Interventions. 3 Units.**

Examines the nature and characteristics of crisis, as well as traumatic events, for their long-term effects on psychosocial functioning. Presents crisis theories and interventions for working with children and adults who have been exposed to man-made or natural traumas such as violence or loss; along with ethical, legal, and cultural factors of crisis intervention. Introduces students to specific strategies for responding to community, national, and international crises. Prerequisite: Qualifying Review or permission of Academic Standards Committee.

**SOWK 671. Social Work Administration. 3 Units.**

Provides macropractice knowledge, skills, and perspectives of administrative practices with which to develop, support, and maintain effective service delivery. Topics include role identification and development, situational leadership, strategic planning, levels and types of decision making, management of organizational behavior, use of information systems, budgeting, documentation and reporting, resource development and utilization, and community networking.

**SOWK 672. Theories of Organizations and Systems. 3 Units.**

Explores the complexities of large organizations and bureaucratic systems. Examines formal and informal structures, communication patterns, and philosophical approaches as these affect the effectiveness and efficiency of services delivery, worker motivation, and resource procurement and allocation. Accomplishes the objectives of the course through the application of diverse organizational and diffusion theories and perspectives as a means to increase students' understanding of their practicum experiences in the policy, planning, and administration concentration. Prerequisite: Pass qualifying review; or permission of Academic Standards Committee.

**SOWK 673. Program Planning and Implementation. 5 Units.**

Orients students to the range of issues, knowledge, and skills required in designing, planning, implementing, monitoring, and evaluating programs. Students build on knowledge obtained in other concentration courses. Integrates the course focus through the development of a comprehensive program proposal for the students' practicum agency or other identified community group. Prerequisite: Qualifying Review or permission of the Academic Standards Committee.

**SOWK 675. Supervision. 3 Units.**

Examines the supervisory process in relation to clinical, administrative, educational, and supportive functions. Emphasizes supervisory knowledge, skills, and techniques necessary for the development of staff capable of functioning creatively and independently.

**SOWK 676. Human Resources Planning and Development. 4 Units.**

Examines the complexities of human resources management in large organizations and/or with diverse employee populations. Strengthens students' knowledge and professional decision making relative to the implementation of federal, state, and local policies (i.e., affirmative action, nondiscrimination, sexual harassment, etc.). Deepens students' exposure to leading edge discussions on the legal and ethical aspects of human resources management and contemporary issues affecting morale and productivity in today's work environments (e.g., familial dysfunction of employees, single-parent families, care provider roles of employees, and co-worker violence). Permission of instructor required for registration by students not in the policy, planning, and administration concentration.

**SOWK 678. Integrative Generalist Practice and Seminar. 2 Units.**

Required of students with advanced standing. Students complete 200 hours of practicum and 20 hours of practicum seminar. Designed to provide a bridge quarter to integrate the B.S.W. degree experience with the second year of the M.S.W. degree program. Emphasizes reviewing the knowledge, values, and skills of generalist social work practice; and defines the additional competencies required for advanced practice. Assists instructor and students in identifying and addressing individualized needs for further development, including application of professional ethics and judgment, use of self as a therapeutic tool, and self-awareness. At the culmination of this course, students also formulate conceptual and experiential learning objectives for their second year of study.

**SOWK 680. Children and Families Policies and Services. 2 Units.**

Provides students with an understanding of the major social-policy issues affecting the current organization and delivery of human services for children and families. Analyzes current debates about the tensions between social policy and the doctrine of family privacy, with attention to the legal basis of state interventions and judicial decisions affecting family relationships, including parent to parent and child to parent.

**SOWK 681. Behavioral Health Policies and Systems. 2 Units.**

Provides a conceptual understanding of the development and organization of the health and mental health systems within institutional and community-based settings as they stem from national and local policy perspectives. Considers major issues dealing with the economics of health, health planning, and health legislation. Reviews health and mental health programs based on selected cross-national comparisons.

**SOWK 682. Legal and Ethical Aspects in Health and Mental Health Services. 3 Units.**

Focuses on those instances when legal mandates or concerns interact with and affect the practice of social work. Overviews the sources of legal authority, the judicial system, and the legal standards applicable to particular proceedings. Examines the legal implications of the social worker/client relationship. Emphasizes consent to treatment. Examines the statutes and judicial decisions that govern the confidentiality implicit in a social worker/client relationship. Examines the statutes and judicial decisions that permit or place an obligation on social workers to breach client confidentiality. Explores course content in the context of common and high-risk situations.

**SOWK 683. Advanced Policy Analysis. 3 Units.**

Deepens students' understanding of both the conceptual and analytical requirements of policy analysis through the integration of behavioral, political, economic, and sociometric frameworks for understanding human conditions. Students gain experience in structuring and defining policy problems, establishing criteria for policy choices, mapping alternative strategies, and applying appropriate analytical and research methods to policy questions. Use of cost-benefit analysis, cost-effectiveness analysis, and decision analysis as means toward developing formal augmentation toward sustained change. Prerequisite: Qualifying Review or permission of Academic Standards Committee.

**SOWK 684. Advanced Policy Projects. 2,3 Units.**

Enhances understanding of the interconnections between politics, policy making, and policy analysis through first-hand participation in a political action campaign. Choices for projects may focus on local initiatives or those coordinated annually through the California chapter of NASW.

**SOWK 695A. Advanced Research Methods. 2 Units.**

The first course in a three-quarter sequence that supports the student who chooses to advance his/her knowledge through examination and application of a broad spectrum of quantitative and qualitative research methods used in professional practice settings. Didactic and laboratory experiences draw on the student's advanced practice. Develops student's capacity to differentiate and apply the most appropriate and widely used research designs and methods of practice evaluation and renewal. Gives continuous attention to current federal and state requirements for assessing intervention effectiveness. Emphasizes self-evaluation and evaluation of practice effectiveness with individuals and families.

**SOWK 695B. Advanced Research Methods. 2 Units.**

The second course in a three-quarter sequence that supports the student who chooses to advance his/her knowledge through examination and application of a broad spectrum of quantitative and qualitative research methods used in professional practice settings. Didactic and laboratory experiences draw on the student's advanced practice. Develops the student's capacity to differentiate and apply the most appropriate and widely used research designs and methods of practice evaluation and renewal. Gives continuous attention to current federal and state requirements for assessing intervention effectiveness. Emphasizes practice evaluation groups as well as the design and implementation of quality assurance studies for monitoring work with specific populations.

**SOWK 695C. Advanced Research Methods. 2 Units.**

The third course in a three-quarter sequence that supports the student who chooses to advance his/her knowledge through examination and application of a broad spectrum of quantitative and qualitative research methods used in professional practice settings. Didactic and laboratory experiences draw on the student's advanced practice. Develops the student's capacity to differentiate and apply the most appropriate and widely used research designs and methods of practice evaluation and renewal. Gives continuous attention to current federal and state requirements for assessing intervention effectiveness. Emphasizes evaluation at the program, organizational, and community levels.

**SOWK 697. Applied Research. 2 Units.**

Supports students choosing to complete the thesis option. Provides research matriculation in the collection and analysis of data for the thesis. Students required to register for two quarters, or a total of 4 units. Prerequisite: SOWK 547. SOWL 549.

**SOWK 698. Thesis. 2 Units.**

The culminating work of the student's independent research, under the direction of the research advisor. Registration during the quarter in which student defends research and submits the final document to the department and School of Behavioral Health.

**SOWK 704. Older Adult Interventions and Services. 1 Unit.**

Provides subject content in the laws related to older adult interventions and services, as required by the state of California for licensure as a licensed clinical social worker (LCSW). Does not count toward the M.S.W. degree or the Case Management Program certificate.

**SOWK 757A. Professional Foundation Practicum and Seminar. 3 Units.**

Provides student with experiential learning opportunities in foundation social work practice through practicums arranged by the program's director of field education. Student completes 160 practicum hours concurrent with 20 hours of practicum seminar for each of three consecutive quarters. A block practicum option is available to qualified students. Prerequisite or concurrent: SOWK 578.

**SOWK 757B. Professional Foundation Practicum and Seminar. 3 Units.**

Provides student with experiential learning opportunities in foundation social work practice through practicums arranged by the program's director of field education. Student completes 160 practicum hours concurrent with 20 hours of practicum seminar for each of three consecutive quarters. A block practicum option is available to qualified students. Prerequisite: SOWK 578.

**SOWK 757C. Professional Foundation Practicum and Seminar. 3 Units.**

Provides student with experiential learning opportunities in foundation social work practice through practicums arranged by the program's director of field education. Student completes 160 practicum hours concurrent with 20 hours of practicum seminar for each of three consecutive quarters. A block practicum option is available to qualified students. Prerequisite: SOWK 578.

**SOWK 787A. Advanced Professional Practicum and Seminar. 4 Units.**

Provides student with advanced social work experience in his/her selected concentration. Advanced practicums arranged by the program's director of field education. Student required to complete 200 practicum hours concurrent with 20 hours of practicum seminar for each of three consecutive quarters. Prerequisite: SOWK 578, SOWK 757A, SOWK 757B, SOWK 757C; or SOWK 678.

**SOWK 787B. Advanced Professional Practicum and Seminar. 4 Units.**

Provides student with advanced social work experience in his/her selected concentration. Advanced practicums arranged by the program's director of field education. Student required to complete 200 practicum hours concurrent with 20 hours of practicum seminar for each of three consecutive quarters. Prerequisite: SOWK 578, SOWK 757A, SOWK 757B, SOWK 757C; or SOWK 678.

**SOWK 787C. Advanced Professional Practicum and Seminar. 4 Units.**

Provides student with advanced social work experience in his/her selected concentration. Advanced practicums arranged by the program's director of field education. Student required to complete 200 practicum hours concurrent with 20 hours of practicum seminar for each of three consecutive quarters. Prerequisite: SOWK 578, SOWK 757A, SOWK 757B, SOWK 757C; or SOWK 678.

## Speech-Lang Path Doctorate (SLPD)

### Courses

**SLPD 550. Advanced Seminar in Neuroanatomy and Neuroscience. 3 Units.**

Provides in-depth information on the role played by the brain in speech and language. Reviews functional neuroanatomy as an introduction to the following topics: functional commitment, neuroplasticity, long-term potentiation, etc. Informs clinical best practice by focusing on the complexity of the brain with regard to cognitive and motor function, and by providing background on functional brain imaging research.

**SLPD 560. Advanced Seminar in Motor, Speech, and Voice. 3 Units.**

Provides an in-depth look at the anatomy of speech and the parts of the CNS that control speech structures. Examines the anatomy of the larynx, as well as respiration, the structures of the vocal tract, and the nerve signaling pathways that connect them to the brain (e.g., pyramidal/extrapyramidal, lower/upper motor neuron). Explores the impact of disturbances to one area on the entire system. Connects current research to students' clinical practice (e.g., dysarthria, dysphonia, apraxia vs. articulation and phonology).

**SLPD 570. Special Topics in Speech-Language Pathology. 3 Units.**

Provides an in-depth look at a variety of topics in the field. Topics selected by faculty with input from students may include dysphagia, autism, dysfluency, bilingualism, etc. Students critically examine current research in the topic area in order to determine best practice. May be repeated for additional credit.

**SLPD 580. Clinical Issues in Speech-Language Pathology. 3 Units.**

Topics covered include clinical supervision, administration, and starting/managing an independent clinic; as well as ethics and counseling. Focuses on interprofessional collaboration both within the allied health professions (e.g., occupational or physical therapy) and beyond (for either education or medical contexts). Students comment in online discussions on case studies.

**SLPD 590. Dissemination of Research. 2 Units.**

A culmination course in which students reflect on their capstone experiences and finalize their program development. Students complete data analysis and prepare and complete their manuscript. Critical discussion with peers regarding knowledge transfer regarding impact on individuals, society, the profession, and clinical practice.

**SLPD 600. Components of Clinical Inquiry. 3 Units.**

Focuses on skills fundamental to critical evaluation of the strength of scientific research. Covers elements of research design important to the validity of a study and identification of flaws in design and conclusions.

**SLPD 610. Capstone IRB Proposal. 4 Units.**

Provides instruction in developing an individual research proposal, completing Institutional Review Board (IRB) training, and successfully submitting a proposal to the IRB. Emphasizes reflective discussions of research interests and experiences, planning, conceptual framework, proposed methodology, and data analysis. Includes interprofessional peer reviews throughout the course.

**SLPD 621. Capstone Planning. 3 Units.**

Instructs students in how to design their capstone project with guidance from the primary course instructor. Emphasizes identification of a focus area, objectives, goals, outcomes, on-site mentor, faculty mentor, and time frame.

**SLPD 622. Capstone Proposal. 2 Units.**

Provides framework for developing and submitting a proposal to the student's research advisor(s) for final approval. Prerequisite: SLPD 621.

**SLPD 623. Capstone II. 3 Units.**

Continues the capstone project, requiring students to complete a needs assessment and program development. Provides information in data collection, data management techniques, and introduction to various data analysis strategies. Prerequisite: SLPD 622.

**SLPD 624. Capstone III. 4 Units.**

Implements previously approved capstone project. Facilitates critical discussion of experiences and problem solving with classmates. Prerequisite: SLPD 622.

**SLPD 625. Capstone IV. 4 Units.**

Requires final implementation of aspects of the capstone. Requires student to prepare a manuscript and participate in online critical discussions with classmates. Prerequisite: SLPD 623.

## Statistics (STAT)

### Courses

**STAT 414. Introduction to Biostatistics I. 3 Units.**

Introduces statistical methods of summarizing, analyzing, presenting, and interpreting data, with emphasis on health-related data. Topics include normal and binomial distributions, probability, central limit theorem, confidence intervals; as well as hypothesis testing using t-tests, ANOVA, correlation, linear regression, and chi-square. Includes a brief introduction to multivariate analysis. Practice in reading and interpreting statistical summaries in peer-reviewed literature. Emphasizes the practical application of biostatistics. Prerequisite: Competency in introductory level mathematics.

**STAT 415. Computer Applications in Biostatistics. 1 Unit.**

Uses SPSS to apply appropriate statistical methods in the summary and analysis of health-related data, including descriptive; as well as hypothesis testing using t-tests, correlation, linear regression, chi-square, and ANOVA. Designed to be taken concurrently with STAT 414. Prerequisite or concurrent: STAT 414; or equivalent.

**STAT 509. General Statistics. 4 Units.**

Introduces statistical methods of summarizing, analyzing, presenting, and interpreting data, with emphasis on health-related data. Topics include normal and binomial distributions, probability, central limit theorem, confidence intervals; as well as hypothesis testing using t-tests, ANOVA, correlation, linear regression, and chi square. Introduces multivariate analysis. Practice in reading and interpreting statistical summaries in peer-reviewed literature. Emphasizes the practical application of biostatistics. Includes extensive laboratory exercises using SPSS. Prerequisite: Competency in introductory level mathematics.

**STAT 514. Intermediate Statistics for Health-Science Data. 3 Units.**

Selected topics in multiple regression, logistic regression, ANOVA, ANCOVA, and nonparametric tests. Emphasizes understanding, selection, and application of statistical procedures and interpretation of computer output. Prerequisite: STAT 549.

**STAT 515. Grant- and Contract-Proposal Writing. 3 Units.**

A module-based course that presents an overview of the basic principles and practice in the art and science of successful grantmanship primarily from a research perspective and a program-based approach. Provides a comprehensive review and understanding of the relevant core structures, stakeholders, processes, factors, and essential skills by engaging students in the actual preparation of a proposal to a funding agency. Demonstrates in a "real world"-type practice environment the key elements in proposal development, submission, and the review process—which include identifying potential funding resources (from international, government, and private sectors such as foundations), formulating specific aims or objectives, determining appropriate research or program design and evaluation methods as applicable, and building realistic budget and sustainability plans.

**STAT 521. Biostatistics I. 4 Units.**

Fundamental concepts in data analysis and statistical inference. Descriptive statistics, probability rules, discrete/continuous probability distributions, sampling distributions, central limit theorem, point/interval estimation for means/proportions, hypothesis testing, one-/two-sample tests, power analysis, ANOVA and multiple comparison procedures, simple regression/correlation, and chi-square tests. Prerequisite or concurrent: STAT 548 or STAT 549; or consent of instructor.

**STAT 522. Biostatistics II. 4 Units.**

Simple and multiple regression, analysis of the residual, and model building. Multiple and partial correlation. Analysis of variance (fixed-effects model S) with multiple comparisons, including orthogonal contrasts, factorial designs, and analysis of covariance. Power analysis and sample size determination for these models. Prerequisite: STAT 521.

**STAT 523. Biostatistics III. 4 Units.**

Applies the general linear model to a number of analysis-of-variance, regression, and multivariate procedures, including repeated measures, longitudinal data analysis, and mixed models. Power analysis and sample size determination of these models. Prerequisite: STAT 522.

**STAT 525. Applied Multivariate Analysis. 3 Units.**

Multivariate normal distribution, discriminant analysis, principal components analysis, factor analysis, and canonical correlation. Emphasizes application of these analyses and interpretation of results. Prerequisite: STAT 522.

**STAT 530. Special Topics in Biostatistics. 1-4 Units.**

Lecture and discussion on a current topic in biostatistics. May be repeated for a maximum of 4 units applicable to degree program. Prerequisite or concurrent: STAT 509 or STAT 521.

**STAT 531. Parametric and Nonparametric Bivariate Statistics. 4 Units.**

Focuses on concepts behind the appropriate use of parametric and nonparametric statistical methods. Includes laboratory. Prerequisite: Intermediate graduate level statistics course or consent of instructor.

**STAT 532. Applied Bivariate Statistical Analysis. 4 Units.**

Brings together other biostatistics classes in a unified, applied, nontheoretical approach. Focuses on using the Statistical Package for the Social Sciences (SPSS) in the analysis of a dataset on the concepts presented in STAT 531. Prerequisite: STAT 531; or consent of instructor.

**STAT 533. Applied Multivariable Statistical Analysis. 4 Units.**

Explains the different methods of multivariable analyses and other advanced statistical methods, and indicates reasons for choosing one method over another. Final project requires student to perform an appropriate multivariable analysis on a dataset, run appropriate literature review for confounding variables, and present results in a 20-30 minute timeframe using presentation software. Prerequisite: STAT 532; or consent of instructor.

**STAT 535. Modern Nonparametric Statistics. 3 Units.**

Application and theory of nonparametric methods. One-/two-sample nonparametric tests, k-sample tests, tests for equality of scale parameters, Kolmogorov-Smirnov type tests, tests for ordered alternatives, tests for paired comparisons and block designs, rank/concordance correlations, chi-square and measures of association, Mantel-Haenszel & McNemar's tests, permutation and bootstrap methods, smoothing techniques, and semiparametric regressions. Prerequisite: STAT 509 or STAT 521.

