

GRADUATE PROGRAM IN ORTHODONTICS

The postdoctoral training program in the Division of Orthodontics begins in July of each year, extends for a period of thirty-six consecutive months and awards the Master of Science degree upon successful completion. It provides intensive advanced training in the biological and clinical sciences related to the art and science of orthodontics. It is designed to satisfy all requirements for eligibility for American Board of Orthodontics certification. The program, fully accredited by the Commission on Dental Accreditation of the A.D.A., is well rounded and provides balanced training in clinical orthodontics and the basic sciences relative to orthodontics, so that the graduate of this program is prepared to pursue a career as a clinician with practice limited to orthodontics and as a teacher in clinical orthodontics.

To provide clinical experience, lectures, seminars, and extensive laboratory courses are integrated with the treatment of various classifications of malocclusions in the clinic using fixed multibanded and bonded techniques as well as removable, functional, and orthopedic appliances. Emphasis is given to the fundamental edgewise and tip-edge philosophies of treatment. Several modifications of basic edgewise mechanotherapy are taught in addition to the differential force straight wire technique. Lectures on temporomandibular dysfunction prepare the student for rotations in the multidisciplinary T.M.D. clinic. Joint conferences and clinic sessions are held with the Division of Oral and Maxillofacial Surgery to present cases, plan treatment, and review patient progress for patients requiring combined orthodontic treatment and orthognathic surgery.. Students also regularly attend cleft palate / craniofacial team conferences and attend multidisciplinary seminars in adult orthodontics and the periodontally compromised patient.

The postdoctoral student is required to submit and defend a written thesis to qualify for graduation. Thus, all students are required to engage in research activities. To acquaint the student with the procedures for certification by the American Board of Orthodontics, another requirement for graduation is the presentation of records of completed patients according to A.B.O. guidelines. These presentations are arranged as mock A.B.O. examinations conducted by board-certified faculty.

Requirements for Admission

Admission is competitive with many more applicants than positions available. The following documents are required:

1. Results of Part I National Board Examination. (Part II, if available)
2. Official college and dental school transcripts.
3. Results of the GRE Examination.
4. At least three letters of recommendation from dental school faculty. One must be from the Dean.

Foreign applicants who do not have an American dental degree are not required to have National Board scores, but require 2, 3, and 4 above in addition to recent results of the TOEFL examination.

First Year

DNSC D9900 001	Research methodology and biostatistics
DNSC D9903 001	Human development and genetics
DNSC D9904 001	Craniofacial anomalies
DNSC D9910 001	Clinical stomatology conferences
DNSC D9911 001	Functional anatomy of the head and neck
DNSC D9913 001	Panoramic radiography
DNSC D9918 001	T.M.J. dysfunction facial pain
DNSC D9925 001	Oral biology
DNSC D9930 001	Biology of mineralized tissues
DNSC D9957 001	Cephalometrics: growth and development
DNSC D9990 001	Pedagogy of preclinical and clinical teaching (I)
ORTH D9500 081	Orthodontic technique
ORTH D9502 081	Clinical orthodontic practice ((I)
ORTH D9507 081	Biomechanics
ORTH D9516 081	Orthodontic literature review (I)
ORTH D9522 081	Theory and practice of orthodontics (I)
ORTH D9526 081	Thesis (I)
ORTH D9530 081	Biology of tooth movement
ORTH D9532 081	Information technology (I)
ORTH D9560 081	Scientific writing and scientific investigation
ORTH D9956 081	Introduction to orthodontics
ORTH D9958 081	Orthodontic diagnosis and treatment planning (I)
ORTH D9966 081	Surgical orthodontics (I)

