Course Descriptions

Predoctoral Courses

OR 144. Human Growth and Development. 1 Unit.
Study of the basic mechanisms of human growth and development with emphasis on craniofacial development. Study of the development of the dentition and occlusion and introduction to malocclusion and its classification. (10 hours lecture. Quarter 3.).

OR 244. Orthodontics. 2 Units.
An introduction to orthodontic diagnostic procedures, comprehensive treatment planning, and various treatment modalities as applied to a full range of malocclusions in a general dental practice. A strong emphasis is placed on the use of the Invisalign appliance and its application in general practice. Other orthodontic appliances covered will be the functional appliance as it relates to early orthodontic treatment and the edgewise appliance in full comprehensive cases. Orthognathic surgical cases and use of microimplants for anchorage will also be reviewed. (20 hours lecture. Quarters 4-5.).

OR 249. Preclinical Orthodontics. 1 Unit.
This preclinical course introduces students to various removable and fixed appliances with primary focus on their application for minor orthodontic movement. Laboratory instruction addresses such areas as fabrication of removable and fixed appliances, cementation of bands, bonding of brackets and placement of arch wires. Lateral head films are traced, measured, analyzed, and discussed with regard to norms and growth patterns. The course also introduces students to 3-D computer technology for the manufacturing of the Invisalign system appliance and the use of this appliance in general practice. Emphasis is placed on critical self-evaluation skills. (12 hours seminar. Quarter 8.).

OR 348. Applied Orthodontics. 1 Unit.
A study of standard orthodontic records and their application to diagnosis, treatment planning, and treatment evaluation in the mixed and permanent dentitions. Lateral head films are traced, measured, analyzed, and discussed with regard to norms and growth patterns. Facial soft tissue surface mapping using volumetric imagining technology and 3-D imagining software will be introduced. Students will present cases incorporating dental records, study models, cephalometric analysis, photographs, arch length and tooth size discrepancy analysis to explain diagnostic, treatment planning, and treatment procedures. (12 hours seminar, 6 hours graduate orthodontic clinic. Quarters 9-10.).

Graduate Courses

OR 401. Cephalometrics. 4 Units.
This course introduces students to the use of cephalometric radiographs in clinical orthodontics. Students will learn basic principles of cephalometry, the historical significance of cephalometry, and how to interpret various cephalometric analyses that are most commonly used in diagnosis and treatment planning. At the end of this course, students should be able to perform various methods of superimposition in order to identify and understand changes that occurred during growth and treatment between different lateral cephalometric radiographs. (Quarters 1-2.).

OR 402. Facial Growth. 4 Units.
This course reviews scientific literature covering basic biological principles on craniofacial growth and development. This course focuses on the basic mechanisms of postnatal growth of the cranium, nasomaxillary complex and mandible, and the clinical application of facial growth principles. (Quarters 3-4.).

OR 403. Critical Thinking. 3 Units.
In this course, students will learn foundational knowledge on scientific methods, design a sound research project and critically evaluate literature in their area. (Quarters 2-4.).

OR 404. Research Practicum and Thesis I. 4 Units.
In this independent research course, students work with research mentors to develop research questions, formulate hypotheses and write a formal research proposal that includes a full literature review, statement of material and methods, execution of the research, and appropriate analysis and interpretation of data. This course is designed to enable successful completion of the MS thesis. (Quarters 1-4.).

OR 410. Biomechanics. 7 Units.
This seminar-based course introduces fundamental concepts for understanding the laws of mechanics and biological responses to force systems used in orthodontic force systems and appliances. (Quarters 1-4.).

OR 411. Craniofacial Biology & Genetics. 6 Units.
In order to build a solid foundation for clinical orthodontic treatment, this course specifically focuses on human craniofacial growth and development and on craniofacial genetics, helping students to understand concepts related to the nature and control of normal and abnormal craniofacial growth. The course is divided into three consecutive quarters: Normal Human Growth and Development (1Q), Advanced Basic Science (2Q), Abnormal Growth and Development (3Q). (Quarters 1-3.).