**STAT 545. Survival Analysis. 3 Units.**

Statistical methods for analysis of survival data. Censoring mechanisms. Concepts of failure rates and different classes of life distributions under parametric and nonparametric settings. Statistical properties of competing survival functions estimators. Kaplan-Meier estimator, piecewise exponential estimator, and other equivalent estimators. Cox proportional hazard model and associated statistical inferences. Prerequisite: STAT 522.

**STAT 548. Analytical Applications of SAS. 2 Units.**

Features of SAS computer package for analysis of statistical data. Includes decisions regarding choice of statistical procedures and interpretation of computer output to answer specific research questions. Prerequisite or concurrent: STAT 509 or STAT 521; or passing score on the computer-competency examination.

**STAT 549. Analytical Applications of SPSS. 2 Units.**

Features of SPSS computer package for analysis of statistical data. Includes decisions regarding choice of statistical procedures and interpretation of computer output to answer specific research questions. Prerequisite or concurrent: STAT 509 or STAT 521.

**STAT 557. Research Data Management. 3 Units.**

Basic data and file manipulation using database-management systems for health research. Uses several applications, with emphasis on Microsoft Access. Topics include: importing, exporting, merging, and linking files for a variety of applications; creating, updating, and querying databases; and basic programming, application development, and data entry. General computer skills expected, but no prior computer programming experience necessary. Prerequisite: STAT 509 or STAT 521; STAT 548 or STAT 549.

**STAT 564. Survey and Advanced Research Methods. 3 Units.**

Principles and procedures of surveys as applied to the health sciences. Topics covered include: survey and research designs, questionnaire construction, validity techniques, sampling methods, sample size determination, minimum effects hypotheses, nonresponse problems, data collection, coding, processing, evaluation, and presentation of results. Presents hands-on experience as a combination of lecture and laboratory activities. Prerequisite or concurrent: STAT 509 or STAT 521.

**STAT 568. Data Analysis. 3 Units.**

Concepts and applications of the most common data analysis methods: correlation and regression, t-tests, analysis-of-variance, nonparametric methods, and multivariate analyses. Student selects appropriate method of analysis and reporting results. Emphasizes individual analysis of real-data sets. All data analysis assignments to be completed in SPSS. Prerequisite: STAT 514.

**STAT 569. Advanced Data Analysis. 3 Units.**

Brings together other biostatistics courses in a unified, applied approach. Specifically provides practical experience with real-world biostatistical data, using a wide variety of statistical procedures—including general linear models, generalized linear models, and nonparametric alternatives. Includes guidelines for choosing statistical procedures, model building, validation, and written presentation of results. Prerequisite: STAT 522.

**STAT 594. Statistical Consulting. 1-4 Units.**

Advanced students participate in statistical consultation with senior staff members. Statement of the problem, design of the experiment, definition of response variables, appropriate analysis of data, statistical inferences, and interpretation of data. Prerequisite: EPDM 509, STAT 521; or consent of instructor.

**STAT 625. Special Topics in Biostatistics. 1-3 Units.**

Lecture and discussion on a current topic in biostatistics. May be repeated for a maximum of 6 units applicable to degree program. Recommended for doctoral students. Prerequisite: STAT 521.

**STAT 694A. Research. 1 Unit.**

Independent statistical research using epidemiologic data. Research program arranged with faculty member(s) involved. Written report and oral presentation required.

**STAT 695. Thesis. 2-8 Units.**

Student prepares report of individual guided experimental research study in biostatistics, under direct faculty supervision. Limited to graduate students whose thesis projects have been approved by their research committee.

## Surgery (SURG)

### Courses

**SURG 599. Surgery Directed Study. 1.5-18 Units.****SURG 701. Surgery Clerkship. 1.5-15 Units.**

Third-year, ten-week surgery clerkship composed of six weeks of general surgery, one week of anesthesia, and two one-week rotations on a surgical specialty service (cardiothoracic, orthopedic, urology, plastics, ophthalmology, neurosurgery, vascular, ENT). Teaches students to manage acute, subacute, and nonacute surgical pathologies. Exposes students to patients in the emergency ward, inpatient setting, outpatient clinics, and the operating room. Utilizes bedside teaching, lectures, online/independent learning, small-group teaching sessions, and simulation to instruct the student to distinguish emergent vs nonemergent presentations in the following patient categories: trauma, oncology, surgical infections, acute presentation of abdominal pain and its differential; and the chronic conditions commonly seen in a general surgery or surgical specialty clinic.

**SURG 821. Surgery Subinternship. 1.5-6 Units.**

A fourth-year, four week course designed to serve as an introduction to surgical internship. Provides students a more in-depth, hands-on experience in the management of acute, subacute, and nonacute surgical pathologies. Exposes students to patients in the emergency ward, inpatient setting, outpatient clinics, and the operating room. Subinterns participate in overnight in-house calls and respond to in-house emergencies and consultations. Utilizes bedside teaching, lectures, online/independent learning, small-group teaching sessions with residents and medical students, and simulation to instruct the student in distinguishing emergent vs nonemergent presentations. Students evaluated by their clinical performance (written evaluation by faculty), multiple choice examination, and oral examination. Focused rotations on either acute care surgery, surgical oncology, or general surgery.

**SURG 822. Surgery Intensive Care. 1.5-6 Units.**

A four-week, fourth year surgical ICU course which has as a prerequisite SURG 701. Focuses on care of the critically ill patient who is under the care of the surgical intensivist. Exposes students primarily to patients in the surgical ICU; while also providing experience in evaluating/assessing patients on the emergency ward and in the operating room, as well as those encountered when responding to acute calls for intensive care on the ward (CODE BLUE and rapid response). Utilizes bedside teaching, small-group lectures/teaching sessions, online/independent learning, and simulation to instruct the student. Students expected to participate in procedural skills such as placement of central lines, arterial lines, chest tubes, and the use of ultrasound in the ICU. Involves patients from all surgical services and includes commonly encountered critical conditions due to trauma, sepsis, and cancer; as well as those requiring significant postoperative resuscitation and monitoring. Prerequisite: SURG 701.

**SURG 891. Surgery Elective. 1.5-27 Units.**

May include pediatric surgery, vascular surgery, trauma surgery, general surgery, cardiothoracic surgery, plastic surgery, neurosurgery, otolaryngology, surgical intensive care, and urology.

### Courses

**UROL 891. Urology Elective. 1.5-27 Units.**

Offers fourth-year medical students the opportunity to explore various areas of urology, including research.

## Urology (UROL)

# FACULTY

## Key to Codes

In the alphabetical listing below, the two- or three-letter code following the department name indicates the school or faculty in which the faculty member holds academic appointment. The codes are:

AH	School of Allied Health Professions
BH	School of Behavioral Health
SD	School of Dentistry
SM	School of Medicine
SN	School of Nursing
SP	School of Pharmacy
PH	School of Public Health
SR	School of Religion
FGS	Faculty of Graduate Studies

## The Faculty

AAEN, GREGORY S. Assistant Professor, Department of Pediatrics SM and Department of Neurology SM  
M.D. Loma Linda University SM 2003

ABBOY, RAMADAS. Assistant Clinical Professor, Department of Medicine SM  
M.B.B.S. Stanley Medical College, India 1967

ABD-ALLAH, SHAMEL A. Associate Professor, Department of Pediatrics SM and Department of Emergency Medicine SM  
M.D. Loyola Stritch Medical School, Chicago, Illinois 1989

ABDEL-SAYED, SHELLEY F. Assistant Professor, Department of Anesthesiology SM  
M.D. Loma Linda University SM 2004

ABDELSHEHID, JOHN. Assistant Professor, Department of Emergency Medicine SM  
M.D. University of California, Los Angeles 2001

ABDIPOUR, AMIR. Assistant Professor, Department of Medicine SM  
M.D. Shahid Beheshti University of Medical Science, Tehran, Iran 1996

ABDRABOU, RASHA. Assistant Clinical Professor, Department of Family Medicine SM  
Dr.P.H. Loma Linda University PH 2009

ABEDI, HAMID R. Assistant Professor, Department of Endodontics SD  
B.D.S. University of London, UK 1991  
M.S. Loma Linda University 1997

ABOGADO, ELVA J. Clinical Instructor, School of Nursing SN  
M.H.A. California State University, San Bernardino 2000

ABOU-ZAMZAM, AHMED MOHAMMED, JR. Professor, Department of Cardiovascular and Thoracic Surgery SM  
M.D. Yale University School of Medicine 1992

ABRAMOVITCH, KENNETH. Professor, Department of Radiology and Imaging Sciences SD, Department of Radiology SM, and Member FGS  
M.S. University of Texas Health Sciences Center, San Antonio 1986  
D.D.S. McGill University, Canada 1980

ABRAMS, KRISTEN K. Instructor, Department of Psychiatry SM  
M.D. Loma Linda University 2004

ACHILEFU, SAMUEL. Adjunct Professor, Department of Radiology SM and Department of Pharmaceutical and Administrative Sciences SP  
Ph.D. University of Nancy, France 1991

ACHIRILOAIE, ADINA F. Assistant Professor, Department of Radiology SM  
M.D. Loma Linda University SM 2005

ADAMS, TRACY R. Assistant Professor, Department of Dental Hygiene SD  
B.S. Loma Linda University SD 2005

ADEOYE, OLUKEMI GRACE. Instructor, School of Public Health PH  
M.P.H. Loma Linda University PH 2009

ADEY, RONDA R. Instructor, Department of Radiation Technology AH  
B.S. Loma Linda University AH 2000

AFFELDT, JOHN C. Associate Professor, Department of Ophthalmology SM  
M.D. University of Southern California Keck School of Medicine 1977

AFIFI, GHADA YOUSSEF. Assistant Clinical Professor, Department of Plastic and Reconstructive Surgery SM  
M.D. Albany Medical College, New York 1990

AFKAMI, KAIVAN K. Adjunct Assistant Professor, Department of Dental Education Services SD  
D.D.S. Baylor University 2001

AGAPIAN, JOHN V. Assistant Professor, Department of Surgery SM  
M.D. The Chicago Medical School 2000

AGHAKHANI, ARASH. Assistant Professor, Department of Dental Anesthesiology SD  
D.D.S. University of the Pacific 1994  
M.S. University of Maryland 1996

AHMAD, BORHAAN S. Assistant Professor, Department of Pediatrics SM  
M.D. Kabul University, Afghanistan 1981

AHMAD, IMDAD. Assistant Professor, Department of Medicine SM  
M.B.B.S. University of the Punjabi, India 1969

AHMAD, JAVED. Adjunct Associate Professor, Department of Radiation Technology AH  
M.B.B.S. Kyber Medical College, Peshawar, Pakistan 1980

AHMAD, MAZNA. Assistant Professor, Department of Medicine SM  
M.D. Ross University School of Medicine, Dominica 2008

AIYAR, SHOBHA S. Assistant Professor, Department of Medicine SM  
M.B.B.S. Mahatma Gandhi Memorial Medical College, India 1989

AJA, GODWIN N. Assistant Professor, School of Public Health PH  
Dr.P.H. Loma Linda University PH 2008

AKA, PAUL KOJI. Assistant Clinical Professor, Department of Cardiovascular and Thoracic Surgery SM  
M.D. Loma Linda University SM 1986

AKAMINE-DAVIDSON, SANDRA M. Clinical Instructor, Department of Ophthalmology SM  
O.D. Southern California College of Optometry 1989

AKELE, ZEBAYEL. Assistant Professor, Department of Medicine SM



M.D. Jimma University, Ethiopia 1991

AKIN, MARIE-ROSE MINHTAM LEVAN. Adjunct Assistant Professor, Department of Pathology and Human Anatomy SM  
M.D. Indiana University 1981

ALATTAS, ABDULKADER. Assistant Professor, Department of Radiation Technology AH  
Ph.D. Texas Woman's University 2006

AL FAGIH, MOHAMMED RASHID. Professor, Department of Cardiopulmonary Sciences AH  
M.B.Ch.B. Baghdad Medical College, Iraq 1971

AL-ARDAH, ALADDIN JAMAL. Assistant Professor, Department of Restorative Dentistry SD  
B.D.S. Jordan University of Science and Technology, Jordan 1999

ALAZZAWI, ASMA W. Assistant Clinical Professor, Department of Pharmacy Practice SP  
Pharm.D. Western University of Health Sciences 2001

ALBERT, JULIE C. Associate Professor, Department of Psychiatry SM  
D.S.W. University of Southern California 1978

ALBERTSON, STEWART R. Assistant Clinical Professor, School of Public Health PH  
J.D. Loyola University New Orleans Law School 2002

ALBRECHT, EDWARD G. Assistant Professor, Division of General Dentistry SD  
D.D.S. Loma Linda University SD 1980

ALEMI, QAIS. Assistant Professor, Department of Social Work and Social Ecology BH  
M. P. H., M.B.A. Loma Linda University PH 2013

ALEXANDER, WIL. Emeritus Professor, School of Religion SR; Professor, Department of Family Medicine SM  
Ph.D. Michigan State University 1962

ALIPOON, ALAN. Instructor, Department of Cardiopulmonary Sciences AH  
B.S. California State University, San Bernardino 2000

ALIPOON, LAURA LYNN. Professor, Department of Radiation Technology AH  
Ed.D. La Sierra University 2001

ALISMAIL, ABDULLAH K. Assistant Professor, Department of Cardiopulmonary Sciences AH  
M.S. Loma Linda University AH 2012

ALLARD, MARTIN W. Professor, Department of Anesthesiology SM  
M.B.Ch.B. University of Capetown, South Africa 1971

ALLSMAN, LORA L. Instructor, Department of Family Medicine SM  
M.N. University of Mary 2007

AL-RUMAIH, HAMAD S. Instructor, Division of General Dentistry SD  
B.D.S. University of Dammam, Saudi Arabia 2010

ALSOWAYEGH, KHALID S. Assistant Professor, Department of Cardiopulmonary Sciences AH  
M.S. Georgia State University 2007

ALVAREZ, LOUIS R. Assistant Clinical Professor, Department of Psychiatry SM

M.D. Autonomous University of Guadalajara, Mexico 1986

AMAAR, YOUSEF G. Associate Research Professor, Department of Surgery SM  
Ph.D. Simon Fraser University, British Columbia, Canada 1997

AMANKONAH, THOMAS D. Associate Professor, Department of Medicine SM  
M.D. Medical Academy of Gdansk, Poland 1986

AMINI, M. REZA. Assistant Professor, Department Medicine SM  
M.D. Tehran University, Iran 1999

AMINI, FARHAD. Assistant Professor, Department of Periodontics SD  
D.D.S. University of Detroit Mercy 2011

AMINIKHARRAZI, TAHER. Assistant Clinical Professor, Department of Restorative Dentistry SD  
D.M.D. Boston University 2001

AN, JASON K. Instructor, Department of Emergency Medicine SM  
M.D. Indiana University 2009

ANDERSEN, BRADLEY T. Assistant Clinical Professor, Department of Medicine SM  
M.D. Loma Linda University SM 2003

ANDERSEN, SHARILYN M. Assistant Professor, School of Public Health PH  
M.P.H. Loma Linda University PH 2008

ANDERSON, AVERY K. Assistant Professor, School of Nursing SN  
M.S. Loma Linda University SN 2013

ANDERSON, DENNIS K. Assistant Clinical Professor, Department of Plastic and Reconstructive Surgery SM  
M.D. Loma Linda University SM 1966

ANDERSON, DONALD LEE. Associate Professor, Department of Psychiatry SM  
M.D. Loma Linda University SM 1971

ANDERSON, DONALD LYNN. Associate Professor, Department of Anesthesiology SM  
M.D. Loma Linda University SM 1973

ANDERSON, DUANE R. Assistant Professor, Department of Orthopaedic Surgery SM  
M.D. University of Minnesota 1979

ANDERSON, NANCY J. Professor, Department of Dermatology SM and Department of Basic Sciences SM  
M.D. Loma Linda University SM 1976

ANDERSON, PAMELA E. Assistant Clinical Professor, Department of Medicine SM  
M.D. Loma Linda University SM 1982

ANDERSON, S. MARCI L. Assistant Professor, School of Public Health PH  
M.P.H. Loma Linda University PH 2008

ANDERSON, SHAWN R. Assistant Professor, Department of Endodontics SD  
D.D.S. Loma Linda University SD 2005

ANDREASEN, TROY J. Assistant Clinical Professor, Department of Plastic and Reconstructive Surgery SM

M.D. University of Utah Medical School 1995

ANDREWS, D. JEANNE. Emeritus Associate Professor, Department of Pediatrics SM  
M.D. Loma Linda University SM 1950

ANG, YEN. Assistant Clinical Professor, School of Public Health PH  
Dr.P.H. Loma Linda University PH 2009

ANGELES, DANILYN MAG-AKAT. Professor, Department of Basic Sciences SM, School of Nursing SN; Associate Professor, Department of Pediatrics SM, Member FGS  
Ph.D. Loma Linda University GS 2000

ANHOLM, JAMES D. Associate Professor, Department of Medicine SM  
M.D. Loma Linda University SM 1976

ANSPIKIAN, ARA M. Assistant Professor, Department of Psychiatry SM  
M.D. Loma Linda University SM 2005

ANTONIO, NICOLE M. Assistant Professor, Department of Pediatrics SM  
M.D. University of Nevada School of Medicine 2006

APPEL, JAMES ERIC. Assistant Professor, Department of Family Medicine SM  
M.D. Loma Linda University SM 2000

APPLEGATE, PATRICIA JEAN. Associate Professor, Department of Medicine SM  
M.D. University of Southern California 1980

APPLEGATE, RICHARD LEE II. Professor, Department of Anesthesiology SM, Department of Basic Sciences SM, and School of Nursing SN  
M.D. Loma Linda University SM 1982

APPLETON, CAROL J. MUTH. Assistant Professor, Department of Physical Therapy AH  
M.P.H. Loma Linda University PH 1974

APPLING, HEATHER N. Assistant Professor, Department of Orthotics and Prosthetics AH  
M.S. Loma Linda University 2010

ARBABI, ZARSHID. Assistant Professor, Department of Medicine SM  
M.D. Iran University 1990

ARDESHIRPOUR, FARHAD. Assistant Professor, Department of Otolaryngology and Head and Neck Surgery SM  
M.D. University of North Carolina, Chapel Hill 2008

ARDILES, YONA R. Assistant Professor, Department of Medicine  
D.O. Lake Erie College of Osteopathic Medicine 2010

ARECHIGA, ADAM L. Associate Professor, Department of Psychology BH and School of Public Health PH  
Psy.D. Loma Linda University ST 2006  
Dr.P.H. Loma Linda University PH 2006

ARENAS, JAVIER L. Instructor, Department of Urology SM  
M.D. University of Texas 2002

