ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS — CERTIFICATE (POST-D.D.S.), M.S.

Orthodontics and dentofacial orthopedics program goals

1. Students will receive coursework in biomedical sciences intended to provide the knowledge required to practice orthodontics and dentofacial orthopedics, as defined by the program’s proficiency standards.
2. Students will receive 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 of the above goals are designed to prepare students 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.

Program learning outcomes

By the end of the program, the graduate should be able to:

1. Develop technical competence in orthodontics.
2. Correlate basic natural sciences with the practice of orthodontics.
3. Demonstrate analytical thinking.
4. Perform clinical research.
5. Demonstrate responsibility toward the patient and the community.
6. Contribute to the growth and stature of the profession.
7. Collaborate with individuals in other allied professional disciplines.

The master's degree curriculum requires a minimum of 27 months in residence, beginning in late June. Additional time may be required, depending on the research selected.

Program link: [dentistry.llu.edu/admissions/advanced-dental-education-programs](https://dentistry.llu.edu/admissions/advanced-dental-education-programs/)

Chair
V. Leroy Leggitt

Program director
Toufic Jeiroudi

Faculty
Joseph M. Caruso
James R. Farrage
Gabriela E. Garcia
Roland D. Neufeld
Kitichai Rungcharassaeng
R. David Rynearson

Admission

Candidates apply for admission to the Master of Science (M.S.) degree program and also have the option of applying later for a certificate.

All applicants must meet the admission requirements ([llucatalog.llu.edu/about-university/admission-policies-information/#admissionrequirements](https://llucatalog.llu.edu/about-university/admission-policies-information/#admissionrequirements)) 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.

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, fees, and other cost-of-attendance items are located on the Find a Program ([llu.edu/academics/programs/](https://llu.edu/academics/programs/)) webpage.

Program requirements

<table>
<thead>
<tr>
<th>Major</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>ORDN 524</td>
<td>Introduction to Graduate Orthodontics</td>
<td>12</td>
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<tr>
<td>ORDN 524L</td>
<td>Introduction to Graduate Orthodontics Laboratory</td>
<td>6</td>
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<tr>
<td>ORDN 525</td>
<td>Materials Science and Mechanics</td>
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<td>ORDN 526</td>
<td>Applied Anatomy</td>
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<td>ORDN 527</td>
<td>Clinical Photography</td>
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<td>ORDN 535</td>
<td>Advanced Cephalometrics</td>
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<td>ORDN 536</td>
<td>Concepts of Physical Anthropology</td>
<td>2</td>
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<tr>
<td>ORDN 545</td>
<td>Growth and Development</td>
<td>3</td>
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<tr>
<td>ORDN 546</td>
<td>Fundamentals of Occlusion</td>
<td>2</td>
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<tr>
<td>ORDN 571</td>
<td>Diagnosis and Treatment Planning I</td>
<td>2</td>
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<tr>
<td>ORDN 574</td>
<td>Diagnosis and Treatment Planning II</td>
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<tr>
<td>ORDN 584</td>
<td>Current Orthodontics Literature I</td>
<td>2</td>
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<tr>
<td>ORDN 591</td>
<td>Current Orthodontics Literature II</td>
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<tr>
<td>ORDN 597</td>
<td>Orthognathic Surgery Theory and Literature Review</td>
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<td>ORDN 604</td>
<td>Seminar in Orthodontics</td>
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<td>ORDN 605</td>
<td>Advanced Seminar in Orthodontics (1)</td>
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<td>ORDN 606</td>
<td>Craniofacial Genetics</td>
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<td>ORDN 608</td>
<td>Speech, Language, Breathing, and Orofacial Myofunction</td>
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<tr>
<td>ORDN 634</td>
<td>Orthodontics Clinical Conference</td>
<td>2</td>
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<tr>
<td>ORDN 635</td>
<td>Finishing Mechanics I</td>
<td>2</td>
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</tr>
<tr>
<td>ORDN 636</td>
<td>Finishing Mechanics II</td>
<td>1</td>
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<tr>
<td>ORDN 654</td>
<td>Practice Teaching in Orthodontics</td>
<td>4</td>
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Orthodontics and Dentofacial Orthopedics — Certificate (post-D.D.S.), M.S.

**Interdisciplinary**

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<td>GRDN 514</td>
<td>Introduction to Biomedical Research</td>
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<tr>
<td>GRDN 601</td>
<td>Practice Management</td>
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<td>GRDN 609</td>
<td>Professional Ethics</td>
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<td>GRDN 623</td>
<td>Biomedical Science II</td>
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<td>OMFS 608</td>
<td>Surgical Oral and Maxillofacial Pathology</td>
<td>2</td>
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<tr>
<td>OMFS 616</td>
<td>Application of Surgical Principles to Orthognathic Surgery</td>
<td>1</td>
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<tr>
<td>REL 5</td>
<td>Graduate-level Religion</td>
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<tr>
<td><strong>Total Units</strong></td>
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<td><strong>89</strong></td>
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1. Units for clinic practice courses are in addition to the minimum didactic units required for the degree.
2. Fulfills service learning requirement.

**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 orthognathic surgery, 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 predental 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 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.