Second Year

DNSC D9916 001	T.M. disorders
DNSC D9918 001	T.M.J. dysfunction-myofascial pain
DNSC D9944 001	Clinical practice issues
DNSC D9990 001	Pedagogy of preclinical and clinical teaching (II)
ORTH D9504 082	Clinical orthodontic practice (II)
ORTH D9508 082	Practice management in orthodontics
ORTH D9510 082	Orthodontic diagnosis and treatment planning (II)
ORTH D9518 082	Orthodontic literature review (II)
ORTH D9520 082	The cleft palate patient
ORTH D9524 082	Theory and practice of orthodontics (II)
ORTH D9528 082	Thesis
ORTH D9533 082	Information technology (II)
ORTH D9535 082	Implantology in Orthodontics
ORTH D9540 082	Orthodontic-periodontic relationships
ORTH D9545 082	Orthodontic-restorative relationships
ORTH D9548 082	Treatment of medically compromised patient

ORTH D9968 082 Surgical Orthodontic Conference (II)

Third Year

DNSC D9990 001 Pedagogy of preclinical and clinical teaching (III)
ORTH D9504 082 Clinical orthodontic practice (III)
ORTH D9528 082 Thesis (III)
ORTH D9510 082 Orthodontic diagnosis and treatment planning (III)
ORTH D9968 082 Surgical Orthodontic Conference (III)

Courses of Instruction

ORTH D9500 081. Orthodontic technique

Professors Cangialosi, Meistrell and Staff. First year. This course, together with the courses *Introduction to orthodontics* and *Theory and practice of orthodontics*, makes up the preclinical phase of instruction and includes lectures, seminars, demonstrations, and laboratory exercises in impression and study-model construction and in the fabrication and manipulation of various orthodontic appliances, including the standard edgewise, Straight Wire, and Tip Edge. In addition, students are trained in the use of removable, functional and auxiliary appliances in the treatment of various classifications of malocclusion. The objective is to prepare the student to begin patient care in the clinic.

Hours: 200

ORTH D9502 081, D9504 082. Clinical orthodontic practice

Professor Cangialosi and staff. First, second, and third years.

Course D9502 is given in the first year of the program and concentrates on techniques of record gathering, diagnosis and treatment planning, patient management, and treatment procedures. The main treatment modalities utilized are the Edgewise and Begg or Tip Edge appliances. Each student is assigned a number of patients representing the variety of malocclusions found in an orthodontic practice, for treatment under the supervision of faculty. In course D9504, students are assigned additional patients who are transferred from graduating students. Emphasis is placed on ideal case finishing and on the retention phase of treatment. The objective is to prepare the student, upon graduation, to be proficient in clinical orthodontic treatment procedures.

Hours: 2,400

ORTH D9507 081. Biomechanics

Professor Santoro and Staff. First year

Lectures in the fundamentals of physics and engineering and their application in orthodontic techniques. Also included are mechanotherapy in various orthodontic techniques and critical evaluation of new concepts and materials. A thorough presentation of the biology of tooth movement is presented. Course objectives are to give the student in-depth knowledge and insight into basic and applied mechanics and to firmly establish a biological basis for orthodontic treatment.

Hours: 14

ORTH D9516 081, 9518 082. Orthodontic literature review

Professors Efstratiadis, Siegel, and Yuan. First and second years.

The objective is to enable the student to: (1) gain knowledge of the past and current orthodontic literature, (2) read the literature critically and be encouraged to continue to do so during his / her entire professional lifetime, (3) utilize the appropriate information gained in the clinical setting, (4) choose a research project and write a comprehensive thesis, and (5) pass the written portion of the A.B.O. certification examination. At each session the assigned student presents the assigned articles to the class stating the goals and objectives of the study, the methodology used, and the observed results. The student is expected to critically analyze and evaluate the methods and results as well as elaborate on the importance of the topic and its clinical relevance.

Following the presentation, the student directs an active discussion among the members of the class with the help of the faculty member.

Hours: 80

ORTH D9522 081, D9524 082. Theory and practice of orthodontics

Professor Cangialosi and staff. First and second years.

Lectures, seminars, and demonstrations in which theory is correlated with clinical practice and observation. Topics include various aspects of fixed and removable mechanotherapy, manipulation of appliances, and treatment of various types of malocclusion. Serves as a complement to the course *Clinical orthodontic practice*, which is designed for gaining proficiency in clinical practice.

Hours: 80

ORTH D9526 081, D9528 082. Thesis

Professor Cangialosi and staff. First, second, and third years.