ARIUE, BARBARA K. Assistant Professor, Department of Pediatrics SM  
M.D. University of Vermont 1993

ARMIJO, JAVIER ALONSO. Assistant Clinical Professor, Department of Family Medicine SM

M.D. University of California, Irvine 1991

ARMSTRONG, DANIEL REID. Assistant Professor, Division of General Dentistry SD  
D.D.S. Loma Linda University SD 1972

ARMSTRONG, DARLENE A. Associate Professor, Department of Dental Hygiene SD  
M.A. Azusa Pacific University 2005

ARNETT, G. WILLIAM. Adjunct Assistant Professor, Department of Orthodontics SD  
D.D.S. University of Southern California 1972

ARNETT, MARJORIE R. Assistant Professor, Department of Dental Education Services SD  
M.S. California State University, Fullerton 1997

ARNETT, R. LESLIE, JR. Professor, Department of Periodontics SD and Member FGS  
M.S. Loma Linda University SD 1968  
D.D.S. University of Southern California 1959

ARTEAGA-HERNANDEZ, EDNA S. Assistant Clinical Professor, Department of Family Medicine SM  
M.D. University of Montemorelos 1984

ARUNI, WILSON. Assistant Research Professor, Department of Basic Sciences SM  
Ph.D. Tami Nadu Veterinary and Animal Sciences University, India 2000

ASAVASOPON, SKULPAN. Assistant Professor, Department of Physical Therapy AH  
Ph.D. Loma Linda University AH 2014

ASGARZADIE, FARBOD. Associate Professor, Department of Neurosurgery SM  
M.D. University of Chicago 1999

ASHOK, SEETHARAMAN. Assistant Clinical Professor, Department of Urology SM  
M.B.B.S. University of New Delhi, India 1981

ASHWAL, STEPHEN. Distinguished Professor, Department of Pediatrics SM and Department of Neurology SM  
M.D. New York University 1970

ASI, ADLEIT F. Clinical Instructor, Department of Nutrition and Dietetics AH  
M.B.A. University of Phoenix 2008

ASK, MIHRAN N. Assistant Professor, Department of Medicine SM, Department of Preventive Medicine SM, and School of Public Health PH  
M.D. Loma Linda University SM 1979

ASK-MONTERROSO, LAWRYN R. Assistant Clinical Professor, Department of Dental Education Services SD  
D.D.S. Loma Linda University SD 2015

ASSADI, RAMIN. Assistant Professor, Department of Medicine SM  
M.D. Tehran University of Medical Sciences 2000

ASSAI, MARIAN. Assistant Professor, Department of Medicine SM  
M.B.Ch.B. University of Alexandria, Egypt 2005

ATIGA, ROLANDO A. JR. Assistant Clinical Professor, Department of Physician Assistant Sciences AH  
M.D. Ross University, Dominica, West Indies 1999

ATKIN, ROY D. Assistant Professor, Department of Orthodontics SD  
D.D.S. Marquette University, Milwaukee, Wisconsin 1966

ATKINS, GORDON J. Adjunct Assistant Professor, Department of Earth and Biological Sciences SM  
Ph.D. McGill University, Montreal, Canada 1987

AU, HUY D. Assistant Professor, Department of Pediatrics SM  
M.D. Finch University of Medical Sciences/The Chicago Medical School 2005

AUNE-NELSON BETH. Clinical Instructor, Department of Occupational Therapy AH  
B.S. Loma Linda University AH 1998

AUSKER, YURI. Adjunct Assistant Professor, Department of Restorative Dentistry SD  
D.D.S. "La Spienza" School of Dentistry, Rome, Italy 1984

AUSTIN, CRAIG EUGENE. Instructor, Department of Clinical Laboratory Science AH  
B.S. Loma Linda University AH 1983

AVANESYAN, ARMINE. Assistant Professor, Department of Medicine SM  
M.D. University of California, Los Angeles 2009

AVANTS, TERESA PFIEFLE. Assistant Clinical Professor, Department of Gynecology and Obstetrics SM  
M.D. Loma Linda University SM 1984

AVELING, D. LEIGH. Associate Professor, School of Religion SR  
D.Min. Claremont School of Theology 1996

AWRAMIK, STANLEY M. Adjunct Professor, Department of Earth and Biological Sciences SM  
Ph.D. Harvard University 1973

AYE, LYDIA L. Assistant Professor, Department of Medicine  
D.O. Western University of Health Science 2006

AZER, SHERIF A. Associate Professor, Department of Anesthesiology SM  
M.D. Assiut University Faculty of Medicine, Egypt 1972

BABA, NADIM. Professor, Department of Restorative Dentistry SD and Member FGS  
M.S. Boston University 1999  
D.M.D. University of Montreal, Quebec, Canada 1996

BABABEGY, SHIMON R. Instructor, Department of Ophthalmology SM  
M.D. Stanford University 2009

BACHELLER, CATHERINE A. Assistant Professor, Department of Medicine SM  
M.D. Loma Linda University SM 1979

BACKSTROM-GONZALES, MELISSA KATHERINE. Instructor, Department of Communication Sciences and Disorders AH  
M.S. University of Redlands 1987

BADALAMENTI, CONO P. Assistant Professor, Department of Preventive Medicine SM  
M.D. University of Massachusetts Medical School, Worcester 2010

BADAUT, JEROME. Assistant Professor, Department of Pediatrics SM; Assistant Research Professor, Department of Basic Sciences SM  
Ph.D. Universite Pierre et Marie Curie, France 1999

BADIANAT, SAM. Assistant Clinical Professor, Department of Pharmacy Practice SP  
Pharm.D. Western University of Health Sciences, California 2003

BAE, WON-CHUL. Assistant Professor, Department of Radiology SM  
M.D. Medical College, Busan National University, Republic of Korea 1963

BAEK, HESUK H. Assistant Professor, Department of Medicine SM  
M.D. Medical College of Georgia 2000

BAERG, JOANNE E. Associate Professor, Department of Surgery SM and Department of Pediatrics SM  
M.D. University of British Columbia, Canada 1990

BAHK, THOMAS. Assistant Professor, Department of Pediatrics SM  
M.D. University of California, Los Angeles 1997

BAHJRI, KHALED A. Assistant Professor, School of Public Health PH  
M.P.H. Loma Linda University PH 2001  
M.D. Fatima College of Medicine, Manila, Philippines 1999

BAILEY, LEONARD L. Distinguished Professor, Department of Cardiovascular and Thoracic Surgery SM and Department of Pediatrics SM  
M.D. Loma Linda University SM 1969

BAINS, GURINDER. Assistant Professor, Department of Allied Health Studies AH  
Ph.D. Loma Linda University AH 2014

BAKER, BRUCE L. Adjunct Professor, School of Behavioral Health BH  
Ph.D. Yale University 1966

BAKER, GRACE T. Instructor, Department of Clinical Laboratory Science AH  
B.S. University of California, Riverside 1991

BAKER, WINETTA. Assistant Professor, Department of Counseling and Family Science BH and Member FGS  
Ph.D. Loma Linda University ST 2006

BAKLAND, LEIF KRISTIAN. Emeritus Professor, Department of Endodontics SD  
D.D.S. Loma Linda University SD 1963

BAKSH, KHAZENAY K. Instructor, Department of Medicine SM  
D.O. Western University of Health Sciences, Pomona, California 2010

BALAGOPALAN, MOHAN. Clinical Instructor, School of Public Health PH  
M.B.A. Azusa Pacific University 1984

BALAREZO, CARLOS A. Associate Clinical Professor of Surgery SM  
M.D. Universidad Nacional de Tucumán 1964

BALDWIN, DALTON Duane. Professor, Department of Urology SM  
M.D. Loma Linda University SM 1991

BALDWIN, STANLEY. Adjunct Assistant Professor, Department of Cardiopulmonary Sciences AH  
M.B.A. Pepperdine University 1985

BALGUMA, FREDDIE B. Associate Clinical Professor, Department of Pediatrics SM

M.D. University of Santo Tomas, Philippines 1962

BALL, LAUREN R. Assistant Clinical Professor, Department of Social Work and Social Ecology BH  
M.S.W. Loma Linda University ST 1995

BALLI, KEVIN C. Assistant Professor, Department of Gynecology and Obstetrics SM  
M.D. Loma Linda University SM 1998

BALLOU, MICHELLE M. Assistant Professor of Nursing SN  
M.S. Loma Linda University SN 1992

BANDY, KRISTEN R. Assistant Professor, Department of Anesthesiology SM  
M.D. Loma Linda University SM 2005

BANE, MARGUERITE. Assistant Clinical Professor, Department of Pharmacy Practice SP  
B.S. Midwestern University, 1995

BANKS, AIESHEA L. Assistant Professor, Department of Communication Sciences and Disorders AH  
M.A. California State University, Fullerton 2003

BANKS, JOHN C., Jr. Associate Professor, Department of Pathology and Human Anatomy SM  
Ph.D. Loma Linda University GS 1984

BANNOUT, FIRAS. Assistant Professor, Department of Neurology SM  
M.D. University of Damascus 2001

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- ELIAS, INTITHAR S. M. Assistant Professor, Department of Allied Health Studies AH  
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FONG, SHIRLEY A. Assistant Clinical Professor, Department of  
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GODFREY, THOMAS E. Emeritus Associate Professor, Department of Medicine SM  
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GOHAR, SHADI FARZIN. Assistant Professor, Department of Pediatrics SM  
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GOKCEN, ERIC C. Assistant Professor, Department of Orthopaedic Surgery SM  
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GOLDSTEIN, MITCHELL R. Associate Professor, Department of Pediatrics SM  
M.D. University of Miami 1988

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M.D. University of Southern California 1993

GOLLIN, GERALD. Professor, Department of Surgery SM  
M.D. University of California, San Francisco 1987

GOLLIN, YVONNE G. Assistant Professor, Department of Gynecology and Obstetrics SM  
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GOLTZ-NEAL, KANDI S. Instructor, Department of Dental Hygiene SD  
B.S. Loma Linda University SD 2000

GOMES, MARSHALL E. Assistant Professor, Department of Endodontics SD  
D.D.S. Loma Linda University SD 1985

GOMEZ, NEPHTALI R. Assistant Professor, Department of Surgery SM  
M.D. Loma Linda University SM 2004

GOMEZ-BASTAR, PEDRO. Adjunct Assistant Professor, Department of Ophthalmology SM  
M.D. University of Montemorelos 1986

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M.D. Far Eastern University, Philippines 1979

GONZAGA, EDUARDO J. Instructor, Department of Medicine SM  
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GONZALES, MARK A. Assistant Clinical Professor, Department of Pharmacy Practice SP  
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GORDON, BRENT. Assistant Professor, Department of Pediatrics SM  
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M.D. Loma Linda University SM 1994

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SCHNEIDER, LOUISE E. Associate Professor, Department of Nutrition and Dietetics AH  
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SCHUBERT, CHRISTIANE C. Assistant Professor, Department of Social Work and Social Ecology BH, Department of Medical Education SM, and Member FGS  
Ph.D. Loma Linda University 2008

SCHUBERT, KEITH E. Adjunct Professor, Department of Basic Sciences SM  
Ph.D. University of California, Santa Barbara 2003

SCHUH, HOLLY B. Instructor, School of Public Health PH

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SCHULTE, REINHARD W. Professor, Department of Basic Sciences SM; Associate Professor, Radiation Technology AH  
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SCHWAB, ERNEST ROE III. Associate Professor, Department of Allied Health Studies AH and Member FGS  
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SCHWARTZ, BRIAN P. Assistant Professor, Department of Medicine SM  
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SCHWARTZ, LYNETTA R. Assistant Professor, Department of Medicine SM  
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B.A. California State University, San Bernardino 1996

SEABAUGH, VALERIE A. Assistant Professor, Department of Anesthesiology SM  
M.D. Loma Linda University SM 1998

SEALY, DIADREY-ANNE T. Adjunct Assistant Professor, School of Public Health PH  
Ph.D. University of Georgia 2012

SEAVEY, TIMOTHY. Instructor, Department of Radiation Technology AH  
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SEIBERLING, KRISTIN A. Associate Professor, Department of Otolaryngology and Head and Neck Surgery SM and Department of Basic Sciences SM  
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SELIM, KHALED. Associate Professor, Department of Medicine SM  
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SENTHIL, MAHESWARI. Associate Professor, Department of Surgery SM  
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- SETON, GILLIAN LEE. Assistant Professor, Department of Surgery SM  
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M.S. Loma Linda University GS 1997  
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Dr.P.H. Loma Linda University PH 2011
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M.D. Baroda Medical College 1979
- SHAH, PRAFUL C. Assistant Clinical Professor, Department of Pediatrics SM  
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- SHAKESPEARE, BRENT E. Assistant Clinical Professor, Department of Restorative Dentistry SD  
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- SHAKHMALIAN, EDWIN. Assistant Clinical Professor, Department of Pharmacy Practice SP  
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- SHAMMO, JOHNNY B. Assistant Clinical Professor, Division of General Dentistry SD  
D.D.S. Loma Linda University SD 2008
- SHANKEL, TAMARA MICHELLE. Associate Professor, Department of Pediatrics SM and Department of Medical Education SM  
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- SHANNON, KEVIN C. Associate Professor, Department of Family Medicine SM  
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- SHETH, RITA. Assistant Professor, Department of Pediatrics SM  
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- SIAPCO, GINA S. Associate Professor, School of Public Health PH  
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- SILVESTRIN, TORY L. Instructor, Department of Endodontics SD  
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- SIMENTAL, DENNIS A. Assistant Clinical Professor, Division of General Dentistry SD  
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SMITH, ROBERT T. Assistant Professor, Department of Medicine SM  
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M.D. Loma Linda University SM 1963
- SOEPRONO, FRED F. Associate Professor, Department of Dermatology SM  
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- SOLAROGLU, IHSAN. Adjunct Research Professor, Basic Sciences SM  
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- SOLOMON, NAVEENRAJ L. Assistant Professor, Department of Surgery SM  
M.D. Loma Linda University SM 2003
- SOLOMON, TABITHA E. Assistant Professor, Department of Pediatrics SM  
M.P.H. Mercer University, Georgia 2005  
M.D. PSG Institute of Medical Sciences and Research, India 2001
- SONAWALA, MEHUL S. Instructor, Department of Medicine SM  
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- SONEJI, MAULIN S. Assistant Professor, Department of Pediatrics SM and Department of Medicine SM  
M.D. St. Louis University School of Medicine 2006
- SONG, KI (KEITH) Y. Assistant Clinical Professor, Department of Dental Educational Services SD  
D.D.S. Loma Linda University SD 1990
- SONNE, JANET L. Adjunct Professor, Department of Psychology BH  
Ph.D. University of California, Los Angeles 1981
- SORAJJAKOOL, SIROJ. Professor, School of Religion SR, Department of Counseling and Family Science BH, and Member FGS  
Ph.D. Claremont School of Theology 1999
- SORENSEN, PATRICIA M. Assistant Clinical Professor, School of Nursing SN  
M.S.N. University of California, Los Angeles 1982
- SORIANO CASTELL, SALVADOR S. Associate Professor, Department of Pathology and Human Anatomy SM and Department of Basic Sciences SM  
Ph.D. University of Glasgow, UK 1994
- SORRELS, RONALD L. Assistant Professor, Division of General Dentistry SD  
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- SOTO-WEGNER, UBALDO A. Assistant Research Professor, Department of Basic Sciences SM and Member FGS  
Ph.D. Catholic University of Chile 1994
- SOUZA, ANDREW T. Instructor, Department of Pediatrics SM  
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- SPARKS, STEVEN R. Associate Professor, Department of Cardiovascular and Thoracic Surgery SM  
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- SPEARMAN, CHARLES B. Assistant Clinical Professor, Department of Cardiopulmonary Sciences AH  
M.S. University of Southern California 1994
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- SPENCER-SAFIER, MICHELLE M. Assistant Professor, Department of Pharmacy Practice SP  
Pharm.D. University of Michigan 1995
- SPENCER-SMITH, E. LAURENCE. Assistant Clinical Professor, Department of Gynecology and Obstetrics SM  
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M.D. Loma Linda University SM 1981
- SRIKUREJA, DANIEL P. Instructor, Department of Surgery SM  
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M.D. Loma Linda University SM 1997
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Radiology, and Pathology SD  
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STEPIEN, BETTY. Assistant Professor, Department of Medicine SM  
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STEWART, SYLVIA DIANNE. Assistant Professor, School of Nursing SN  
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M.D. Loma Linda University SM 1990
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- SY-MUNOZ, JENNY T. Associate Professor, Division of General Dentistry SD  
D.D.S. Indiana University School of Dentistry 1989
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D.M.D. University of Kentucky 2006
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D.Sc. Loma Linda University AH 2008
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- TABISULA, BRADEN MICHAEL B. Assistant Professor, Department of Health Informatics and Information Management AH  
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- TORREY, ROBERT R., JR. Assistant Clinical Professor, Department of Urology SM  
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- TRABIN, JOSHUA M. Assistant Professor, Department of Medicine SM  
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- TRAN, HOAI N. Instructor, Department of Orthopedic Surgery SM  
M.P.A. A. T. Still University, Arizona 2009
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D.M.D. University of Pennsylvania 2010  
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M.D. Loma Linda University SM 1997
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M.D. Loma Linda University SM 1994
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M.P.H. Tongji Medical University, China 1988  
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- WANG, NING. Assistant Professor, Department of Radiation Medicine SM  
Ph.D. Shanghai Institute of Optics and Fine Mechanics 1997
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- WASEMILLER, MATTHEW M. Assistant Professor, Department of Restorative Dentistry SD  
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M.S. University of California, Los Angeles 1963
- WOOSLEY, KYNDRA J. Assistant Professor, Department of Nutrition and Dietetics AH  
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M.D. University of Southern California 2006
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Ph.D. Loma Linda University GS 2004
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- XU, HELEN X. Associate Professor, Department of Otolaryngology and Head and Neck Surgery SM  
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- YAMZON, JOCELYN M. Assistant Professor, Department of Pharmacy Practice SP  
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- YANG, JOANNA JIEHONG. Clinical Instructor, School of Nursing SN  
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Therapy AH  
D.P.T. Loma Linda University 2008

# GENERAL INFORMATION

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# University Board and Administration

## Officers of the University Board of Trustees

Name	Title
Lowell C. Cooper, M.Div., M.P.H.	Chair
Dan Jackson, M.A.	Vice Chair

## University Board of Trustees

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## University Administration