OR 412. Cleft Lip & Palate/Craniofacial Anomalies. 2 Units.
The course focuses on introducing a multidisciplinary approach to treating patients with cleft lip and palate and other craniofacial anomalies (CFA). A state-of-the-art approach in the management of CFA patients is based on current literature and seminars covering etiology and epidemiology, recurrence risk, and primary prevention. While this course emphasizes orthodontics (which includes naso-alveolar molding), surgical treatment, speech problems and psychological issues are also covered. (Quarter 4.).

OR 413. Cleft Medical Missions Seminar. 2 Units.
This course consists of seminars and practical exercises in making appliances to prepare residents to be actively involved in the treatment of patients with cleft lip and palate and other craniofacial anomalies by participating in medical and dental missions in developing and undeveloped countries. (Quarters 1-2.).

OR 414. Introduction to Contemporary Orthodontics. 5 Units.
This course introduces basic artistic skills in contemporary orthodontics. Students will review the basic concepts of photography, direct bonding of fixed appliances, 3D imaging, 3D cephalometric analysis, and digital imaging software (2D and 3D). (Quarters 1-4.).

OR 420. Bone Biology. 1 Unit.
This seminar course is designed for first year residents to review basic concepts and theories of bone biology, orthodontic tooth movement, and osseointegration of orthodontic microimplants. (Quarter 4.).

OR 421. Current Literature Seminar I. 4 Units.
In this seminar series, students review articles appearing in orthodontic and related journals. (Quarters 1-4.).

OR 422. Anatomy. 1 Unit.
This course provides a detailed review of anatomic structures of the craniofacial region. Lecture topics include osteology of the skull, innervation and blood supply of the face, muscles of facial expression and mastication, and anatomy of the oral cavity. (Quarter 1.).
OR 423. Comprehensive Case Analysis Seminar I. 4 Units.
Topics in this seminar series include the clinical application of various diagnostic procedures and treatment philosophies, the presentation of practical procedures in the management of unusual problems that can arise during the course of treatment, basic and applied principles of photography, and advances in computer technology. (Quarters 1-4).

OR 424. Treatment Planning Seminar I. 4 Units.
In this seminar series, first-year residents prepare a case presentation to share initial diagnostic records to diagnose and treatment plan orthodontic cases. All students then participate in focus-group discussion. (Quarters 1-4).

OR 426. Principles of Orthodontic Technique. 5 Units.
This course is designed to provide basic principles on orthodontic tooth movement and fixed appliances by working on typodonts. (Quarters 1-2).

OR 430. Surgical-Orthodontic Treatment. 6 Units.
This seminar-based course covers basic concepts involved in surgical orthodontics, which include diagnosis and treatment planning, presurgical orthodontics, surgical procedures utilized by oral surgeons, and post-surgical orthodontics. Topics such as TMJ disorders, Distraction Osteogenesis, and Obstructive Sleep Apnea are also discussed. (Quarters 1-4).

OR 431. Orthognathic Surgery Seminar I. 4 Units.
This seminar series for the orthodontic and oral surgery residents emphasizes diagnosis, treatment planning, management of pre- and post-surgical orthodontic treatment, and understanding of treatment outcome and stability. This course consists of case presentations by the Orthodontic and Oral and Maxillofacial Surgery faculty and residents. (Quarters 1-4).

OR 432. Multidisciplinary Seminar I. 4 Units.
This seminar series covers treatment of patients with complex dental and skeletal orthodontic, periodontal, and restorative problems that require input from a variety of dental specialties. The teaching format includes case presentations by the residents and open discussions of interdisciplinary topics. (Quarters 1-4).

OR 433. Retention Seminar I. 1 Unit.
In this seminar series, each second-year resident presents on a long-term post-retention patient whose active orthodontic treatment was completed at least ten years prior to the resident's year of graduation from the program. All students and faculty then participate in discussion. (Quarter 4).

OR 434. Introduction to Invisalign. 1 Unit.
Th purpose of this course is to introduce basic knowledge on clinical applications of Invisalign treatment, while also incorporating the latest treatment protocols. (Quarter 1).