An original research project pertinent to the field of orthodontics, either basic or clinical, is required. The student conducts an investigation dealing with a subject of his / her choice which is approved by the faculty. Each project must have a faculty sponsor. Results of the project must be presented in the form of a written document completed one month before the end of the final semester and judged satisfactory by the sponsor and Research Committee. Objectives are to stimulate and encourage interest in research on the part of students and prepare them to critically evaluate the literature.

Hours: 760

ORTH D9532 081, D9533 082. Information technology

Professors Cangialosi, Yuan, and Staff. First and second years

This course is designed to meet three goals: 1) to introduce the student to modern computer technology for patient information management; 2) to familiarize the student with digital/computer assisted imaging systems; and 3) to apply these information management systems to clinical practice. This course includes lectures emphasizing the applications of computer technology and gives hands-on experience to facilitate competency in clinical practice management.

Hours: 14

ORTH D9560 081. Scientific writing and scientific investigation

Professors Cangialosi and Yuan, First year

This course is designed to meet four goals: 1) to introduce students to the development, preparation, and completion of research projects; 2) to provide guidelines in academic writing for proposal, grant submission, thesis, and publication; 3) to familiarize the student with regulations in conducting human and non-human investigations, and 4) to assist students in initiating their research projects. This course includes lectures and writing practice. The lectures introduce general principles in thesis preparation and examples in scientific writing. The writing practice is aimed at assisting students in formulating their research projects and completion of proposals.

Hours: 4

ORTH D9956 081. Introduction to orthodontics

Professor Cangialosi and staff. First year.

A series of lectures giving an overview of the field of orthodontics. Topics include the concept of normal occlusion, etiology and classification of malocclusion, preventive and interceptive orthodontics, unfavorable sequelae of malocclusion, principles of mechanotherapy, limitations of treatment, treatment during growth, adult treatment, and retention and relapse. It enables the student to understand the scope of the specialty and its interrelationship with other disciplines of dentistry and medicine and also prepares the student for a more detailed study of the theory and practice of orthodontics and for laboratory exercises and clinical activity.

Hours: 20

ORTH D9958 081, D9510 082. Orthodontic diagnosis and treatment planning

Professor Cangialosi and staff. First, second, and third years

The first five sessions in the summer session of the first year are lectures by faculty in the gathering and assessing of orthodontic records and treatment planning of comprehensive orthodontic problems. Instructors bring in cases from their practices to illustrate the principles involved. The remainder of the course consists of student presentations of diagnosis and treatment planning of the cases that they are treating in the clinic with a faculty member acting as a moderator. Students become proficient in the assessment of complex craniofacial problems and are able to formulate rational treatment plans. 📅 This course also prepares the student for taking the written part of the American Board of Orthodontics examination.

Hours: 120

ORTH D9966 081, D9968 082. Surgical orthodontics (& conference)

Professors Cangialosi, Ciccio, and Eisig. First, second, and third years

Lectures, laboratory exercises, journal club, and interdepartmental conferences (i.e., surgical orthodontic conference, craniofacial and cleft conference) relating to the diagnosis and treatment of those cases that exhibit extensive skeletal discrepancies that require combined orthodontic and surgical treatment for their resolution. One afternoon clinic session per week is attended by faculty of both the Divisions of Orthodontics and OMFS so that joint consultation is available. Provides the student with an understanding of the special problems involved with diagnosis and treatment in these cases and makes them proficient in presurgical and postsurgical orthodontic management.

Hours: 96

DNSC D9957 001. Cephalometrics: growth and development

Professors Meistrell, Hudecz, and Yuan. First year.

Instruction in the theory and practice of taking standardized head roentgenograms using the cephalostat including the procedure for identifying landmarks and making tracings using various analyses. Also includes a survey of growth and development of the dentition and the craniofacial complex and how various growth patterns may be identified. Prepares the student to recognize discrepancies in tooth and jaw position and determine whether a malocclusion is primarily skeletal or dental in nature. Prerequisite to *Orthodontic diagnosis and treatment planning*.