Name	Title	Office
Richard H. Hart, M.D., Dr.P.H.	President/CEO	
Kevin J. Lang, M.B.A.	Vice President/CFO	
Ronald L. Carter, Ph.D.	Provost	
Rodney Neal, M.B.A.	Sr. Vice President	Financial Affairs
David P. Harris, Ph.D.	Vice President	Information Systems
Rick E. Williams, Ph.D.	Vice President	Enrollment Management and Student Services
Craig R. Jackson, J.D., M.S.W.	Dean	School of Allied Health Professions
Beverly J. Buckles, D.S.W.	Dean	School of Behavioral Health
Ronald J. Dailey, Ph.D.	Dean	School of Dentistry
H. Roger Hadley, M.D.	Dean	School of Medicine

Elizabeth A. Bossert, Ph.D., RN	Dean	School of Nursing
Marilyn M. Herrmann, Ph.D.	Interim Dean	School of Pharmacy
Helen Hopp Marshak, Ph.D.	Dean	School of Public Health
Jon Paulien, Ph.D.	Dean	School of Religion
Anthony J. Zuccarelli, Ph.D.	Dean	Faculty of Graduate Studies

# School Administrations, Committees, and Affiliations

## Key to codes

AH	School of Allied Health Professions
BH	School of Behavioral Health
SD	School of Dentistry
SM	School of Medicine
SN	School of Nursing
SP	School of Pharmacy
PH	School of Public Health
SR	School of Religion
FGS	Faculty of Graduate Studies

## School of Allied Health Professions

### Administration—AH

#### General Administration

CRAIG R. JACKSON, J.D., M.S.W., Dean  
 JOYCE W. HOPP, Ph.D., Dean Emerita  
 IVOR C. WOODWARD, Ph.D., Dean Emeritus  
 GRENITH ZIMMERMAN, Ph.D., Associate Dean, Research  
 ERNEST SCHWAB, M.S., Ph.D., Associate Dean, Academic Affairs  
 G. CHARLES DART, JR., M.B.A., Associate Dean, Student Affairs  
 EVERETT B. LOHMAN, D.Sc., Assistant Dean, Graduate Academic Affairs  
 ARTHUR W. KROETZ, Ph.D., Assistant Dean, Educational Support Services  
 KENT CHOW, M.B.A., Assistant Dean, Finance  
 HELEN R. MARTINEZ, M.A., Assistant Dean, Admissions  
 DONNA THORPE, Dr.P.H., Director, School of Allied Health Professions Institutional Research  
 GAIL T. RICE, Ed.D., Coordinator, Continuing Education  
 TIMOTHY SEAVEY, M.A.M., Coordinator, General Education  
 G. CHARLES DART, JR., M.B.A., Director, Marketing and Retention  
 KATHERINE DAVIS, M.S., Senior Assessment Specialist  
 TIFFANY HAYNALI, B.B.A., Development Office Director, Portfolio - To be announced

#### Computer Services

INTITHAR S. ELIAS, M.S., Director

#### Allied Health Studies

CRAIG R JACKSON, J.D., M.S.W., Chair, Department of Allied Health Studies  
 ARTHUR MARSHAK, M.S., Ed.D., Program Director for Master of Science and Certificate, Health Professions Education  
 KARLA LAVIN WILLIAMS, Dr.P.H., Program Director for Bachelor of Science, Health Care Administration  
 GRENITH ZIMMERMAN, Ph.D., Program Director for Doctor of Philosophy, Rehabilitation Science

#### Cardiopulmonary Sciences

ALAN ALIPOON, B.S., Program Director for Associate in Science and for Certificate, Cardiac Electrophysiology  
 ABDULLAH ALISMAIL, M.S., Director of Clinical Education for Bachelor of Science, Respiratory Care Program; Program Director for Certificate, Polysomnography  
 DAVID LOPEZ, Ed.D., Chair, Department of Cardiopulmonary Sciences; Program Director for Postprofessional Bachelor of Science, Respiratory Care

TRACI MARIN, Ph.D., Program Director for Master of Science, Respiratory Care

BRENDAN GONGOL, PH.D., Program Director for Bachelor of Science, Emergency Medical Care

N. LENNARD SPECHT, M.D., Medical Director for Respiratory Care Program

RICHARD NELSON, MD, Program Director for entry-level Bachelor of Science

#### Clinical Laboratory Science

RODNEY M. ROATH, M.B.A., Chair, Department of Clinical Laboratory Science

ALICIA TRIPLETT, M.A.,MLS (ASCP) Program Director for Bachelor of Science, Clinical Laboratory Science

TERI J. ROSS, M.S., Program Director for Certificate, Phlebotomy

PAUL C. HERRMANN, M.D., Medical Director for Clinical Laboratory Science Program and Phlebotomy

MARGARET TAVARES, A.B.S, Program Director, Cytotechnology

ALICIA M. TRIPLETT, M.A., MLS (ASCP)<sup>CM</sup>, Clinical Coordinator for Bachelor of Science, Clinical Laboratory Science

PAMELA J. WAT, M.D., Medical Co-director for Cytotechnology Program

#### Communication Sciences and Disorders

TERRY D. DOUGLAS, Ph.D., Chair, Department of Communication Sciences and Disorders

KAREN MAINESS, Ph.D., Program Director for Master of Science and Transitional; Credential Advisor

JENNIFER ST. CLAIR, M.S., Coordinator for Clinical Education

KEITH WOLGEMUTH, Ph.D., CCC-A, Director for SLPD Program

#### Health Informatics and Information Management

DEBRA HAMADA, M.A., Chair, Department of Health Informatics and Information Management

BRADEN TABISULA, M.B.A., RHIA., Program Director for Master of Science, Health Informatics

PAULINE CALLA, M.B.A., Recruitment Coordinator for Health Information Administration Program; Program Director for Bachelor of Science, Health Information Administration

RYAN STEPHAN, B.S., Program Director for Certificate, Coding Specialist

#### Nutrition and Dietetics

CINDY L. KOSCH, M.S., RD, Chair, Department of Nutrition and Dietetics; Program Director for Bachelor of Science, Master of Science, and Master of Public Health (in Nutrition and Dietetics)

GEORGIA W. HODGKIN, Ed.D., Associate Chair, Department of Nutrition and Dietetics

KYNDRA WOOSLEY, M.S., Academic Coordinator for Clinical Education, Nutrition and Dietetics Program

JE JE NOVAL, M.S., RD, Program Director for Master of Science in Nutrition Care Management

#### Occupational Therapy

LIANE H. HEWITT, Dr.P.H., CHES, OTR/L, Chair, Department of Occupational Therapy

HEATHER JAVAHERIAN-DYSINGER, O.T.D., OTR/L, Program Director for Master of Occupational Therapy

JULIE D. KUGEL, O.T.D., OTR/L, Program Director for Doctor of Occupational Therapy

AARON MOESSER, MPT, OTR/L, Academic Coordinator for Fieldwork Education, Occupational Therapy Program

HEATHER A. ROESE, O.T.D., OTR/L, Academic Coordinator for Fieldwork Education, Occupational Therapy Program

#### Orthotics and Prosthetics

JOHANNES SCHAEPPER, M.Div., CPO, Department Chair, Program Director for Master of Orthotics and Prosthetics

HEATHER APPLING, M.S.O.P., CPO, Assistant Program Director for Master of Orthotics and Prosthetics; Clinical Coordinator



### Physical Therapy

LAWRENCE E. CHINNOCK, PT, Ed.D., M.B.A., Chair, Department of Physical Therapy; Program Director for entry-level Doctor of Physical Therapy

HOWARD W. SULZLE, PT, Ed.D., Associate Chair, Department of Physical Therapy

EVERETT B. LOHMAN III, PT, D.Sc., OCS, Program Director for Master of Science Rehabilitation, Postprofessional Doctor of Physical Therapy, Doctor of Science, and Ph.D.

JEANNINE S. MENDES, PT, Ed.S., Program Director for Associate in Science, Physical Therapist Assistant

CAROL J. APPLETON, PT, M.P.H., Assistant Program Director, Physical Therapist Assistant; Director of Clinical Education for Physical Therapist Assistant Program and for entry-level Doctor of Physical Therapy Program

THERESA M. JOSEPH, PT, D.P.T., M.B.A., NCS, Academic Coordinator for Clinical Affiliations for entry-level Doctor of Physical Therapy Program

NICCETA DAVIS, PT, Ph.D., M.P.H., M.S.P.T., Academic Coordinator for Clinical Practicums for entry-level Doctor of Physical Therapy Program

### Physician Assistant Sciences

GERALD A. GLAVAZ, D.H.Sc., Chair, Department of Physician Assistant Sciences; Program Director, Department of Physician Assistant Sciences

COURTNEY McCONNELL, M.P.A., Clinical Coordinator for M.P.A Program  
FRANK SIRNA, B.S., PA-C., Didactic Director for Master of Physician Assistant Sciences

CATHERINE OMS, M.P.A., Didactic Coordinator for Master of Physician Assistant Sciences Program

JULIE YANG, M.P.H., PA-C., CHES, Associate Didactic coordinator for Master of Physician Assistant Sciences Program

GHINA KATRIB, M.P.A., PA-C., Clinical Coordinator for Master of Physician Assistant Sciences

WESSAM LABIB, M.D., Medical Director for Master of Physician Assistant Sciences

### Radiation Technology

LAURA L. ALIPOON, Ed.D., Chair, Department of Radiation Technology  
MICHAEL F. IORIO, M.P.A., Associate Chair, Department of Radiation Technology; Program Director for Master of Science in Radiation Sciences

BRIGIT C. MENDOZA, M.A.M., Program Director for Master of Science, Radiologist Assistant

KATHRYN COCKRILL, B.A., Assistant Program Director for Bachelor of Science, Radiation Sciences; Program Director for Certificate in CT and MRI

RAY HO, B.S., Program Director for Bachelor of Science, Nuclear Medicine Technology

BRENDA BOYD, Ph.D., Program Director for Associate in Science, Medical Radiography

MARIE M. DELANGE, B.S., Program Director for Certificate, Diagnostic Medical Sonography

CAROL A. DAVIS, Dr.P.H., Psy.D., Program Director for Certificate, Radiation Therapy Technology

BALDEV PATYAL, Ph.D., Program Director for Medical Dosimetry

SAMUEL M. RANDOLPH, M.D., Medical Advisor for Medical Radiography Program

GLENN A. ROUSE, M.D., Medical Director for Certificate, Diagnostic Medical Sonography Program

DAVID GENTRY, M.D., Medical Director for Bachelor of Science, Nuclear Medicine Technology Program

TIMOTHY SEAVEY, M.A.M., Second Associate Chair, Program Director for

Bachelor of Science and for Certificate in Imaging Informatics

JAMES M. SLATER, M.D., Medical Director for Radiation Therapy Technology Program

WILL EDMUNDS, M.Ed., Program Director for Radiologic Technology Advanced Placement

### Committees—AH

#### Administrative Council

Craig Jackson, Chair

Laura Alipoon

Melissa Aree

Brenda Boyd

Lawrence Chinnock

Kent Chow

Chuck Dart

Katherine Davis

Terry Douglas

Gerald Glavaz

Debra Hamada

Lianne Hewitt

Tiffany Haynal

Cindy Kosch

Arthur Kroetz

Everett Lohman

David Lopez

Helen Martinez

Rodney Roath

Johannes Schaepper

Ernest Schwab

Timothy Seavey

Donna Thorpe

Grenith Zimmerman

President\*

\* ex officio

#### Admissions Committee

Laura Alipoon

Larry Chinnock

Charles Dart

Terry Douglas

Jerry Glavaz

Debra Hamada

Liane Hewitt

Craig Jackson

Cindy Kosch

Everett Lohman

David Lopez

Helen Martinez

Rodney Roath

Johannes Schaepper

Ernie Schwab

Grenith Zimmerman

#### Clinical Coordinators Committee

Brian Sharp, Chair

Carol Appleton

Janine Benner

Yasmin Chene

Nicceta Davis

Intithar Elias

Erma Ezpeleta

Margaret Frank  
Joe Giron  
Janelle Guerrero  
Craig Jackson  
Theresa Joseph  
Ghina Katrib  
Dolly Kisinger  
Jerone Murphy  
Judith Palladino  
Kristine Richard  
Heather Roese  
Ernie Schwab  
Jennifer St. Clair  
Ryan Stephan  
Elle Taggart  
Monica Tovar  
Alicia Triplett  
Karen Westphal  
Sheila Wilson  
Kyndra Woosley

### **Diversity Committee**

Antonio Valenzuela, Chair  
Nicceta Davis  
Esther Huecker  
Craig Jackson\*  
David Lopez  
Helen Martinez  
Howard Sulzle  
University diversity officer\*  
Student representatives (4)

\* ex officio

### **Faculty Council**

Brenda Boyd, Chair  
Pauline Calla, Past Chair  
Carol Appleton  
Aiesha Banks, Secretary  
William Edmunds  
Corey Gheen  
Karen Pendleton  
Rodney Roath  
Frank Sirna  
Grenith Zimmerman

## **School of Behavioral Health**

### **Administration—BH**

BEVERLY BUCKLES, D.S.W., Dean  
MIRIAM A. DOMINGO, M.B.A., Associate Dean for Finance and Administration  
SUSANNE MONTGOMERY, Ph.D., Associate Dean for Research Affairs

### **Department chairs—BH**

BEVERLY BUCKLES, D.S.W., Chair, Social Work and Social Ecology  
KIMBERLY FREEMAN, Ph.D., Executive Associate Chair, Social Work and Social Ecology  
DAVID VERMEERSCH, Ph.D., Interim Chair, Psychology  
Winetta Oloo, Ph.D., Chair, Counseling and Family Sciences

### **Committees—BH**

#### **Administrative Council**

Beverly Buckles, Chair

Adam Arechiga  
Miriam Domingo  
Kim Freeman  
Doug Huenergardt  
Mary Moline  
Susanne Montgomery  
Winetta Oloo  
David Vermeersch

### **Executive Committee**

Beverly Buckles, Chair  
Adam Arechiga  
Miriam Domingo  
Kim Freeman  
Susanne Montgomery  
Winetta Oloo  
David Vermeersch

### **Clinical affiliates—BH**

Albany Psychology Internship Consortium, VA Albany Medical College  
Anaheim School, Anaheim  
Arroyo High School, San Bernardino  
Assessment and Treatment Services Center

Bilingual Family Counseling, Ontario  
Boys and Girls Club, Redlands

Canyon Ridge Hospital, Chino  
Casa Pacifica Clinical Services  
Catholic Charities Psychological Services  
Chaffey College, Rancho Cucamonga  
Cherokee Health System  
Child and Family Guidance Center, Northridge  
Child Welfare Training, Riverside  
Children's Hospital, Los Angeles  
Children's Hospital of Orange County  
Community Hospice of Victor Valley, Apple Valley

Doctors Hospital of West Covina, West Covina

East Valley SELPA

Family Services Association, Riverside  
Family Solutions Collaborative, Ontario  
Forest Institute of Professional Psychology  
Foster Family Network, San Bernardino

Growing Fit

Harbor-UCLA Medical Center, Los Angeles  
Health and Human Services Department of Aging, San Bernardino County, San Bernardino  
Hesperia Unified School District, Hesperia  
Highlander Children's Services, Riverside  
Huntington Memorial Hospital, Pasadena

Illinois School of Professional Psychology  
Inland Regional Center, Colton  
Inland Temporary Homes, Loma Linda

Jerry L. Pettis Memorial VA Medical Center, Loma Linda  
JFK Memorial Hospital, Indio  
Jurupa Unified School District, Riverside

Kaiser Permanente Hospital, Riverside

Kaiser Permanente Medical Care Program, Psychiatry Department

Lackland Air Force Base, San Antonio, TX  
 Loma Linda University Adult Day Services, Loma Linda  
 Loma Linda University Marriage and Family Therapy Clinic  
 Loma Linda University Medical Chaplain's Office, Loma Linda  
 Loma Linda University Neuropsychology Department, Loma Linda  
 Loma Linda University Psychiatric Medical Group, Loma Linda  
 Los Angeles City Department of Child Assessment Center  
 Los Angeles County Child Services  
 Los Angeles Department of Mental Health  
 Lutheran Social Services, Apple Valley

Moreno Valley Community Hospital, Moreno Valley  
 Morongo Inland Health, Banning

Oasis Counseling Center, Victorville  
 Office of Aging, Riverside  
 Office of Aging, San Bernardino  
 Ontario Montclair School District  
 Orange County Department of Child Services

Pacific Clinics Institute  
 Patton State Hospital, Highland  
 Pediatric Neuroassessment Program

Redlands Community Hospital, Redlands  
 Rim Family Services, Sky Forest  
 River Oak County Adult Protection Service  
 Riverside County Department of Mental Health, Riverside  
 Riverside Department of Social Services, Riverside

SACH-Norton Mental Health Clinic,  
 San Bernardino City Unified School District, San Bernardino  
 San Bernardino County Department of Behavioral Health  
 San Bernardino County Department of Mental Health, Colton  
 San Bernardino Department of Social Services, San Bernardino  
 San Bernardino Public Defender, San Bernardino  
 San Diego Hospice and Palliative Care, San Diego  
 Santa Ana College Health and Wellness Center Psychology Services,  
 Santa Ana  
 Senior Care Network, Glendora  
 Serenity Infant Care Homes  
 Sharper Future  
 Shasta County Mental Health Services  
 Southern Arizona VA Health Care System  
 Spokane Mental Health Psychology Services  
 St. Anne's Hospice, Glendale  
 Su Casa, Artesia

University of Riverside  
 USCD VA Psychology Internship Program

VA Los Angeles Ambulatory Care Center  
 VA Sierra Nevada Health Care System  
 Verdugo Hills Hospital, Glendale  
 Veterans Affairs Hospital, Loma Linda  
 Village of Child Hope, Beaumont  
 Vitas Innovative Hospice Care, San Bernardino

Warm Springs Counseling Center, Boise, ID  
 West End Valley Counseling, Ontario  
 Western Youth Service, Fullerton

Wilford Hall Medical Center, Lackland Air Force Base

Youth Service Center, Riverside  
 Yucaipa Guidance, Redlands

## School of Dentistry

### Administration—SD

RONALD J. DAILEY, Ph.D., Dean  
 ROBERT A. HANDYSIDES, D.D.S., Associate Dean, Academic Affairs  
 STEVEN G. MORROW, D.D.S, M.S., Assistant Dean, Advanced Specialty  
 Dental Education  
 PAUL L. RICHARDSON, D.D.S., M.S.Ed., Associate Dean, Clinic  
 Administration  
 D. GRAHAM STACEY, Ph.D., M.S., M.A., Associate Dean, Admissions and  
 Student Affairs  
 JOSEPH M. CARUSO, D.D.S., Associate Dean, Strategic Initiatives and  
 Faculty Practices  
 YIMING LI, D.D.S., Ph.D., Associate Dean, Research  
 JOHN C. BURDICK, M.B.A., Assistant Dean, Financial Administration