OR 456. Clinical Orthodontics I. 30 Units.
This series provides clinical experience in treating orthodontic patients with a variety of problems. Various orthopedic appliances, including the headgear, face mask, rapid maxillary expander and other fixed auxiliary appliances (LLA, TPA, Wilson distalizer) may be incorporated into specific treatment protocols. Topics also include other appliance systems such as edgewise appliance (.018 & .022* slot), TAD, self-ligating brackets, fixed-functional appliance (Herbst, Forsus), and Invisalign for adolescent and adult patients. (Quarters 1-4).

OR 457. Mixed Dentition Orthodontics I. 8 Units.
This series provides clinical experience in treating various malocclusions in the mixed dentition stage. This course covers facial growth and occlusal development in the mixed dentition, diagnosis and treatment planning for mixed dentition cases, and evaluating growth changes and treatment outcomes. (Quarters 1-4).

OR 458. Surgical Orthodontics I. 2 Units.
This series provides clinical experience in analyzing diagnostic records, formulating surgical orthodontic treatment plans for patients with major skeletal and dental disharmonies, integration of surgical and orthodontic treatment, communication with surgeons, pre-and post-surgical orthodontic treatment, and evaluation of treatment outcomes. (Quarters 1-4).

OR 459. Clinical Orthodontics in Craniofacial Anomalies I. 2 Units.
In this series, students will provide orthodontic treatment to patients with craniofacial anomalies in the graduate clinic and attend panels provided by comprehensive KÄSSEL and Oakland Children's Hospital Craniofacial Anomalies Teams. (Quarters 1-4).

OR 501. Principles of Orthodontics. 8 Units.
In this literature-based seminar, residents participate in discussion with emphasis on the critical analysis and evaluation of the scientific methodology in the literature reviewed, and the clinical application of the material. Topics include Principles of Orthodontics Introduction, Biomechanics, Facial growth, Retention & Relapse, Functional appliances, Intraoral forces, Mandibular motion & Tooth contact, Maxillo-Mandibular references, and Occlusal treatment objectives. (Quarters 5-8).

OR 502. Microimplant & Bone Biology I. 6 Units.
This course provides comprehensive review of the factors related to safety and stability of orthodontic microimplants and their clinical application in orthodontic treatment. Students will present their own clinical cases that utilized microimplants. (Quarters 5-7).

OR 503. Research Design I. 4 Units.
This advanced course covers the nature of hypothesis testing, the process of clinical decision making, and the statistical methodology to be employed in each student's thesis project. (Quarters 5-8).

OR 504. Research Practicum and Thesis II. 4 Units.
In this independent research course, students work with research mentors to develop research questions, formulate hypotheses and write a formal research proposal that includes a full literature review, statement of material and methods, execution of the research, and appropriate analysis and interpretation of data. This course is designed to enable successful completion of the MS thesis. (Quarters 5-8).

OR 510. Periodontic-Orthodontic Relations. 8 Units.
The first part of this course covers the Orthodontic-Restorative-Periodontal Interface, including esthetic and functional considerations, periodontal and other benefits of two-phase orthodontic treatment, clinical considerations of orthodontic root resorption, periodontal considerations in the orthodontic treatment of impacted teeth, and Invisalign treatment. The second part of this course covers the latest innovations from Invisalign and their application to Complex class, I, II, and III Malocclusions. (Quarters 5-8).

OR 511. Practice Management I. 3 Units.
This course covers basic concepts of practice management, including human resource management, management systems, marketing, legal aspects of orthodontics, associations/practice ownership, and customer service. The format of this course includes guest lectures by orthodontists, orthodontic consultants, and other professionals connected to the specialty of orthodontics, as well as private practice office visits. (Quarters 6-8).

OR 512. Preparation for Specialty Examination. 1 Unit.
This course will prepare students for the American Board of Orthodontics written exam by reviewing basic sciences and clinical concepts in orthodontics. (Quarter 7).
OR 513. TMD & Orthodontics. 1 Unit.
This course covers the ramifications of orthodontic treatment on the stomatognathic system, the intricacies of the interrelationship between the occlusion and the TMJ, and basic management of TMD symptoms. (Quarter 5.).

