

# Graduate Orthodontics (ORTG)

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## Courses

### **ORTG 8400. Diagnosis and Treatment Planning Conference. 4 Credit Hours.**

The student will be exposed to a different case each conference. There will be discussion on the diagnosis, treatment goals, treatment plan and the treatment mechanics. Each student will be expected to demonstrate critical and original thinking. The discussions will be evidenced based. Ethics of the resulting treatment plan and the treatment will also be incorporated.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

### **ORTG 8401. Orthodontic Technique Lab. 1 to 6 Credit Hour.**

This course is designed for the entering graduate student to learn the essential principles of orthodontic appliances utilizing the typodont. The typodonts are occluded on a hinge articulator to simulate the typical malocclusion(s). Students bend wires and apply auxiliary force modules to move the teeth to correct the malocclusion. This course is augmented by introduction and discussions of orthodontic instruments, use of extraoral appliances, wire properties, an overview of engineering principles of orthodontic mechanics as indicated in the course schedule. Students will be assigned readings to prepare for the day's agenda. Moreover, this course is the entering students' first exposure to the graduate orthodontic curriculum; and sessions take up the entire day. Thus, the intense one-on-one time spent with the instructors, and senior residents is also critical for transition into the rest of the curriculum. The principal goal of this course is to train the beginning resident in the techniques and use of orthodontic appliances. Course prerequisite: enrollment in the Year 1 of graduate orthodontic specialty program.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

### **ORTG 8402. Orthodontic Principles and Techniques. 1 Credit Hour.**

This Principles of Orthodontics course is a seminar and independent study course that provides a review of orthodontics and its history. It includes discussions of essential literature on the nature of orthodontic specialty and introduces the student to orthodontic data collection, software, and patient management. Included in the topics of instruction are history of orthodontics, essentials of making various impressions, 2D and 3D imaging technologies, orthodontic insurance, and photography. Students are assigned to make PowerPoint presentations in various topics in orthodontic history. The course sessions are conducted as lectures and seminars where students, who have previously read and independently studied the assigned reading materials, will discuss, provide summary statements, critical analysis, and answers to questions in roundtable discussions led by attending faculty members serving as seminar leaders. Course prerequisites: enrollment in Year I of the graduate orthodontics specialty program or with special permission of the course director.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

### **ORTG 8403. Orthodontic Diagnosis and Treatment Plan Seminar. 2 Credit Hours.**

Essentials of orthodontic diagnostic process and treatment planning are discussed in this course. Examples of topics of discussion include cephalometric headfilms and their numerous analyses, treatment timing, surgical orthodontics, interdisciplinary orthodontics, and occlusion and TMJ. The course sessions are conducted as lectures and seminars where students, who have previously read and independently studied the assigned reading materials, will discuss, provide summary statements, critical analysis, and answers to questions in roundtable discussions led by attending faculty members serving as seminar leaders. Every attending will have his/her own treatment philosophy. The student is expected to utilize the information gained in this course for clinical activities. Course prerequisites: enrollment in Year I of the graduate orthodontic specialty program or with special permission of the course director.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

### **ORTG 8404. Orthodontic Biomechanics. 2 Credit Hours.**

Biology and engineering mechanics of orthodontic and orthopedic forces applied to human orofacial structures. May be repeated for credit.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8405. Dymorphology. 1 Credit Hour.**

Study of biologic basis, classification, and management of human craniofacial anomalies and syndromes, with emphasis on cleft lip and palate. May be repeated for credit.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8406. Teaching Principles. 2 Credit Hours.**

In this course the student is exposed to teaching and mentoring activities. Teaching and mentoring activities take place in the predoctoral and postdoctoral facilities. The graduate program is heavily dependent on the big brother/sister system. In the predoctoral clinic the resident will serve as the instructor. In the graduate program, the student will mentor the little brother/sister for diagnosis, treatment planning, paperwork, patient management, and the like. Course prerequisites: enrollment in the graduate orthodontic specialty program.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8407. History of Orthodontics. 1 Credit Hour.**

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8408. Craniofacial Cephalometrics. 3 Credit Hours.**

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8410. Current Literature Review. 1 Credit Hour.**

Critical review of selected recent basic science and clinical research papers in orthodontics and craniofacial biology. May be repeated for credit.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 8413. Operations Management for Orthodontic Practice I. 0 Credit Hours.**

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 8414. Growth and Development of the Craniofacial Complex. 2 Credit Hours.**

Fundamental biological and genetic mechanisms of normal human craniofacial growth and development, including neural crest contributions, epithelial-mesenchymal interactions, postnatal craniofacial development, and somatic growth in children.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 8416. Clinical Biomechanics. 1 Credit Hour.**