### Committees—SD

#### Administrative Bodies

Administrative Council

Executive Committee

Faculty Council

#### Standing Committees

Academic Review Committee

Admissions Committee

Clinical Quality Assurance Committee

Curriculum Committee

Dental Research Committee

Faculty Promotions Committee

Outcomes Assessment Committee

Program Directors' Committee

#### Reference Committees

Awards Committee

Clinic Activities/Materials, Instruments, and Student Issue Committee

Communicable Disease Control and Prevention/Infection Control  
 Committee

Dental Hygiene Advisory Committee

Dental Hygiene Curriculum Subcommittee

Diversity Committee

Faculty Development Committee

Faculty Professional Standards Committee

Nominating Committee

Safety Committee

Service Learning Committee

Spiritual Life and Wholeness Committee

Student Professional Standards Conduct Committee

## School of Medicine

### Administration—SM

H. ROGER HADLEY, M.D., Dean and Executive Vice President for Medical Affairs, LLUH

TAMARA L. THOMAS, M.D., Vice Dean for Academic Affairs; Associate Dean for Faculty Development

RICARDO L. PEVERINI, M.D., Vice Dean for Clinical Affairs; Associate Dean for Clinical Faculty

LEONARD S. WERNER, M.D., Senior Associate Dean for Medical Student Education

SARAH M. RODDY, M.D., Associate Dean for Admissions and Recruitment

HENRY L. LAMBERTON, Psy.D., Associate Dean for Student Affairs

TAMARA M. SHANKEL, M.D., Associate Dean for Clinical Education

ALICE A. WONGWORAWAT, M.B.A., Associate Dean for Finance and Administration, Vice President for Academic Resource Planning / Faculty Medical Group

PENELOPE J. DUERKSEN-HUGHES, Ph.D., Associate Dean for Basic Sciences and Translational Research

LYNDA DANIEL-UNDERWOOD, M.D.,PhD., Associate Dean for Program Development and Evaluation

LEROY E. REESE, M.D., Associate Dean for Los Angeles Programs

HANSEL M. FLETCHER, Ph.D., Assistant Dean for Graduate Student Affairs

DANIEL W. GIANG, M.D., Associate Dean for Graduate Medical Education

JAMES M. PAPPAS, M.D., Associate Dean for Quality and Patient Safety

SUSAN RANZOLIN, BSN, Assistant Dean for Admissions

LAWRENCE LOO, M.D., Assistant Dean for Continuing Medical Education

DWIGHT C. EVANS, M.D., Assistant Dean for Veterans Affairs

MARTIE E. PARSLEY, Ph.D., Assistant Dean for Residency Curriculum

M. DANIEL WONGWORAWAT, M.D., Assistant Dean for Career Advisement

RESA L. CHASE, M.D., Assistant to the Dean for Basic Science Curriculum

DAISY D. De LEON, Ph.D., Assistant to the Dean for Diversity Affairs

LINDA J. MASON, M.D., Assistant to the Dean for Medical Staff Affairs

RHODES L. RIGSBY, M.D., Assistant to the Dean for Administration

ANNETTE LERMER, Director of Records and Student Services

### Committees—SM

Academic Review Committee

Admissions Committee

Basic Science and Translational Research Executive Committee

Basic Science Faculty Advisory Council

Clinical Academic Leadership Committee

Clinical Faculty Executive Committee

Clinical Science Faculty Advisory Council

Competency Committee

Continuing Medical Education Committee

Curriculum Committee

Dean's Administrative Council

Executive Committee

LLUFMG Board of Directors

Medical School Performance Evaluation Committee

Professionalism Committee

Promotions Committee

Scholarship and Financial Aid Committee

Spiritual Life and Wholeness Committee

Student Technology Committee

Tenure Committee

## School of Nursing

### Administration—SN

ELIZABETH BOSSERT, Ph.D., RN, Dean

SUSAN LLOYD, Ph.D., Associate Dean, Academic Affairs and Graduate Nursing

BARBARA L. NINAN, Ed.D., Associate Dean, Student Affairs, Undergraduate Nursing

JOANN SHAUL, C.P.A., Assistant Dean, Finance and Administration

MARILYN H. HERRMANN, Ph.D., Emeritus Dean

SHIRLEY BRISTOL, D.N.P., J.D., Director of D.N.P. Program

ELLEN D'ERRICO, Ph.D., Director of Ph.D. Program

PATRICIA S. JONES, Ph.D., Director, Office of International Nursing

ANDREIA LOFTHOUSE, Director, Student and Alumni Relations

NANCIE PARMENTER, Ed.D., Director of RN to B.S. Program

EDELWEISS RAMAL, Ph.D., Director, Off-Campus M.S. Program

LISA ROBERTS, Ph.D., Director of Research

### Councils and committees—SN

#### International Nursing Council

Patricia S. Jones, Chair

Selected School of Nursing faculty and Medical Center nursing administrators

#### Faculty Council

Faculty-voted chair

All full-time and part-time faculty

#### D.N.P. Council

Shirley Bristol, Chair

All full-time and part-time M.S. and D.N.P. faculty

#### Ph.D. Council

Ellen D'Errico, Chair

All full-time and part-time Ph.D. faculty

#### Undergraduate Faculty Council

Barbara Ninan, Ed.D., Associate dean, Chair

All full-time and part-time undergraduate faculty

#### Standing Faculty Committees

Admissions

Curriculum

Diversity

Faculty Affairs

Rank and Tenure

Research

Spiritual Life and Wholeness

Today's Nursing Technology (TNT)

#### Clinical facilities—SN

Ace Pediatrics, Hemet

Advanced Women's Healthcare, Palm Springs

Advanced Women's Healthcare, Yucca Valley

Adventist Health, Roseville (corporate office)

Adventist Medical Center, Oregon

Castle Medical Center, Hawaii

Central Valley General Hospital, Hanford

Feather River Hospital, Paradise

Glendale Adventist Medical Center, Glendale

Hanford Community Medical Center, Hanford  
 Redbud Community Hospital, Clearlake  
 St. Helena Hospital, St. Helena  
 Simi Valley Hospital, Simi Valley  
 Sonora Regional Medical Center, Sonora  
 South Coast Medical Center, Laguna Beach  
 Tillamook County General Hospital, Oregon  
 Ukiah Valley Medical Center, Ukiah  
 Walla Walla General Hospital, Washington  
 White Memorial Medical Center, Los Angeles  
 Adventist Health System/Sunbelt, Florida  
 Alfaro-McField, Edgar, M.D., San Bernardino  
 Allied Professional Nursing Care, Upland  
 Alvord Unified School District, Riverside  
 Antelope Valley Community Clinic, Lancaster  
 Arrowhead Regional Medical Center, Colton  
     ARMC Fontana Family Medical Clinic, Fontana  
     ARMC McKee Family Health Clinic, San Bernardino  
 Arthritis Medical Clinic, Riverside  
 Asian American Resource Center, San Bernardino  
 Aspen Medical Group, Inc., Riverside  
  
 Bear Valley Community Health Care District, Big Bear Lake  
     Family Health Center, Big Bear Lake  
 Beaver Medical Clinic, Redlands  
 Brio Home Health Services, Chino Hills  
  
 California State University, San Bernardino  
 Carcamo, Dr. Mario, Riverside  
 CareMore Health Plan, Cerritos  
 Community Health Systems, Inc.  
  
 Dignity Health, West, Pasadena  
     Bakersfield Memorial Hospital, Bakersfield  
     Community Hospital of SB  
     Mercy Hospital  
     Mercy Southwest Hospital  
     Northridge Hospital Medical Center, Northridge  
     St. Bernadine Medical Center, San Bernardino  
     St. John's Regional Medical Center  
     St. John's Pleasant Valley Hospital  
 Charter Hospice, Colton  
 Children's Hospital, Los Angeles  
 Children's Hospital of Orange County, Orange  
 Choice Medical Group, Apple Valley  
     Choice Medical Group, Hesperia  
     Choice Medical Group, Victorville  
 Christian, Moses MD, Beaumont  
 Citrus Valley Health Partners, Covina  
 Citrus Valley Medical Associates Norco  
     Citrus Valley Family Practice, Corona  
     Citrus Valley Pediatric & Family, Norco  
     Citrus Valley – Urgent Care, Corona  
     Compton Family Practice, Corona  
     Norco Medical Group & Urgent Care, Norco  
 City of Colton Early Childhood Education, Colton  
     Cooley Ranch School  
     Paul J. Rogers School  
     Reche Canyon School  
     Sierra Vista School  
     Wilson School  
 Clinica Msr. Oscar Romero, Los Angeles  
     Boyle Heights/East Los Angeles  
  
 Pediatrics, Los Angeles  
 Clinicas de Salud Del Pueblo, Inc., Brawley  
     Blythe Family Health Clinic  
     Brawley Health Clinic  
     Calexico Health Clinic  
     Coachella Health Clinic  
     Ehman Women's Center  
     El Centro health Clinic  
     Mecca Health Clinic  
     Niland Health Clinic  
     West Shore Health Clinic  
     Winterhaven Health Clinic  
 Clinica Salud & Familia, Pomona  
 Coachella Valley Volunteers in Medicine, Indio  
 Community Health System, Moreno Valley  
     Arlanza Family Health Center, Riverside  
     Eastside Health Center, Riverside  
     Eisenhower Medical Center, Rancho Mirage  
     Fallbrook Family & Women's Health Center, Fallbrook  
     Inland Empire Community Health Center, Bloomington  
     Moreno Valley Family Health Center, Moreno Valley  
 Companion Hospice, Riverside  
 Coram Healthcare, Ontario  
 Coram Specialty Infusion Services, Ontario  
 Cornerstone Community Health, San Bernardino  
 Cornerstone Hospice, Inc., Colton  
 Corona Regional Medical Center, Corona  
 County of Riverside Department of Community Health, Riverside  
     Banning Neighborhood Health Clinic  
     Corona Neighborhood health Clinic  
     Hemet Neighborhood Health Clinic  
     Indio Neighborhood Health Clinic  
     Lake Elsinore Neighborhood Health Clinic  
     Palm Springs Neighborhood Health  
     Riverside Neighborhood Health Clinic  
     Roberts, Laura MD  
     Rubidoux Neighborhood Health Clinic  
 County of Riverside Department of Public Health, Riverside  
 Country of San Bernardino Preschool Services Department (Head Start)  
 Cruz, Dr. Ernesto  
  
 Delta Hospice of California, Chino  
 Desert Valley Hospital, Victorville  
 Desert VIP Urgent Care, Palm Springs  
 Desert VIP Urgent Care, Rancho Mirage  
 Dignity Health Urgent Care Centers, Fontana and Highland  
 Doan, Linda MD, Huntington Beach  
  
 Eisenhower Medical Center, Rancho Mirage  
 Empire Medical Center, San Bernardino  
 Etiwanda School District, Etiwanda  
 Executive Urgent Care of Indian Wells  
  
 Fallbrook Health Center Family Practice and Urgent Care, Fallbrook  
 Fontana Unified School District, Fontana  
 Foothill Pediatrics, Upland  
 Fullerton College, Fullerton  
  
 Garden Pediatrics, Redlands  
  
 Harmony Health, Glendale  
 Hemet Unified School District, Hemet

- Inland Empire Home Health & Hospice, Hemet  
 Inland Empire Medical Group, San Bernardino  
 Inland Pediatrics, Inc. Riverside  
 Inland Regional Hospice, Corona  
 Inland Temporary Homes, Loma Linda  
 Inland Valley Pediatrics, Murrieta  
 Inland Valley Urgent Care Clinic, Lake Elsinore  
 InscRIPTIONS Children's Clinic, Wildomar  
 In Your Best Interest, Redlands  
     Ultimate Medical Practice, Highland
- Jefferson Transitional Program, Riverside  
 Jurupa Unified School District, Riverside
- Kaiser Permanente, Fontana  
 Kaiser Permanente, Riverside  
 Kaiser Permanente Southern California  
     Inland Valley Care and Rehabilitation Center  
 Kanakriyeh, Dr. Mohammed, Pediatric Cardiology Specialist, San Bernardino  
 Keen Medical Group, Inc., Hesperia  
 Kids & Teens Medical Group, Pasadena  
 Kim, Dr. Dong, Moreno Valley  
     New Start Well Being Clinic  
 Knollwood Psychiatric Hospital and Chemical Dependency Center, Riverside  
 Knotts Family & Parenting Institute for Child Excellence, San Bernardino  
 Kumar, Kain, Palmdale
- Lake Elsinore Family Care Center, Lake Elsinore  
 Lam, Richard C. MD, Inc., Temecula  
 Las Palmas OB/GYN, Rancho Mirage  
     Palm Springs OB/GYN  
 Life Connect Medical, Rancho Mirage  
 Linda Valley Care Center and Linda Valley Villa, Loma Linda  
 Loma Linda Children's Center Day Care, Loma Linda  
 LLUH Facilities:  
     Loma Linda University Behavioral Medicine Center, Redlands  
     Loma Linda University Children's Hospital, Loma Linda  
     Loma Linda University East Campus Hospital, Loma Linda  
     Loma Linda University Family Medical Group, Loma Linda  
     Loma Linda University Health Care, Loma Linda  
     Loma Linda University Home Care Services, Loma Linda  
     Loma Linda University Medical Center, Loma Linda  
     Loma Linda University Medical Center, Murrieta  
     Loma Linda University Medical Center Adult Day Health Services, Loma Linda
- Loma View Pediatric Medical Clinic, San Bernardino  
 Lowe, Franklin MD, Los Alamitos
- Mackey, Dr. Timothy, Riverside  
 Moreno Valley Urgent Care, Moreno Valley  
 Mountains Community Hospital, Lake Arrowhead  
 Mukergee, Dr. Kamana, Riverside  
 Mukherjee, Dr. Ashis, San Bernardino  
     Inland Heart and Vascular Medical Associates
- Namita, Mohideen MD, Pediatric Clinic, Upland  
 New Hope Free Clinic, Redlands  
 Newport Huntington Medical Group, Huntington Beach
- Patton State Hospital, Patton, CA  
 Physicians for Healthy Hospitals, Inc.
- GK URGI Care, Inc. dba San Jacinto Medical Clinic/Urgent Care  
 Menifee Valley Medical Center, Menifee  
 Raja, Manikanda G., MD, Hemet  
 Physicians' Hospital of Murrieta, LLC, Murrieta  
 Planned Parenthood of the Pacific Southwest, San Diego  
     Planned Parenthood, Carlsbad  
     Planned Parenthood, Moreno Valley  
     Planned Parenthood, Riverside  
 Providence Health System – Southern California, Torrance  
 Pomona Unified School District, Pomona
- Radiant Primary Care, Victorville  
 Rancho Family Medical Group, Temecula  
 Rancho Paseo Medical Group, Banning  
 Redlands Community Hospital, Redlands  
     Redlands Community Hospital Outreach Clinic, Redlands  
 Redlands Healthcare, Redlands  
 Rialto Unified School District, Rialto  
 Rising Stars Business Academy, Moreno Valley  
 Riverside Community College District  
     Moreno Valley College, Moreno Valley  
     Norco College, Norco  
     Riverside City College, Riverside  
 Riverside Community Hospital, Riverside  
 Riverside County Department of Mental Health, Riverside  
 Riverside County Office of Education, Riverside  
 Riverside County Regional Medical Center, Moreno Valley  
 Riverside Medical Clinic, Riverside (corporate)  
     Riverside Medical Clinic, Riverside (4 locations)  
     Riverside Medical Clinic, Corona  
 Riverside Mission Pediatric Medical Group, Riverside  
 Robinson, Dr. Magda, San Bernardino  
 Rogers, Elisa MD, Palm Springs  
 Ruiz, Edward MD, La Quinta  
 Ruiz, Erica MD, La Quinta
- SAC Health System, San Bernardino  
 Saddleback Memorial Medical Center, Laguna Hills  
 Salhab, Rene MD, Inc. Upland  
 Salwan, Arvind MD, Hesperia  
 San Antonio Community Hospital, Upland  
 San Bernardino City Unified School District, San Bernardino  
 San Bernardino County Department of Public Health, San Bernardino  
     Ontario Clinic  
     Redlands Clinic  
     San Bernardino Clinic  
     Victor Valley Clinic, Hesperia  
 San Bernardino County Probation Department, San Bernardino  
 San Bernardino Medical Orthopaedic Group  
 Schwartz, Dr. Stanley H., Inc., Moreno Valley  
 Sharp Healthcare, San Diego  
 Sherman Indian High School, Riverside  
 Shriners Hospital for Children, Los Angeles  
 South Coast Medical Group, Aliso Viejo  
 Southern California Emergency Medicine, San Bernardino  
 St. Joseph Hospital, Orange  
 St. Jude Medical Center, Fullerton  
     St. Jude Cancer Center, Fullerton  
     St. Jude Heritage Medical Group, Fullerton  
     St. Jude Brea Mobile Site, San Bernardino  
 Spanish Hills Medical Group, Oxnard  
 Specialty Internal Medicine, San Bernardino

Sumalangcay, Godofreda B. MD, San Bernardino  
Symonett Family Medical Center, Colton

Team Nurses Home Health Services, Inc., San Bernardino  
Temecula Valley Family Medicine, Temecula  
Tenet Health System Desert, Inc. (Desert Regional Medical Center), Palm Springs  
Times for Change Foundation, San Bernardino  
Totally Kids, Loma Linda

Ultimate Medical Practice, Highland  
United Family Care, Fontana  
    United Family Care, Rialto  
    United Family Care, San Bernardino  
UREACH, Loma Linda

VA Hospital, Loma Linda  
VA Medical Center West Los Angeles, Los Angeles  
Valentine Medical Clinic, Riverside  
Valiveti, Vinod K. MD, Inc., Oxnard  
Valley Pediatric Center, Apple Valley  
Valley Women Care, Indio  
Ventura Urgent Care Center, Ventura  
Veronica's Home of Mercy, Mary's Mercy Center, Inc, San Bernardino  
Victor Valley Global Medical Center, Victorville  
Vista Community Clinic, Vista  
    Grapevine Clinic, Grapevine  
    Horne Street Clinic, Oceanside  
    LaTortuga Administrative and Program Offices, Vista  
    North River Road Clinic, Oceanside  
    Pier View Way Clinic, Oceanside  
    Vale Terrace Clinic, Vista  
Visiting Nurse Association and Hospice of Southern California, Claremont  
  
Webb, Dr. Harry, Colton  
White Memorial Medical Center, Los Angeles  
Williams, Laura MD, Murrieta