OR 521. Current Literature Seminar II. 4 Units.
In this seminar series, students review articles appearing in orthodontic and related journals. (Quarters 5-8.).

OR 523. Comprehensive Case Analysis Seminar II. 4 Units.
Topics in this seminar series include the clinical application of various diagnostic procedures and treatment philosophies, the presentation of practical procedures in the management of unusual problems that can arise during the course of treatment, basic and applied principles of photography, and advances in computer technology. (Quarters 5-8.).

OR 524. Treatment Planning Seminar II. 4 Units.
In this seminar series, first-year residents prepare a case presentation to share initial diagnostic records to diagnose and treatment plan orthodontic cases. All students then participate in free-format discussion. (Quarters 5-8.).

OR 531. Orthognathic Surgery Seminar II. 4 Units.
This seminar series for the orthodontic and oral surgery residents emphasizes diagnosis, treatment planning, management of pre- and post-surgical orthodontic treatment, and understanding of treatment outcome and stability. This course consists of case presentations by the Orthodontic and Oral and Maxillofacial Surgery faculty and residents. (Quarters 5-8.).

OR 532. Multidisciplinary Seminar II. 4 Units.
This seminar series covers treatment of patients with complex dental and skeletal orthodontic, periodontal, and restorative problems that require input from a variety of dental specialties. The teaching format includes case presentations by the residents and open discussions of interdisciplinary topics. (Quarters 5-8.).

OR 533. Retention Seminar II. 1 Unit.
In this seminar series, each second-year resident presents on a long-term post-retention patient whose active orthodontic treatment was completed at least ten years prior to the resident’s year of graduation from the program. All students and faculty then participate in discussion. (Quarter 8.).

OR 556. Clinical Orthodontics II. 40 Units.
This series provides clinical experience in treating orthodontic patients with a variety of problems. Various orthopedic appliances, including the headgear, face mask, rapid maxillary expander and other fixed auxiliary appliances (LLA, TPA, Wilson distalizer) may be incorporated into specific treatment protocols. Topics also include other appliance systems such as edgewise appliance (.018 & .022” slot), TAD, self-ligating brackets, fixed-functional appliance (Herbst, Forsus), and Invisalign for adolescent and adult patients. (Quarters 5-8.).

OR 557. Mixed Dentition Orthodontics II. 8 Units.
This series provides clinical experience in treating various malocclusions in the mixed dentition stage. This course covers facial growth and occlusal development in the mixed dentition, diagnosis and treatment planning for mixed dentition cases, and evaluating growth changes and treatment outcomes. (Quarters 5-8.).

OR 558. Surgical Orthodontics II. 2 Units.
This series provides clinical experience in analyzing diagnostic records, formulating surgical orthodontic treatment plans for patients with major skeletal and dental disharmonies, integration of surgical and orthodontic treatment, communication with surgeons, pre- and post-surgical orthodontic treatment, and evaluation of treatment outcomes. (Quarters 5-8.).

OR 559. Clinical Orthodontics in Craniofacial Anomalies II. 2 Units.
In this series, students will provide orthodontic treatment to patients with craniofacial anomalies in the graduate clinic and attend panels provided by comprehensive KAISER and Oakland Children’s Hospital Craniofacial Anomalies Teams. (Quarters 5-8.).

OR 601. Temporomandibular Joint Disorders. 1 Unit.
This course provides an overview of clinical anatomy and mechanics of the TMJ, pathogenesis of degenerative TMD disorders, and various approaches on the management of TMD. (Quarter 9.)

OR 602. Microimplant & Bone Biology II. 1 Unit.
This course provides comprehensive review of the factors related to safety and stability of orthodontic microimplants and their clinical application in orthodontic treatment. Students will present their own clinical cases that utilized microimplants. (Quarter 9.).

OR 603. Research Design II. 1 Unit.
This advanced course covers the nature of hypothesis testing, the process of clinical decision making, and the statistical methodology to be employed in each student’s thesis project. (Quarter 9.).

