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.

All applicants must meet the admission requirements (http://llucatalog.llu.edu/about-university/admission-policies-information/#admissionrequirementstext) 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.

Program requirements

**Major**

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<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<td>Introduction to Graduate Orthodontics</td>
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<td>Introduction to Graduate Orthodontics Laboratory</td>
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<td>ORDN 525</td>
<td>Materials Science and Mechanics</td>
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<td>ORDN 526</td>
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<td>ORDN 536</td>
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<tr>
<td>ORDN 584</td>
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<td>ORDN 604</td>
<td>Seminar in Orthodontics</td>
<td>1</td>
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Program link: <https://llu.edu/dentistry/gradprograms>.

**Faculty**

Joseph M. Caruso
James R. Farrage
Gabriela E. Garcia
Roland D. Neufeld
Gregory W. Olson
Kitichai Runcharassaeng
R. David Rynearson
Rodrigo F. Viecilli

**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.

**Tuition**

Tuition and fees for the 2018-19 academic year (effective July 1, 2018) is approximately $17,498.00 per quarter and is subject to change. Tuition is adjusted annually every July 1st. These fees do not include instruments and textbooks that may be required.

Chair
V. Leroy Leggitt

Program director
Joseph M. Caruso
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 2
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
ORDN 725 Clinical Practice in Orthodontics 56

Total Units 56

1 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

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.

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.

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.

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.