The Clinical Biomechanics course is a seminar and independent study course providing an evidence-based, in-depth, review of the scientific literature on the mechanical and biological reactions of craniofacial structures to applied orthodontic and orthopedic forces. Also taught is the design of orthodontic appliances and treatment strategy based on these concepts. This course is built upon the material in the Biomechanics course (8404) where the reactions created by orthodontic and orthopedic forces are presented. Students will learn these at the level of a specialist. The course sessions are conducted as lectures and seminars where students, who have previously read and independently studied the assigned reading materials, will discuss, provide summary statements, critical analysis, and answers to questions in roundtable discussions led by attending faculty members serving as seminar leaders. Additionally, students will make formal presentations based on an assigned independent study related to orthodontics, its mechanics, and practice. Course prerequisites: enrollment in Year I of the graduate orthodontics specialty program or with special permission of the course director.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8417. Introduction to Basic Principles of Orthodontics (Lab). 2 Credit Hours.**

Introduction to basic principles of orthodontics lab such as introduction to brackets and wires, appliance placement procedures, impression and study model preparation.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8418. Introduction to Basic Principles of Orthodontics (Seminar). 3 Credit Hours.**

Introduction to basic principles of orthodontics such as department forms and procedures (clinical exam and techniques), basic definitions, clinical photography, AxiUm training, including billing, Dolphin Imaging.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8419. Orthodontic Principles and Techniques. 1 to 4 Credit Hour.**

Lecture seminar sequence dealing with the interpretation and application of orthodontic principles of the ethics and concepts. Pertinent literature, research findings, and current orthodontic theory are analyzed in depth.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 8420. Orthognathic Surgery Seminar. 1 Credit Hour.**

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 8421. 3-D Imaging and Computer Generated Orthodontics. 2 Credit Hours.**

Provides orthodontic residents with an introductory overview of various computer generated 3-D ortho appliances to include but not limited to: invisalign, suresmile, surgical treatment planning and indirect bonding.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8422. Advanced Orthodontic Principles and Techniques. 1 to 6 Credit Hour.**

Advanced lecture seminar sequence dealing with interpretation and application of orthodontic principles of the ethics and concepts. Pertinent literature, research findings, and current orthodontic theory are analyzed in depth.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 8423. Progress Conference and Case Review. 1 to 6 Credit Hour.**

Advanced lecture seminar sequence dealing with interpretation and application of orthodontic principles of the ethics and concepts. Pertinent literature, research findings, and current orthodontic theory are analyzed in depth. Progress of orthodontic cases reviewed and answers to questions in roundtable discussions led by attending faculty members serving as seminar leaders. Everyone attending will have his/her own treatment philosophy. The student is expected to utilize the information gained in this course for clinical activities.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 8424. Biology of Tooth Movement. 2 Credit Hours.**

This course will cover the histologic, cellular and molecular basis for orthodontic tooth movement, root resorption, and dentofacial orthopedics using historic and current findings in general bone biology, orthopedics and orthodontics.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8425. Classic Literature Review. 1 to 6 Credit Hour.**

In this course residents are assigned articles to review from orthodontic journals from the recommended reading list from the American Board of Orthodontics.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8426. Multidisciplinary and Adult Orthodontics. 2 Credit Hours.**

This course reviews the combined orthodontic, periodontic, restorative and psycho social need of the adult patient for comprehensive care.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8427. American Board of Orthodontics Preparation Course. 1 to 6 Credit Hour.**

Review selected topics in preparation for the ABO written exam. This includes review of biology of tooth movement, head and neck anatomy, biomechanics, etc.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8428. ABO Mock Boards. 1 Credit Hour.**

This course provides the resident with a comprehensive way to evaluate the outcomes of their diagnosis, treatment plan and actual treatment of 6 patients they completed. This also prepares them for the clinical portion of the ABO clinical exam.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8429. Clinical Biomechanics. 1 Credit Hour.**

This course reviews the basic principles of biomechanics and their use in actual clinical situations. Different appliances and materials are discussed.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8430. Advance Orthodontic Principles and Techniques. 2 Credit Hours.**

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 8431. Thesis; Scientific Writing and Preparation Course 1. 1 to 6 Credit Hour.**

In this course essentials of scientific writing are taught. Topics such as organization of thesis, or writing of scientific articles, and the nature of different sections are covered. Emphasis is given to presentation techniques of the written material, avoidance of jargon, proper grammar, and the like, concepts. The student gains experience in reviewing manuscripts submitted to the journal. It includes discussions of essential literature on the nature of science and its reporting. The course sessions are conducted as lectures and seminars where students, who have previously read and independently studied the assigned reading materials, will discuss and provide summary statements, critical analysis, and answers to questions in roundtable discussions led by attending faculty members serving as seminar leaders. Course prerequisites: enrollment in year 1 of the graduate orthodontics specialty program or with special permission of the course director.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 8487. Critical Elements in Clinical Orthodontics. 1 Credit Hour.**