OR 604. Research Practicum and Thesis III. 6 Units.
In this independent research course, students work with research mentors to develop research questions, formulate hypotheses and write a formal research proposal that includes a full literature review, statement of material and methods, execution of the research, and appropriate analysis and interpretation of data. This course is designed to enable successful completion of the MS thesis. (Quarter 9.).

OR 611. Practice Management II. 1 Unit.
This course covers basic concepts of practice management, including human resource management, management systems, marketing, legal aspects of orthodontics, associapeships/practice ownership, and customer service. The format of this course includes guest lectures by orthodontists, orthodontic consultants, and other professionals connected to the specialty of orthodontics, as well as private practice office visits. (Quarter 9.).

OR 612. Ethics. 1 Unit.
This is an intermediate-advanced course that builds on undergraduate ethics instruction and focuses on issues unique to orthodontic practice. Students will reflect on and discuss real-life cases that exemplify typical ethical problems in orthodontics. (Quarter 9.).

OR 613. Orthodontics Speaker Series. 2 Units.
In this course, guest speakers deliver lectures on a variety of orthodontic topics. (Quarter 9.).

OR 621. Current Literature Seminar III. 1 Unit.
In this seminar series, students review articles appearing in orthodontic and related journals. (Quarter 9.).

OR 623. Comprehensive Case Analysis Seminar III. 1 Unit.
Topics in this seminar series include the clinical application of various diagnostic procedures and treatment philosophies, the presentation of practical procedures in the management of unusual problems that can arise during the course of treatment, basic and applied principles of photography, and advances in computer technology. (Quarter 9.).

OR 624. Treatment Planning Seminar III. 1 Unit.
In this seminar series, first-year residents prepare a case presentation to share initial diagnostic records to diagnose and treatment plan orthodontic cases. All students then participate in free-format discussion. (Quarter 9.).
OR 631. Orthognathic Surgery Seminar III. 1 Unit.
This seminar series for the orthodontic and oral surgery residents emphasizes diagnosis, treatment planning, management of pre- and post-surgical orthodontic treatment, and understanding of treatment outcome and stability. This course consists of case presentations by the Orthodontic and Oral and Maxillofacial Surgery faculty and residents. (Quarter 9.).

OR 632. Multidisciplinary Seminar III. 1 Unit.
This seminar series covers treatment of patients with complex dental and skeletal orthodontic, periodontal, and restorative problems that require input from a variety of dental specialties. The teaching format includes case presentations by the residents and open discussions of interdisciplinary topics. (Quarter 9.).

OR 656. Clinical Orthodontics III. 10 Units.
This series provides clinical experience in treating orthodontic patients with a variety of problems. Various orthopedic appliances, including the headgear, face mask, rapid maxillary expander and other fixed auxiliary appliances (LLA, TPA, Wilson distalizer) may be incorporated into specific treatment protocols. Topics also include other appliance systems such as edgewise appliance (.018 & .022” slot), TAD, self-ligating brackets, fixed-functional appliance (Herbst, Forsus), and Invisalign for adolescent and adult patients. (Quarter 9.).

OR 657. Mixed Dentition Orthodontics III. 2 Units.
This series provides clinical experience in treating various malocclusions in the mixed dentition stage. This course covers facial growth and occlusal development in the mixed dentition, diagnosis and treatment planning for mixed dentition cases, and evaluating growth changes and treatment outcomes. (Quarter 9.).

OR 658. Surgical Orthodontics III. 1 Unit.
This series provides clinical experience in analyzing diagnostic records, formulating surgical orthodontic treatment plans for patients with major skeletal and dental disharmonies, integration of surgical and orthodontic treatment, communication with surgeons, pre-and post-surgical orthodontic treatment, and evaluation of treatment outcomes. (Quarter 9.).

OR 659. Clinical Orthodontics in Craniofacial Anomalies III. 1 Unit.
In this series, students will provide orthodontic treatment to patients with craniofacial anomalies in the graduate clinic and attend panels provided by comprehensive KAISER and Oakland Children's Hospital Craniofacial Anomalies Teams. (Quarter 9.).