Young Visionaries Youth Leadership Academy – San Bernardino

## School of Pharmacy

### Administration—SP

MARILYN M. HERRMANN, Ph.D., Interim Dean  
RASHID MOSAVIN, Ph.D., Executive Associate Dean  
NANCY E. KAWAHARA, Pharm.D., M.S.Ed., Associate Dean for  
    Assessment and Professional Affairs  
PAUL M. NORRIS, Pharm.D., Associate Dean for Clinical Affairs  
ALAN C. CONNELLY, M.B.A., Associate Dean for Finance and  
    Administration  
LINDA M. WILLIAMS, M.S., Associate Dean for Student Affairs and  
    Admissions  
KATHLEEN BESINQUE, Pharm.D., M.S.Ed., Chair, Department of  
    Experiential and Continuing Education  
WILLIE L. DAVIS, Ph.D., Chair, Department of Pharmaceutical and  
    Administrative Sciences  
JAVAD TAFRESHI, Pharm.D., Chair, Department of Pharmacy Practice  
JIM PINDER, J.D., M.B.A., Director of Academic Affairs  
ANDREW HAGLUND, M.S. Director of Enrollment and Alumni Affairs  
JOHN NAFIE, M.B.A., Development Officer  
DUANE TAN, M.A.T., Director of Academic Support  
BERNADETTE MALQUED, M.B.A., Assistant Director of Alumni Affairs and  
    Communications

### Committees—SP

Academic Standing  
Accreditation Oversight  
Admissions  
Curriculum  
Executive  
Honors and Awards  
Program Assessment  
Promotion and Tenure

### Affiliated/clinical facilities—SP

5 Minute Pharmacy  
  
Adventist Health  
Adventist Hinsdale Hospital  
AIDS Healthcare Foundation-AHF Pharmacy, Westside  
Alamo Pharmacy  
Albertsons/SavOn/SuperValu  
Alvarado Hospital  
AmerisourceBergen  
Arcadian Health Plan  
Armen Pharmacy  
Arrowhead Regional Medical Center  
Arroyo Grande Community Hospital  
Avanir  
  
B&B Pharmacy (Norwalk Village, Inc.)  
Baptist St. Anthony's Health System  
Bonita Family Pharmacy  
Bristol-Myers Squibb  
  
California Department of State Hospitals  
California Pharmacists Association  
Cal-Med Pharmacy  
Cardinal Health  
Celebration Health Anticoagulation Clinic  
Center for Inherited Blood Disorders  
Centinela Hospital  
Central Best Pharmacy  
Central Florida Regional Hospital  
Central Valley General Hospital  
Cherokee Indian Hospital  
Children's Hospital of Central California  
Children's Hospital of Orange County  
Chino Valley Medical Center  
CHS Pharmacy  
Citrus Valley Medical Center  
City of Hope  
Coachella Valley Volunteers in Medicine  
Community Hospital of San Bernardino  
Consumer Health Information Corporation  
Coram Specialty Infusion Services  
Corona Regional Medical Center  
Costco  
Cordrey Van Owen Tower Pharmacy  
CVS Pharmacy, Inc./Caremark  
  
Dallas Medical Center  
Dartmouth-Hitchcock  
Desert AIDS Project  
Desert Hospital Outpatient Pharmacy  
Desert Oasis Health Care

Desert Pharmacy  
 Desert Regional Medical Center  
 Desert Valley Hospital  
 Dignity Health  
 Dominguez Pharmacy  
 Dougherty's  
 Dr. Ike's PharmaCare  
  
 Elliott Health System  
 Empire Pharmacy  
 Evergreen Rx Pharmacy  
  
 Family Practice, Inc.  
 Feather River Hospital  
 Federal Bureau of Prisons, Washington, D.C.  
 Federal Correctional Complex, Victorville  
 Federal Correctional Institute, Terminal Island  
 Flintridge Pharmacy  
 Florida Hospital  
 Food and Drug Administration  
 Fountain Valley Regional Hospital  
 Franciscan Health  
  
 Gemmel Pharmacy  
 Glendale Adventist Medical Center  
 Glendale Urgent Care Pharmacy  
 Gritman Medical Center  
 Group Health Cooperative-Factoria Medical Center  
  
 Hanford Community Medical Center  
 Health Net Pharmaceutical Services  
 Heartland Regional Medical Center  
 Henry Mayo Newhall Memorial Hospital  
 Heritage Pharmacy  
 Hi Desert Medical Center  
 Hoag Memorial Hospital Presbyterian  
 Hollywood Presbyterian Medical Center  
 Hong Kong Adventist Hospital  
 Huguley Memorial Medical Center  
  
 Indian Health Services  
 Inland Compounding Pharmacy  
 Inland Empire Health Plan  
 Inland Pharmacy  
 INNOVRX  
 Ionia Pharmacy  
 Irvine Medical Pharmacy  
  
 Kaiser Foundation Health Plan of the Northwest  
 Kaiser Permanente  
 Kettering Medical Center  
 Kindred Healthcare, Brea  
 Kindred Hospital, Ontario  
 K-Mart  
  
 Loma Linda University Health  
 Long Beach Memorial Medical Center  
 Los Alamitos Medical Center  
  
 Managed Pharmacy Care Services  
 Marian Medical Center  
 MD Care Health Plan (Humana)  
 MedCare Family Pharmacy  
 Medical Arts Rexall Pharmacy  
  
 Medical Center Pharmacy  
 Meiji Pharmacy  
 Memorial Hospital of Gardena  
 Moses H. Cone Memorial Hospital  
  
 National Institutes of Health  
 Naval Hospital – Camp Pendleton  
 New London Hospital  
 Newport Bay Hospital  
 Newport Specialty Hospital  
 Niles Drug Store  
  
 OB Medical Supplies and Pharmacy  
 OptumRx  
 Owens Healthcare  
 Owl Rexall Pharmacy  
  
 Pacific Healthcare, Inc.  
 Pacific Pharmacy Group  
 Palm Drug and Medical Supply  
 Palomar Health  
 Parke Vista Pharmacy  
 Parkview Medical Plaza Pharmacy  
 Pharmacy of the Woods  
 PharMedQuest  
 Physicians for Healthy Hospitals, Inc.  
 Pomona Valley Medical Center  
 Presbyterian Intercommunity Hospital  
 Prescribe Wellness  
 Professional Compounding Centers of America  
  
 Ralphs  
 Rancho Drugs  
 Rawson-Neal Psychiatric Hospital  
 Redlands Community Hospital  
 Riley's Pharmacy  
 Rite Aid Corporation  
 Riverside Community Hospital  
 Riverside County Regional Medical Center  
  
 Safeway/Vons  
 Salinas Valley Memorial Medical Center  
 Sam's Club  
 San Geronio Memorial Hospital  
 San Joaquin Community Memorial Hospital  
 San Joaquin General Hospital  
 Santa Monica Homeopathic Pharmacy  
 SDA Guam Clinic  
 Share Our Selves  
 SHARP  
 Shriners Children's Hospital, Los Angeles  
 Simi Valley Hospital  
 Social Action Community Health System  
 South Shore Hospital  
 St. Helena Hospital  
 St. Helena Hospital Center for Behavioral Health  
 St. Joseph Medical Center  
 St. Jude Medical Center  
 St. Mary Medical Center  
 Swedish Medical Center  
  
 Taipei Medical University-Municipal Wan Fang Hospital  
 Target Corporation



Texas Health Resources  
 TLC Xpress Pharmacy  
 Town Center Compounding Pharmacy  
 Triad Isotopes  
 TriCenter Centennial Medical Center

University of California, Irvine Medical Center  
 United States Coast Guard  
 University Medical Center Corporation

VA Central California Healthcare System  
 VA Greater Los Angeles Healthcare System  
 VA Loma Linda Healthcare System  
 Vail Ranch Pharmacy  
 Valley View Health System  
 ValleyCare Health System  
 Virginia Mason Medical Center  
 Vons

Wahiawa General Hospital  
 Walgreens  
 Walla Walla General Hospital  
 Wal-Mart Corporation  
 Waterman Pharmacy  
 Watson Laboratories  
 WeCare Pharmaceutical Services  
 Well Care Pharmacy  
 West Aid Pharmacy  
 White Memorial Medical Center

Yuma Regional Medical Center

## School of Public Health

### Administration—PH

HELEN HOPP MARSHAK, Ph.D., Dean  
 DWIGHT BARRETT, Ed.D., Executive Associate Dean for Student Services  
 and Administration  
 DONNA L. GURULE, Dr.P.H., Assistant Dean, Academic Administration  
 RAFAEL MOLINA, M.Ed., Director of Distance Learning  
 WENDY SARAVIA-GENOVEZ, M.S., Assistant Dean for Records

### Center Directors—PH

JOAN SABATE, Dr.P.H., Executive Director, Center for Nutrition, Healthy  
 Lifestyle, and Disease Prevention  
 KARL M. McCLEARY, Ph.D., Executive Director, Center for Leadership  
 in Health Systems and interim Director, Center for Community  
 Resilience  
 PRAMIL SINGH, Dr.P.H., Director, Center for Health Research

### Committees—PH

Academic Council  
 Administrative Committee  
 Admissions Committee  
 Alumni Engagement Committee  
 Awards and Traineeship Committee  
 Distance/Digital Learning Curriculum Committee  
 Diversity Committee  
 Doctoral Programs Committee  
 Faculty, Promotion, Rank, and Tenure Committee  
 Field Practicum Committee  
 Marketing and Recruitment Committee  
 Master's Programs Committee  
 Research Committee

Student Association  
 Student Success Committee

### Academic Council

Donna Gurule, Chair  
 Candice Gomez, Secretary  
 Dwight Barrett (ex-officio)  
 Elisa Blethen  
 Bobby Brown (ex-officio)  
 Hildemar Dos Santos  
 Wendy Genovez  
 Ella Haddad/Celine Heskey (one vote)  
 Michelle Hamilton  
 Jayakaran Job  
 Edward McField  
 Anna Nelson  
 Sujatha Rajaram  
 David Shavlik  
 Samuel Soret (ex-officio)  
 Loretta Wilber

### Administrative Committee

Helen Hopp Marshak, Chair  
 Mary Haulk, Secretary  
 Dwight Barrett  
 Bobby Brown  
 Rebekah Cannady  
 Marcus Chapman  
 Wendy Genovez  
 Albin Grohar  
 Donna Gurule  
 Daniel Handysides  
 Jayakaran Job  
 Karl McCleary  
 Sujatha Rajaram  
 Joan Sabate  
 Pramil Singh  
 Sam Soret  
 Faculty Council Representative

### Admissions Committee

Stephen Sledge, Chair  
 Donna Gurule, Co-Chair  
 Sujatha Rajaram, Co-Chair  
 Jim Banta  
 Elisa Blethen  
 Bobby Brown  
 Hildemar Dos Santos  
 Ella Haddad  
 Jayakaran Job  
 Katherine Jones-Debay  
 Edward McField  
 Anna Nelson  
 David Shavlik  
 Robin Smith

### Awards and Traineeship Committee

Dwight Barrett, Chair  
 Mindy Wilkens, Secretary  
 Kemi Adeoye  
 Marci Andersen  
 Rebekah Cannady  
 Wendy Genovez

Donna Gurule  
Wanda Lewis  
Sujatha Rajaraml  
Rhonda Spencer-Hwang  
Lisa Wilkens

### **Clinical facilities—PH**

Center for Health Promotion, Preventive Medicine Clinic  
Evans Hall, Loma Linda University  
Loma Linda, CA 92350  
909/558-4594

### **Affiliated institutions—PH**

Adventist Development and Relief Agency, Washington, DC  
Adventist University of the Philippines, Putingkahoy, Silang, Cavite, Philippines  
American Cancer Society (Inland Empire), Riverside  
Asian Health Project, T.H.E. Clinic, Los Angeles  
Atlantic Union College, South Lancaster, MA

Baptist Hospital, Care Unit Chemical Dependency Program and Center for Health Promotion, Nashville, TN

California Conference of Directors of Environmental Health, Cameron Park  
California Department of Public Health, Sacramento  
California State University, Health Science Department, San Bernardino  
California State University, San Bernardino  
Castle Medical Center, Kailua, HI  
Centers for Disease Control and Prevention, Atlanta, GA  
Centinela National Athletic Health Institute, Los Angeles  
Clinica de Medicina Deportiva del Caribe, Santurce, Puerto Rico  
Cooper Aerobic Center, In-Residence Program, Dallas, TX  
County of Orange, Health Care Agency, Santa Ana  
County of San Bernardino, Health Department, San Bernardino  
County of San Diego, Department of Health Services, San Diego

Dine College, New Mexico  
Drinking Driver Program Services, San Bernardino

Eisenhower Medical Center, Rancho Mirage  
El Progreso del Desierto, Inc., Coachella

Foothill AIDS Project, San Bernardino

General Dynamics, Ontario  
Guam SDA Clinic

Health Resources and Services Administration  
Hinsdale Sanitarium and Hospital, Hinsdale, IL

Inland Empire Health Plan  
Inland AIDS Project, Riverside  
Institute of Stress Medicine, Denver, CO  
Inter-American Division of Seventh-day Adventists, Miami, FL

Jerry L. Pettis Memorial Veterans Administration Hospital, Loma Linda

Kahili Mountain School, Kauai, HI  
Kaiser Foundation Hospitals (Southern California Kaiser Permanente Medical Center), Fontana

Loma Linda University Medical Center East Campus, Loma Linda  
Loma Linda University Medical Center, Loma Linda

Los Angeles County Department of Health Services, Los Angeles

Martin Luther King, Jr./Charles Drew Medical Center, Los Angeles

Native American Coalition, Temecula

People's Choice, Inc., San Bernardino  
Pomona Unified School District, Pomona  
Portland Adventist Medical Center, Portland, OR

Redlands Community Hospital, Redlands  
Riverside County, Department of Public Health, Riverside  
Riverside-San Bernardino County, Indian Health, Inc.

San Bernardino County Department of Environmental Health Services, San Bernardino  
San Bernardino County Medical Center, San Bernardino  
San Bernardino County Public Health Department, San Bernardino  
San Diego State University, San Diego  
San Joaquin Hospital, Bakersfield  
School of Public Health, Adventist University of the Philippines, Putingkahoy, Silang, Cavite, Philippines  
Scripps Clinic and Research Foundation, Green Hospital, La Jolla  
Sid Richardson Cardiovascular Rehabilitation Institute, Methodist Hospital, Houston, TX  
St. Helena Hospital and Health Center, Deer Park  
State of California, Department of Public Health, Sacramento

Taiwan Adventist Hospital, Taipei, Taiwan

University of California Berkeley, Berkeley  
University of California Center for Health Promotion, Riverside  
University of California Los Angeles, Los Angeles  
University of Hawaii, Honolulu, HI

Washington Adventist Hospital, Takoma Park, MD  
Westminster Medical Group, Westminster  
World Vision, International, Monrovia

## **School of Religion**

### **Administration—SR**

JON PAULIEN, Dean  
LEO RANZOLIN, Associate Dean  
CARLA G. GOBER, Director, Center for Spiritual Life and Wholeness  
GERALD WINSLOW, Director, Center of Bioethics

### **Committees—SR**

#### **Center for Christian Bioethics**

Dean of School of Religion, Chair  
Faculty of School of Medicine, Vice Chair  
Director of Center for Christian Bioethics  
Dean of School of Allied Health Professions  
Dean of School of Behavioral Health  
Dean of School of Dentistry  
Dean of Faculty of Graduate Studies  
Dean of School of Medicine  
Dean of School of Nursing  
Dean of School of Public Health  
Dean of School of Pharmacy  
Provost of Loma Linda University  
LLUH Vice President for Mission and Culture  
Representatives-at-large (2)

*Ex officio officers:*

President of Loma Linda University

CEO of Loma Linda University Health

### **Center for Spiritual Life and Wholeness**

LLUH Vice President for Mission and Culture, Chair  
 Dean of the School of Religion, Vice chair  
 Director of the Center for Spiritual Life and Wholeness, Secretary  
 Associate Dean of the School of Religion  
 LLUH Vice President for Educational Affairs  
 LLUH Vice President for Research Affairs  
 LLUH Vice President for Wellness  
 Vice President for Enrollment and Student Services  
 Deans  
 School of Allied Health Professions  
 School of Behavioral Health  
 School of Dentistry  
 School of Medicine  
 School of Nursing  
 School of Pharmacy  
 School of Public Health  
 Faculty of Graduate Studies  
 Director of Campus Ministries Department  
 Director of LLUMC Chaplaincy Department  
 Director of LLUMC Employee Spiritual Care Department  
 Director of the Clinical Ministry Program, School of Religion  
 Representative from the LLU School of Religion  
 Chief nursing officer for LLUH System  
 Representative from LLUMC Faith and Health Initiative  
 Representative(s) from the community

### **M.A. in Bioethics**

Zack Plantak, Chair  
 Andy Lampkin  
 Leo Ranzolin  
 David Larson  
 Jon Paulien  
 Zack Plantak  
 Richard Rice  
 Sigve Tonstad  
 James Walters

### **M.A. in Religion and Society**

David Larson, Chair  
 Janice DeWhyte  
 Andy Lampkin  
 Theodore Levterov  
 Jon Paulien  
 Zach Plantak  
 Leo Ranzolin  
 Richard Rice  
 Siroj Sorajjakool  
 Calvin Thomsen  
 Sigve Tonstad  
 Zane Yi

### **M.S.Chap. in Chaplaincy**

Erik Carter, Chair  
 Calvin Thomsen  
 Marlo Ceballos  
 Carla Gober  
 Vaughan Grant  
 James Greek  
 Jon Paulien  
 Leo Ranzolin

Randall Roberts  
 Siroj Sorajjakool

### **Rank and Tenure**

Richard Rice, Chair  
 Ivan Blazen  
 Andy Lampkin  
 David Larson

### **Dean's Council**

Dean, Chair  
 Associate Dean  
 Director of Center for Christian Bioethics  
 Director of Center for Spiritual Life and Wholeness  
 Director of Bioethics Program  
 Director of Administrative Operations  
 Director of Religion and Society Program  
 Director of Admissions and Records, School of Religion  
 Andy Lampkin

### **Admissions Committee**

Associate Dean, Chair  
 Director of Bioethics Program  
 Director of Chaplaincy Program  
 Director of Religion and Health Program  
 Director of Religion and Society Program  
 Director of Admissions and Records, School of Religion

## **Faculty of Graduate Studies**

### **Administration—GS**

ANTHONY J. ZUCCARELLI, Ph.D., Dean  
 RAFAEL A. CANIZALES, Ph.D., Associate Dean for Administrative Affairs

### **Committees—GS**

#### **Graduate Council**

Anthony J. Zuccarelli, Chair  
 Larry Beeson  
 Lee Berk  
 Kristopher Boyle  
 Ellen D'Errico  
 Stephen Dunbar  
 Synnove Knutsen  
 Leroy Leggitt  
 Everett Lohman III  
 Cameron Neece  
 Kerby Oberg  
 Janelle Pyke  
 Winetta Oloo  
 Larry Ortiz  
 Richard Rice  
 Erin Seheult  
 Salvador Soriano  
 Sigve Tonstad  
 Ubaldo Soto

#### **Nominating Committee**

Anthony J. Zuccarelli, Chair  
 Leonard Brand  
 Leroy Leggitt  
 Ben Nava  
 Patricia Pothier  
 Donna Thorpe

**Academic Variances Committee**

Anthony J. Zuccarelli, Chair  
Kevin Nick  
Joan Sabaté  
Betty Winslow  
Janelle Pyke

**Admissions Review Committee**

Anthony J. Zuccarelli, Chair  
Danilo Boskovic  
Willie Davis  
Neal Johnson  
Kevin Nick  
Susan Lloyd

## Accreditation Status

### The University

Founded as College of Evangelists 1905-06. Chartered as College of Medical Evangelists by the state of California December 13, 1909. Accredited by Northwest Association of Secondary and Higher Schools April 7, 1937. Accredited by WSCUC (WASC Senior College and University Commission) (prior to January 1962, Western College Association) February 24, 1960. Became Loma Linda University July 1, 1961. Professional curricula started and approved as indicated.