Hours: 28

DNSC D9903 001 Human development and genetics

Professor Yuan. First year.

This course is designed: 1) to review and update the knowledge of the normal and abnormal human growth, development, and genetics, especially in the craniofacial regions; 2) to facilitate the recognition of the clinical manifestations, the etiology, and the importance of diagnosing and treatment planning abnormalities; 3) to correlate critical issues towards the practice of dental specialties. This course includes lectures focusing on issues relating to the general patterns of human growth, craniofacial growth, orafacial clefts, dysmorphology syndromes, genetics, and development of dentition.

Hours: 6

ORTH D9530 081. Biology of Tooth Movement

Professor Ersoy. First year.

Lectures related to the biology of tooth movement. Emphases are placed on: 1) cell biology of periodontal ligament, cementum, and bone; 2) cell response to orthodontic forces; 3) molecular and cellular mechanism of bone resorption; and 4) molecular basis of the expression of the osteoblast phenotype.

Hours: 4

ORTH D9540 082. Orthodontic-periodontic relationships

Professors Cangialosi, Fine, and staff. First year.

Students gain an overview of the pathogenesis of periodontal diseases with particular emphasis on conditions which may be improved by orthodontic therapy, as well as those conditions that may be a contraindication to orthodontic treatment. Students are acquainted with the importance and need for careful evaluation of patients with respect to their periodontal condition and the special needs of adult patients undergoing orthodontic treatment.

Hours: 9

ORTH D9535 082. Implantology in Orthodontics

Professors Cangialosi, Santoro, and Staff. First year

This course is designed to introduce the graduate orthodontic students to the basic concepts of dental implantology and to introduce strategies for incorporating implants into orthodontic diagnosis and treatment planning. The format will be both lecture and group discussions. Actual cases from the orthodontic clinic will be presented to illustrate how the use of implants may enhance orthodontic treatment results. The expected outcome will be proficiency of students in employing the use of implants in developing treatment strategies.

Hours: 6

ORTH D9508 082. Practice management in orthodontics

Professors Meistrell and Hudecz. Second year.

Lectures in the setting up and ongoing administration of an orthodontic practice as well as ethical and legal concerns in the practice of orthodontics. Includes information on purchasing a practice and the professional relationship between partners and associates. Prepares students to assume the responsibilities of administration of an orthodontic practice; informs them of the legal issues involved in practice; and instills a strong sense of ethical behavior in the conduct of their practice.

Hours: 12

ORTH D9545 082. Orthodontic-restorative relationships

Professors Cangialosi, Yuan, and Staff. Second year

This course is designed to introduce and integrate the dental disciplines in restorative, endodontic, cosmetic, and prosthodontic dentistry, into orthodontic treatment planning. Special prosthodontic issues in orthodontics will be discussed for patients with craniofacial and dental anomalies and traumatic injuries. The course focuses on the guidelines, principles, and considerations of the above dental disciplines related to orthodontic diagnosis and treatment planning for comprehensive patient care.

Hours: 5

ORTHO D9520 082. The cleft palate patient

Professor Isaacson and staff. Second year.

Lectures and case presentation seminars related to the various problems encountered in the treatment of the patient with cleft palate and other craniofacial anomalies. Emphasis is placed on the concept of team management in the rehabilitation of these patients. Coordination of interdisciplinary treatment planning including surgery, speech and hearing, ENT, prosthetics, psychiatry, etc., is also emphasized. Objectives are to acquaint students with the special problems involved in the treatment of these patients and to prepare them to become members of cleft palate teams in their communities.

Hours: 14

ORTH D9548 082. Treatment of medically compromised patient

Professors Cangialosi and Staff. Second year

This course is designed to discuss the guidelines, principles, considerations, and medical regimens in treating medically compromised patients in orthodontics. Certain systemic diseases and conditions with potential adverse effects will jeopardize the successful delivery of orthodontic treatment. Discussion will be focused on the issues of prophylaxis, precautions, and risk management of the cardiac, hematological, immunological, endocrine, renal, connective tissue disorders, heart and kidney transplant patients.

Hours: 5