This course discusses the fine points of clinical decision making process. Also taught is the ethics of orthodontic specialty and most current innovations in clinical orthodontics. Students will learn the fine points of orthodontic treatment practice through formal case presentations and discussions. Ethics of orthodontic practice are taught with the aid of educational material produced by the American Association of Orthodontists. Course prerequisites: enrollment in Year 2 of the graduate orthodontics specialty program or with special permission of the course director.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 8510. Interdisciplinary Orthodontic Treatment Seminar. 1 Credit Hour.**

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 8513. Operations Management for Orthodontic Practice II. 2 Credit Hours.**

This course is designed to introduce the student to various ways to start practicing. Intellectual property laws, cost of money, building of a new office, buying of existing practice or the process of hiring, marketing, and the like topics are covered. The course sessions are conducted as lectures and seminars where students, who have previously read and independently studied the assigned reading materials, will discuss, provide summary statements, critical analysis, and answers to questions in roundtable discussions led by attending faculty members serving as seminar leaders. Course prerequisites: enrollment in Year 2 of the graduate orthodontics specialty program or with special permission of the course director.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 8515. Growth and Development II. 2 Credit Hours.**

The growth and development of the craniofacial complex is a seminar and independent study course that reviews the evidence-based information at the anatomical and molecular level. Genetic and epigenetic influences are taught at the level of specialist. The course sessions are conducted as lectures and seminars where students, who have previously read and independently studied the assigned reading materials, will discuss, provide summary statements, critical analysis, and answers to questions in roundtable discussions led by attending faculty members serving as seminar leaders. Clinical implications of developmental phenomena are discussed in depth. Course prerequisites: enrollment in Year I of the graduate orthodontics specialty program or with special permission of the course director.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**ORTG 9487. Dento-Facial Anomalies Conference. 1 Credit Hour.**

The student is exposed to grand rounds presentations that are conducted jointly by the Kornberg orthodontics and Jefferson surgeons. Students will actively participate to present or discuss the jointly treated cases. In addition, students will make presentations on the topics that are assigned. The focus of the course is management of patients between the two specialties. This is course also includes rotations through the operating rooms at Jefferson University. Additionally, the student will participate in a TMJ dissection course at Jefferson. Course prerequisites: enrollment in the graduate orthodontics specialty program or with special permission of the course director.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 9489. Extracurricular Education. 2 Credit Hours.**

This activity requires attendance to approved regional or national meetings and conferences. The principal purpose of this course is to expose the student, in an unbiased format, to novel arguments, instruments, equipment, and services in the orthodontic industry. Students will be assigned selected topics to investigate at the meetings they attend. Upon their return, the graduate students will prepare a talk with the aid of PowerPoint presentations to highlight the pertinent areas of the meeting and their interpretation of the knowledge introduced at the meeting. The quality, appropriateness, and pertinence of these presentations will be judged. Course prerequisites: enrollment in Year 1 of the graduate orthodontics specialty program or with special permission of the course director.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 9587. Graduate Orthodontic Clinic. 1 to 12 Credit Hour.**

This course is treatment of patients in the clinic. The student is expected to demonstrate graduate level mastery of orthodontic diagnosis; treatment skills and management of patients. As the student enters the program s/he is assigned a group of patients. From that pool the student will start a specified number of patients. The number of starts may vary from year to year. But the patient load in terms of numbers and complexity must be distributed as evenly as possible, or as specified, among the attendings. The student will experience a plethora of proven-performer appliances and techniques. Course prerequisites: enrollment in the graduate orthodontic specialty program.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 9588. Graduate Orthodontic Screening Clinic. 1 to 12 Credit Hour.**

In this course the student is exposed to teaching and mentoring activities. Teaching and mentoring activities take place in the predoctoral and postdoctoral facilities. The graduate program is heavily dependent on the big brother/sister system. In the predoctoral clinic the resident will serve as the instructor. In the graduate program, the student will mentor the little brother/sister for diagnosis, treatment planning, paperwork, patient management, and the like.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 9589. Tweed Course. 2 Credit Hours.**

The student will attend the Tweed Foundation Course in Tucson, AZ for a two-week period. This course is designed to teach the basics of wire bending and to introduce the student to basics of Tweed diagnostic and treatment philosophy. The course consists of typodont work and lectures. The cost of the course will be borne by the student. US citizens may be qualified for a loan from the Foundation to cover the tuition and travel-related expenses.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 9991. Orthodontic Thesis Studies. 1 Credit Hour.**

Mentor-directed activities on preparation of orthodontic research protocols and thesis.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**ORTG 9996. Orthodontic Thesis Research. 4 Credit Hours.**

Mentor-directed conduct of a basic science and/or clinical research project in orthodontics. May be repeated for credit.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.