### The professions

#### Faculty of Graduate Studies

Started in 1954 as the Graduate School, with accreditation through University accreditation; continued through 2004; restructured as the Faculty of Graduate Studies in 2005.

#### School of Allied Health Professions

**CARDIAC ELECTROPHYSIOLOGY TECHNOLOGY:** Started in 2011. Initial accreditation March 21, 2015, by the Commission on Accreditation of Allied Health Education Programs (CAAHEP).

**CLINICAL LABORATORY SCIENCE (formerly Medical Technology):** Started in 1937. Approved by the Council on Medical Education of the American Medical Association since August 28, 1937. Currently accredited by the National Accrediting Agency for Clinical Laboratory Sciences. Currently approved by the California Department of Public Health, Laboratory Field Services.

**COMMUNICATION SCIENCES AND DISORDERS:** Approved by the American Speech-Language-Hearing Association June 1, 1991.

**CYTOTECHNOLOGY:** Started in 1982. Initial approval January 20, 1983, by the Commission on Accreditation of Allied Health Education Programs in collaboration with the Cytotechnology Programs Review Committee.

**DIAGNOSTIC MEDICAL SONOGRAPHY:** Started in 1976 as diagnostic medical sonography. Approved by the Joint Review Committee on Education in Diagnostic Medical Sonography October 24, 1985.

**EMERGENCY MEDICAL CARE:** Started in 1993 as a baccalaureate degree program for paramedics, respiratory therapists, and other allied health professionals desiring education, science, or management credentials in emergency medical services.

**HEALTH INFORMATION MANAGEMENT:** Started as medical record administration in 1963. Currently approved by the Commission on Accreditation for Health Informatics and Information Management Education.

**MEDICAL RADIOGRAPHY:** Started in 1941 as radiological technology. Approved by the Council on Medical Education of the American Medical Association November 19, 1944. Currently approved by the Joint Review Committee on Education in Radiologic Technology and the California State Department of Public Health.

**NUCLEAR MEDICINE TECHNOLOGY:** Started in 1970. Approved by the Council on Medical Education of the American Medical Association June 23, 1973. Currently approved by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology.

**NUTRITION AND DIETETICS:** Started in 1922 as a certificate program; baccalaureate degree conferred 1932-54; M.S. degree in nutrition and dietetics started in 2008; graduate program offered since 1954. Internship program continuously approved by The American Dietetic Association from 1957 through 1974; reestablishment of baccalaureate degree program authorized October 1971. Since 1974, the Coordinated Program in Dietetics has been granted accreditation

by the Commission on Accreditation for Dietetics Education of the American Dietetic Association.

**OCCUPATIONAL THERAPY:** Started in 1959. Initial approval by the Council on Medical Education of the American Medical Association June 10, 1960. Full approval March 30, 1962. Currently approved by the Accreditation Council for Occupational Therapy Education.

**OCCUPATIONAL THERAPY ASSISTANT:** Started in 1988. Approved by the Commission on Accreditation of Allied Health Education Programs in collaboration with The American Occupational Therapy Association (AOTA) April 13, 1989. Currently accredited by the Accreditation Council for Occupational Therapy Education of the AOTA.

**PHLEBOTOMY:** Started in 1994. Accredited/Approved April 1997 by the California Department of Public Health (CDPH), Laboratory Field Services (LFS).

**PHYSICAL THERAPIST ASSISTANT:** Started in 1989. Currently approved by the American Physical Therapy Association via the Commission on Accreditation in Physical Therapy Education (CAPTE).

**PHYSICAL THERAPY:** Started in 1941. Initially approved by the Council on Medical Education of the American Medical Association June 6, 1942. Currently approved by the American Physical Therapy Association.

**PHYSICIAN ASSISTANT SCIENCES:** Started in 2000. Provisional accreditation granted October 20, 2000, by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). Effective January 1, 2001, CAAHEP was succeeded by the Accreditation Review Commission on Education for the Physician Assistant, Inc. (ARC-PA). Accredited March 2002 by ARC-PA.

**RADIATION THERAPY:** Approved by the Council on Medical Education of the American Medical Association December 1, 1974. Currently approved by the Joint Review Committee on Education in Radiologic Technology.

**RESPIRATORY CARE:** Started in 1971. Initially approved by the Council on Medical Education of the American Medical Association September 1972. Full approval June 1973. Currently approved by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) in collaboration with the Committee on Accreditation for Respiratory Care (CoARC) (formerly known as Joint Review Committee for Respiratory Therapy Education [JRCRTE]).

Programs offered through the School of Allied Health Professions in conjunction with the Faculty of Graduate Studies are accredited through University accreditation.

#### School of Behavioral Health

School of Behavioral Health programs are accredited through University accreditation and/or through their professional accrediting bodies. Programs offered through the School of Behavioral Health in conjunction with the Faculty of Graduate Studies are accredited through University accreditation.

#### Department of Counseling and Family Sciences

**MARITAL AND FAMILY THERAPY (M.S.):** Accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE).

**MARITAL AND FAMILY THERAPY (D.M.F.T.):** Accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE).

**MARITAL AND FAMILY THERAPY (Ph.D.):** Accredited by the Commission on Accreditation for Marriage and Family Therapy Education (COAMFTE).

**PUPIL PERSONNEL SERVICES CREDENTIAL:** Assigned the status of "accreditation" through Loma Linda University on June 18, 2008, by the

Committee on Accreditation on behalf of the Commission on Teacher Credentialing (State of California).

### **Department of Psychology**

CLINICAL PSYCHOLOGY (Ph.D.): Accredited by the Commission on Accreditation of the American Psychological Association.

CLINICAL PSYCHOLOGY (Psy.D): Accredited by the Commission on Accreditation of the American Psychological Association.

### **Department of Social Work and Social Ecology**

MASTER OF SOCIAL WORK: Accredited by the Council of Social Work Education to provide master's degree-level education, with the next reaffirmation to be completed in 2017.

### **School of Dentistry**

ADVANCED GENERAL DENTISTRY EDUCATION PROGRAM IN DENTAL ANESTHESIOLOGY: Started in 1985. Approved by the Commission on Dental Accreditation of the American Dental Association since February 2012.

DENTAL HYGIENE: Bachelor of Science degree started in 1959. Approved by the Commission on Dental Accreditation of the American Dental Association since September 7, 1961. Associate in Science degree started in 2011. Approved by the Commission on Dental Accreditation of the American Dental Association since May 2011. B.S. Degree Completion Program started January 7, 2008; WASC approved in 2009.

DOCTOR OF DENTAL SURGERY: Started in 1953. Approved by the Commission on Dental Accreditation of the American Dental Association since May 23, 1957.

ENDODONTICS: Started in 1967. Approved by the Commission on Dental Accreditation of the American Dental Association since December 1969.

ORAL AND MAXILLOFACIAL SURGERY: Started in 1964. Approved by the Commission on Dental Accreditation of the American Dental Association since 1967.

ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS: Started in 1960. Approved by the Commission on Dental Accreditation of the American Dental Association since May 1965.

PEDIATRIC DENTISTRY: Started in 1993. Approved by the Commission on Dental Accreditation of the American Dental Association since December 1993.

PERIODONTICS: Started in 1961. Approved by the Commission on Dental Accreditation of the American Dental Association since December 1967.

PROSTHODONTICS: Started in 1993. Approved by the Commission on Dental Accreditation of the American Dental Association since February 1995.

Programs offered through the School of Dentistry in conjunction with the Faculty of Graduate Studies are accredited through University accreditation.

### **School of Medicine**

Started in 1909. Approved by the Association of American Medical Colleges and the Council on Medical Education of the American Medical Association since November 16, 1922. Accreditation for the medical education program leading to the M.D. degree is by The Liaison Committee on Medical Education.

Programs offered through the School of Medicine in conjunction with the Faculty of Graduate Studies are accredited through University accreditation.

The coordinated program in dietetics is currently granted continuing accreditation by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics, 120 South Riverside

Plaza, Suite 2000, Chicago, IL 60606-6995; telephone, 312/899-5400; Web site: <<http://www.eatright.org/cade>>; fax: 312/899-4817.

### **School of Pharmacy**

Started in 2002. Approved by the Accreditation Council for Pharmaceutical Education since June 23, 2007.

Accredited by the Accreditation Council for Pharmacy Education (ACPE) to offer the Doctor of Pharmacy degree program. ACPE is the sole accreditation agency recognized by the U.S. Department of Education to accredit professional degree programs in pharmacy and is located at 135 South LaSalle Street, Suite 4100, Chicago, IL 60603-4810; telephone: 312/664-3575; FAX: 312/664-4652; Web site: <https://www.acpe-accredit.org>.

### **School of Public Health**

Started in 1948; reorganized in 1964. Approved by the American Public Health Association June 23, 1967. Currently accredited by the Council on Education for Public Health.

### **School of Religion**

Started in 1961 as the Division of Religion; organized as School of Religion (1987-1990), Faculty of Religion (1990-2006), School of Religion 2007. Programs accredited through University accreditation.

## Accrediting and Approving Agencies

### The University

Loma Linda University is accredited by WASC: Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges.

985 Atlantic Avenue, Suite 100

Alameda, CA 94501

Phone: 510/748-9001

Fax: 510/748-9797

Web site: <<https://www.wascsenior.org>>

E-mail: <[wascsr@wascsenior.org](mailto:wascsr@wascsenior.org)>

WASC is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Commission on Recognition of Post-secondary Accreditation.

All entry-level degrees are accredited by their respective professional accrediting associations.

In addition to WASC, the following agencies accredit specific University schools or programs:

### School of Allied Health Professions

#### Cardiopulmonary Sciences

##### Cardiac Electrophysiology Technology

Commission on Accreditation of Allied Health Education Programs (CAAHEP)

1361 Park Street

Clearwater, FL 33756

Telephone: 727/210-2350

Fax: 727/210-2354

Web site: <<http://www.caahep.org/>>

E-mail: <[mail@caahep.org](mailto:mail@caahep.org)> ([mail@caahep.org](mailto:mail@caahep.org))

##### Respiratory Care

Commission on Accreditation for Respiratory Care (CoARC)

1248 Harwood Road

Bedford, TX 76021-4244

Telephone: 800/874-5615 or 817/283-2835

Fax: 817/354-8519 or 817/252-0773

Web site: <<http://www.coarc.com>>

E-mail: <[richwalker@coarc.com](mailto:richwalker@coarc.com)>

#### Clinical Laboratory Sciences

##### Phlebotomy Certificate

California Department of Public Health (CDPH)

Laboratory Field Services (LFS)

Northern California Office

850 Marina Bay Parkway

Building P, 1st Floor

Richmond, CA 94804-6403

Telephone: 510/620-3800

Web site: <<http://www.cdph.ca.gov>>

##### Clinical Laboratory Science (formerly medical technology)

National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)

5600 North River Road, Suite 720

Rosemont, IL 60018

Telephone: 773/714-8880

Fax: 773/714-8886

Web site: <<http://www.naacls.org>>

E-mail: <[naaclsinfo@naacls.org](mailto:naaclsinfo@naacls.org)>

California Department of Public Health (CDPH)

Laboratory Field Services (LFS)

850 Marina Bay Parkway

Building P, 1st Floor

Richmond, CA 94804-6403

Telephone: 510/620-3800

#### Cytotechnology

American Society of Cytopathology (ASC)

100 West 10th Street

Suite 605

Wilmington, DE 19801

Telephone: 302/543-0683

Fax: 302/543-6597

E-mail: <[asc@cytopathology.org](mailto:asc@cytopathology.org)>

Commission on Accreditation of Allied Health Education Programs (CAAHEP)

1361 Park Street

Clearwater, FL 33756

Telephone: 727/210-2350

Fax: 727/210-2354

Web site: <<http://www.caahep.org/>>

E-mail: <[caahep@caahep.org](mailto:caahep@caahep.org)>

#### Communication Sciences and Disorders

Council on Academic Accreditation in Audiology and Speech-Language Pathology (CAA)

of the American Speech-Language-Hearing Association (ASHA)

2200 Research Boulevard

Rockville, MD 20850-3289

Telephone: 301/296-5700

Fax: 301/571-0457

Web site: <<http://www.asha.org>>

E-mail: <[accreditation@asha.org](mailto:accreditation@asha.org)>

#### Health Information Management

##### Health Information Administration

Commission on Accreditation for Health Informatics and Information Management Education (CAHIIM)

233 North Michigan Ave

Chicago, IL 60601-5800

Telephone: 312/233-1100

Fax: 312/233-1948

Web site: <http://www.cahiim.org>

E-mail: <[info@cahiim.org](mailto:info@cahiim.org)>

Commission on Accreditation of Allied Health Education Programs (CAAHEP)

35 East Wacker Drive, Suite 1970

Chicago, IL 60601-2208

Telephone: 312/553-9355

Fax: 312/553-9616

Web site: <<http://www.caahep.org/>>

E-mail: <[caahep@caahep.org](mailto:caahep@caahep.org)>

## Nutrition and Dietetics

### Nutrition and Dietetics Program—B.S.

### Nutrition and Dietetics Program—M.S.

### Nutrition Care Management Online Program—M.S.

Accreditation Council Education in Nutrition and Dietetics (ACEND)  
of the American Dietetic Association  
120 South Riverside Plaza, Suite 2000  
Chicago, IL 60606-6995  
Telephone: 312/899-0040, ext. 5400; or 800/877-1600, ext. 5400  
Fax: 312/899-4817  
Web site: <<http://www.eatright.org/cade>>  
E-mail: <[education@eatright.org](mailto:education@eatright.org)>

## Occupational Therapy

The Accreditation Council for Occupational Therapy Education (ACOTE)  
P.O. Box 31220  
Bethesda, MD 20824-1220  
Telephone: 301/652-2682 or toll free 800/377-8555  
Fax: 301/652-7711  
Web site: <<http://www.aota.org>>  
E-mail: <[accred@aota.org](mailto:accred@aota.org)>

## Orthotics and Prosthetics

National Commission on Orthotic and Prosthetic Education (NCOPE), in  
collaboration with the  
Commission on Accreditation of Allied Health Education Programs  
(CAAHEP)  
330 John Carlyle Street., Suite 200  
Alexandria, VA 22314  
Telephone: 703/836-7114  
Fax: 703/836-0838  
Web site: <<http://www.ncope.org/>>  
E-mail: <[info@ncope.org](mailto:info@ncope.org)>

## Physical Therapy

Commission on Accreditation in Physical Therapy Education (CAPTE)  
1111 North Fairfax Street  
Alexandria, VA 22314  
Telephone: 703/706-3245  
Fax: 703/838-8910  
Web site: <<http://www.apta.org>>  
E-mail: see Web site

## Physician Assistant Sciences

Accreditation Review Commission on Education for the Physician  
Assistant (ARC-PA)  
Medical Education Department 1R6  
1000 North Oak Avenue  
Marshfield, WI 54449-5778  
Telephone: 715/389-3785  
Fax: 715/387-5163  
Web site: <<http://www.arc-pa.org>>  
E-mail: <[mccartyj@mfldclin.edu](mailto:mccartyj@mfldclin.edu)>

## Radiation Technology

### Medical Radiography—A.S.

The American Registry of Radiologic Technologists (ARRT)  
1255 Northland Drive  
St. Paul, MN 55120-1155

## Radiation Therapy Technology—Certificate

Joint Review Committee on Education in Radiologic Technology  
(JRCERT)  
20 North Wacker Drive, Suite 900  
Chicago, IL 60606-2901  
Telephone: 312/704-5300  
Fax: 312/704-5304  
Web site: <<http://www.jrcert.org>>

## Diagnostic Medical Sonography—Certificate

Commission on Accreditation of Allied Health Education Programs  
(CAAHEP)  
35 East Wacker Drive, Suite 1970  
Chicago, IL 60601-2208  
Telephone: 312/553-9355  
FAX: 312/553-9616  
Web site: <<http://www.caahep.org>>  
E-mail: <[caahep@caahep.org](mailto:caahep@caahep.org)>

Joint Review Committee on Education in Diagnostic Medical Sonography  
(JRCE-DMS)  
1248 Harwood Road  
Bedford, TX 76021-4244  
Telephone: 817/685-6629  
Fax: 817/354-8519  
Web site: <<http://www.jrcdms.org>>  
E-mail: <[sharonworthing@coarc.com](mailto:sharonworthing@coarc.com)>

## Nuclear Medicine Technology—Certificate

California Department of Public Health Radiologic Health Branch (RHB)  
P.O. Box 997414, MS 7610  
Sacramento, CA 95899-7414  
Telephone: 916/327-5106  
Fax: 916/440-7999  
Web site: <[http://www.cdph.ca.gov/programs/Pages/  
RadiologicHealthBranch.aspx](http://www.cdph.ca.gov/programs/Pages/RadiologicHealthBranch.aspx)>  
E-mail: <[RKubiak@dhs.ca.gov](mailto:RKubiak@dhs.ca.gov)>

## School of Behavioral Health

### Marital and Family Therapy

Commission on Accreditation for Marriage and Family Therapy Education  
(COAMFTE)  
of the American Association for Marriage and Family Therapy (AAMFT)  
1133 15th Street NW, Suite 300  
Washington, DC 20005-2710  
Telephone: 202/467-5111 or 452-0109  
Fax: 202/223-2329  
Web site: <<http://www.aamft.org>>  
E-mail: <[coamfte@aamft.org](mailto:coamfte@aamft.org)>

## Pupil Personnel Services Credential

California Commission on Teacher Credentialing (CTC)  
California State Department of Education

## Psychology

Commission on Accreditation (CoA)  
of the American Psychological Association (APA)  
750 First Street NE  
Washington, DC 20002-4242  
Telephone: 202/336-5500  
Fax: 202/336-5978



Web site: <<http://www.apa.org>>

E-mail: <[education@apa.org](mailto:education@apa.org)>

## Social Work

Commission on Accreditation (COA)  
of the Council on Social Work Education (CSWE)  
Division of Standards and Accreditation  
1600 Duke Street, Suite 500  
Alexandria, VA 22314-3457  
Telephone: 703/683-8080  
Fax: 703/683-8099  
Web site: <<http://www.cswe.org>>  
E-mail: <[info@cswe.org](mailto:info@cswe.org)>

## School of Dentistry

Commission on Dental Accreditation (CODA)  
of the American Dental Association (ADA)  
211 East Chicago Avenue  
Chicago, IL 60611  
Telephone: 800/621-8099  
Fax: 312/440-2915  
Web site: <<http://www.ada.org>>  
E-mail: <[accreditation@ada.org](mailto:accreditation@ada.org)>

## School of Medicine

Liaison Committee on Medical Education (LCME)  
sponsored by the Association of American Medical Colleges (AAMC) and the  
Council on Medical Education of the American Medical Association  
(AMA)  
2450 N Street NW  
Washington, DC 30037  
Telephone: 202/828-0596  
Fax: 202/828-1125  
Web sites: <<http://www.lcme.org>>; <<http://www.aamc.org>>  
E-mail: <[lcme@aamc.org](mailto:lcme@aamc.org)>

## School of Nursing

Commission on Collegiate Nursing Education (CCNE)  
of the American Association of Colleges of Nursing (AACN)  
One Dupont Circle NW, Suite 530  
Washington, DC 20036-1120  
Telephone: 202/887-6791  
Fax: 202/887-8476  
Web site: <<http://www.aacn.nche.edu/accreditation>>

Council on Accreditation of Nurse Anesthesia Educational Programs  
(COA)  
222 South Prospect Avenue, Suite 304  
Park Ridge, IL 60068-4001  
Telephone: 847/692-7050  
Fax: 847/692-6968  
Web site: <<http://www.aana.com>>  
E-mail: <[info@aana.com](mailto:info@aana.com)>

California Board of Registered Nursing (BRN)  
1747 North Market Boulevard, Suite 150  
Sacramento, CA 95834  
Telephone: 916/322-3350  
Web site: <<http://rn.ca.gov>>

E-mail: <[NEC.BRN@dca.ca.gov](mailto:NEC.BRN@dca.ca.gov) ([nec.brn@dca.ca.gov](mailto:nec.brn@dca.ca.gov))>

## School of Pharmacy

Accreditation Council for Pharmacy Education (ACPE)  
20 North Clark Street, Suite 2500  
Chicago, IL 60602-5109  
Telephone: 312/664-3575  
Fax: 312/664-4652  
E-mail: <[info@acpe-accredit.org](mailto:info@acpe-accredit.org)>

## School of Public Health

Council on Education for Public Health (CEPH)  
800 Eye Street NW, Suite 202  
Washington, DC 20001-3710  
Telephone: 202/789-1050  
Fax: 202/789-1895  
Web site: <<http://www.ceph.org>>  
E-mail: <[jonklin@ceph.org](mailto:jonklin@ceph.org)>

## Nutrition

Accreditation Council for Education in Nutrition and Dietetics (ACEND)  
of the American Dietetic Association  
120 South Riverside Plaza, Suite 2000  
Chicago, IL 60606-6995  
Telephone: 312/899-0040, ext. 5400 or 800/877-1600, ext. 5400  
Fax: 312/899-4817  
Web site: <<http://www.eatright.org/cade>>  
E-mail: <[education@eatright.org](mailto:education@eatright.org)>

## Alumni Associations

### School of Dentistry

Graduates of the School of Dentistry organized the Alumni Association in 1957. Membership is extended to those who have earned degrees at this school. Student membership is extended to students of the school.

The primary purposes of the association are to promote the interests of the school, to secure unity among alumni, to foster alumni attachment to alma mater, to enlist members as continuing participants in the association and as active participants in Christian activities and interests, to aid members in attaining to the highest ethical and scientific standards in the practice of their profession, and to aid in general charitable and educational purposes. Major interests of the association include:

1. Hosting the Alumni-Student Convention, including continuing education programs, class reunions, and spiritual events.
2. Advancing the Century Club. Members include alumni and others of the dental profession who contribute a qualifying amount annually to promote and support interests of the alumni and the school.
3. Preparing and distributing alumni and school news to faculty, staff, students, donors, and alumni via the biannual *LLUSD Articulator* and continuous electronic media—such as, digital signage, social media, the Internet, and e-mail communications.
4. Maintaining the Online Employment Opportunities site where dentists and brokers can list practices for sale, associateships, and per diem positions. Students are regularly reminded to browse employment opportunities.

The School of Dentistry Alumni Association has made an ongoing commitment to students at the school by supporting a student loan fund and a scholarship endowment fund, both of which are administered by the University.

### School of Medicine

Graduates of the School of Medicine organized their Alumni Association in 1915 when only two classes totaling eighteen members had been graduated, and the organization has functioned continuously since that time. Membership is extended to alumni who have graduated with the Doctor of Medicine degree from this University and to graduates of the American Medical Missionary College, operated by Seventh-day Adventists in Battle Creek, Michigan, from 1895 to 1910. Associate membership is extended to students of the School of Medicine, and affiliate membership is extended to faculty who have earned degrees from other institutions. During the 1986-1987 school year, membership was extended to the basic science faculty.

#### Statement of mission and purpose

The Alumni Association of the School of Medicine of Loma Linda University is a nonprofit organization composed both of alumni and affiliate members. The association is organized to support the school, to promote excellence in worldwide health care, and to serve its members in the following ways:

1. EDUCATION—To encourage continuing education among its members by organizing and offering graduate education and related programs at the Annual Postgraduate Convention and at other health-care seminars.
2. COMMUNICATION—To publish newsworthy, factual information about alumni and developments at the School of Medicine in

the alumni journal, in the annual directory, and in journals of organizations under the umbrella of the association.

3. HEALTH CARE—To foster improved health care and preventive medicine throughout the world by conducting postgraduate seminars, demonstrations, and people-to-people, health-care interactions with Christian concern and compassion.
4. PHILANTHROPY—To encourage the contribution of funds for the support of undergraduate and graduate education at the school—including funds for student loans, research, and professorial chair endowments; and funds to provide for improvement in the school's physical plant. To encourage donations of money, equipment, and supplies for educational centers and health-care facilities in areas of need worldwide.
5. MEDICAL RESEARCH—To support medical research among the faculty and students of the school, thereby enhancing the association's ability to respond to the needs of its alumni and to advance medical knowledge.
6. FRATERNITY—To promote and provide gatherings, in an atmosphere of Christian and professional friendship, that foster unity and advance the foregoing objectives.

### School of Nursing

The Loma Linda University School of Nursing Alumni Association (LLUSNAA) has an office in West Hall. A board of officers and directors carries out the goals and ongoing activities of the association. At the time of graduation, new graduates are welcomed into the association. Associate membership may be extended to graduates of other accredited schools who are members of the profession in good standing and who share the interests, ideals, and purposes of the alumni association.

#### Purpose

The purpose of the LLUSNAA is to foster alumni unity, mobilize their support, and assist in an organized fashion to encourage continued interest in and commitment to the programs of the School of Nursing. The association promotes the missions of the Seventh-day Adventist Church, the School of Nursing, and the University. The goals of the association are to:

1. Promote communication among alumni of the School of Nursing.
2. Foster the advancement of education and science within the programs of the School of Nursing.
3. Support alumni nurses in mission programs at home and abroad.

# To Communicate with LLU

## Mail

Loma Linda University  
11060 Anderson Street  
Loma Linda, CA 92350

## Worldwide Web

<llu.edu>

## Phone

Switchboard: 909/558-1000, 909/558-4300

Area code: 909/

For more information about LLU: 1/800/422-4LLU

Dialing from Canada: 1/800/548-7114

Phone: Off-campus	Phone: On-campus	Office	Fax: Off-campus	Fax: On-campus
558-4540	44540	President	558-0242	80242
558-4787	44787	Diversity	558-0140	80140
558-4510	44510	Student Affairs; student welfare, housing, visas	558-7949	87949
558-4955	44955	International Student Services	558-4879	44879
558-4520	44520	Student Finance	558-7904	87904
558-4509	44509	Student Financial Aid	558-4283	44283
558-4508	44508	University Records	558-0340	80340
558-8770	88770	Student Health Service	558-0433	80433
558-6028	66028	Student Counseling	558-6090	66090
558-8348	88348	Campus Chaplain/Campus Ministries	558-0347	80347
558-4570	44570	University Church	558-4186	44186
809-1049	44270	Campus Hill Church	796-1992	
558-9200	39200	LLU Behavioral Medicine Center	558-9243	39243
558-6050	66050	Student Assistance Program Spiritual Counseling	558-6051	66051

## The schools

### Faculty of Graduate Studies

Phone: Off-campus	Phone: On-campus	Office	Fax: Off-campus	Fax: On-campus
558-9485	83374	Dean	No fax	
558-9484	49484	Associate Dean	No fax	

### Allied Health Professions

Phone: Off-campus	Phone: On-campus	Office	Fax: Off-campus	Fax: On-campus
558-4599	44599	Admissions	558-4291	44291 attn. Admissions
558-4545	44545	Dean	558-7990	87990
558-4932	44932	Cardiopulmonary Sciences	558-4701	44701 attn. CPSC
558-4966	44966	Clinical Laboratory Science	558-0458	80458 attn. CLSC
558-4998	44998	Communication Sciences and Disorders	558-4305	44305
558-4976	44976	Health Information Management	558-0404	80404 attn. HLIN
558-4593	44593	Nutrition and Dietetics	558-0837	80837
558-4628	44628	Occupational Therapy	558-0239	80239 attn. OCTH
558-4632	44632	Physical Therapy	558-0459	80459 attn. PPTH
558-4634	44634	Physical Therapist Assistant	558-0459	80459 attn. PTA
558-7295	87295	Physician Assistant Sciences	558-0495	80495 attn. PAST
558-4931	44931	Radiation Technology	558-7965	87965

## Behavioral Health

Phone: Off-campus	Phone: On-campus	Office	Fax: Off-campus	Fax: On-campus
558-8722	88722	Admissions	558-0908	80908
558-1900	81900	Records	558-0908	80908
558-4528	44528	Dean	558-0441	80441

## Dentistry

Phone: Off-campus	Phone: On-campus	Office	Fax: Off-campus	Fax: On-campus
558-4222	44222	Dentistry	558-0730	80730
558-4621	44621	Admissions	558-0195	80195
558-4683	44683	Dean	558-0483	80483
558-8624	88624	Advanced Dental Education Programs	558-0632	80632
558-4621	44621	Dentistry Program	558-0195	80195
558-4621	44621	Dental Hygiene Program	558-0195	80195
558-4621	44621	International Dentist Program	558-0195	80195
558-4790	44790	SD Student Affairs	558-0150	80150
558-4601	44601	SD Academic Affairs	558-0730	80730

## Medicine

Phone: Off-campus	Phone: On-campus	Office	Fax: Off-campus	Fax: On-campus
558-4462	44462	Medicine	558-4116	44146
558-4467	44467	Admissions	558-0359	80359
558-4481	44481	Dean	558-4146	44146

## Nursing

Phone: Off-campus	Phone: On-campus	Office	Fax: Off-campus	Fax: On-campus
558-1000	44630	Nursing-Workroom	558-4134	44134
558-4923	44923	Admissions	558-0175	80175
558-4517	44517	Dean	558-0225	80225
558-8061	88061	Graduate	558-0719	80719
558-1000	88060	Undergraduate	558-0643	80643
558-1000	41017	Finance	558-0643	80643
558-7122	87122	International Nursing	558-0224	80224

## Pharmacy

Phone: Off-campus	Phone: On-campus	Office	Fax: Off-campus	Fax: On-campus
558-1300	41300	Pharmacy	558-4859	44589
558-1300	41300	Admissions	558-4859	44859
558-4745	44745	Dean	558-7973	87973

## Public Health

Phone: Off-campus	Phone: On-campus	Office	Fax: Off-campus	Fax: On-campus
558-4546	44546	Public Health	558-4087	44087
558-4598	44598	Academic Programs Office	558-0471	80471
558-8621	88621	Academic Affairs	558-0867	80867
558-1000 ext 82881	82881	Academic Records	558-4087	44087 attn. Records
558-8776	88776	Admissions	558-4087	44087 attn. Admissions
558-4578	44578	Dean	558-4087	44087 attn. Dean
558-7271	87271	Executive Associate Dean	558-0867	80867
558-8322	88322	Career Center		
558-4590	44590	Center for Community Resilience	558-0326	80326
558-4573	44573	Center for Leadership in Health Systems	558-0469	80469

558-8750	88750	Center for Nutrition, Healthy Lifestyle, and Disease Prevention	558-0493	40493
558-7450	87450	Communications	558-4087	44087 attn. Communications
558-4866	44866	Computer Center	558-0631	80631
558-4664	44664	Finance Office	558-0845	80845
558-4988	44988	Practicum Office	651-5421	15421
558-4918	44918	Preventive Medicine Residency, Occupational Medicine, and Addiction Medicine	558-0451	80451
558-8382	88382	Public Health Practice	558-0182	80182
558-8322	88322	Writing Center		

## Religion

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651-5849	15849	Admissions and Records	558-4856	44586
558-4536	47011	Bioethics M.A. Program	558-4856	80336
558-4956	15952	Center for Christian Bioethics	558-0336	80336
558-7786	87786	Center for Spiritual Life and Wholeness	558-7988	87988
558-3413	83413	Clinical Ministry M.A. Program	558-4856	44856
558-4536	46268	Chaplaincy M.S. Chap. Program	558-4856	44856
558-7786	87786	Religion and Health D.Sc. Program	558-4856	44856
558-8103	88103	Religion and Society M.A. Program	558-4856	44856

	Web site	Email
<b>Student Services</b>	< <a href="http://llu.edu/central/ssweb">http://llu.edu/central/ssweb</a> >	
<b>University Records</b>		registrar@llu.edu
<b>Faculty of Graduate Studies</b>	< <a href="http://llu.edu/science-technology/grad/about.page">http://llu.edu/science-technology/grad/about.page</a> >	azuccarelli@llu.edu
<b>Admissions</b>	< <a href="http://llu.edu/science-technology/grad/about.page">http://llu.edu/science-technology/grad/about.page</a> >	admissions.gs@llu.edu

## The schools

	Web site	Email
<b>Allied Health Professions</b>	< <a href="http://llu.edu/allied-health">http://llu.edu/allied-health</a> >	
Admissions		sahp admissions@llu.edu attn. Admissions
Cardiopulmonary Sciences		sahp admissions@llu.edu attn. CPSC
Clinical Laboratory Sciences		clin.sahp@llu.edu attn. CLSC
Communication Sciences and Disorders		sahp admissions@llu.edu attn. SPPA
Health Information Management		sahp admissions@llu.edu attn. HLIN
Nutrition and Dietetics		nutrition@llu.edu attn. DTCS
Occupational Therapy		sahp admissions@llu.edu attn. OOTH
Physical Therapy		sahp admissions@llu.edu u attn. PPTH
Physical Therapy Assistant		sahp admissions@llu.edu attn. PTA
Physician Assistant Sciences		sahp admissions@llu.edu attn. PAST
Radiation Technology		sahp admissions@llu.edu attn. RTCH
<b>Behavioral Health</b>	< <a href="http://llu.edu/behavioral-health">http://llu.edu/behavioral-health</a> >	admissions.sbh@llu.edu records.sbh@llu.edu
<b>Dentistry</b>		
Academic Affairs		sdacademicaaffairs@llu.edu
Admissions	< <a href="http://llu.edu/dentistry">http://llu.edu/dentistry</a> >	admissions.sd@llu.edu
Graduate Programs	< <a href="http://llu.edu/dentistry/gradprograms">http://llu.edu/dentistry/gradprograms</a> >	advanceddentaedu@llu.edu
Anesthesiology	< <a href="http://llu.edu/dentistry/anesthesia/graduateprogram.page">http://llu.edu/dentistry/anesthesia/graduateprogram.page</a> >	advanceddentaedu@llu.edu

Endodontics	< <a href="http://llu.edu/dentistry/endo/graduateprogram.page">http://llu.edu/dentistry/endo/graduateprogram.page</a> >	advanceddentaedu@llu.edu
Implant Dentistry	< <a href="http://llu.edu/dentistry/implant/graduateprogram.page">http://llu.edu/dentistry/implant/graduateprogram.page</a> >	advanceddentaedu@llu.edu
Oral and Maxillofacial Dentistry	< <a href="http://www.llu.edu/dentistry/oms/graduateprogram.page">http://www.llu.edu/dentistry/oms/graduateprogram.page</a> >	advanceddentaedu@llu.edu
Orthodontics	< <a href="http://www.llu.edu/dentistry/ortho/graduateprogram.page">http://www.llu.edu/dentistry/ortho/graduateprogram.page</a> >	advanceddentaedu@llu.edu
Pediatric Dentistry	< <a href="http://www.llu.edu/dentistry/pediatrics/graduateprogram.page">http://www.llu.edu/dentistry/pediatrics/graduateprogram.page</a> >	advanceddentaedu@llu.edu
Periodontics	< <a href="http://www.llu.edu/dentistry/perio/graduateprogram.page">http://www.llu.edu/dentistry/perio/graduateprogram.page</a> >	advanceddentaedu@llu.edu
Prosthodontics	< <a href="http://www.llu.edu/dentistry/prostho/graduateprogram.page">http://www.llu.edu/dentistry/prostho/graduateprogram.page</a> >	advanceddentaedu@llu.edu
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<b>Nursing</b>	< <a href="http://www.llu.edu/nursing">http://www.llu.edu/nursing</a> >	nursing@llu.edu
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Admissions		admissions.sp@llu.edu
<b>Public Health</b>	< <a href="http://www.llu.edu/public-health">http://www.llu.edu/public-health</a> >	
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Executive Associate Dean		spheadoffice@llu.edu
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Writing Center		sphwritingcenter@llu.edu
<b>Religion</b>	< <a href="http://www.llu.edu/religion/index.page">http://www.llu.edu/religion/index.page</a> >	
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Program Director for M.A. in Clinical Ministry	< <a href="http://www.llu.edu/religion/clinical-ministry.page">http://www.llu.edu/religion/clinical-ministry.page</a> >	cthomsen@llu.edu
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Program Director for M.A. in Religion and Society		dlarson@llu.edu
Center for Christian Bioethics	< <a href="http://www.llu.edu/central/bioethics/index.page">http://www.llu.edu/central/bioethics/index.page</a> >	bioethics@llu.edu
Center for Spiritual Life and Wholeness	< <a href="http://www.llu.edu/wholeness">http://www.llu.edu/wholeness</a> >	

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