ORTH 5031 Orthodontic-Periodontic Seminar
Credits 0.5. 0.5 Other Hours.
An interdisciplinary course directed at topics relevant to orthodontics and periodontics. The effect of orthodontics on the supporting tissues, oral hygiene and periodontal assessment, and interdisciplinary approaches to treatment are topics of discussion.

ORTH 5042 TMD Clinic
Credits 0. 0 Other Hours.
A series of lectures, guest speakers, demonstrations, laboratory exercises and patient care activities are conducted to enable the student to diagnosis, plan treatment and treat patients with occlusal discrepancies, compromised muscle function and TMJ abnormalities.

ORTH 5050 Craniofacial Anomalies Clinic
Credits 0. 0 Other Hours.
During the second and third years, students rotate through the local children's hospital for the purpose of participating in the treatment of patients with a wide array of syndromes and craniofacial defects. From newborn to adult, a large number of patients are treated. Orthodontics is integrated with plastic surgery in this clinic.

ORTH 5103 Biomechanics I
Credits 0.5-1. 0.5-1 Lecture Hours.
Mechanical principles and biological factors affecting tooth movement, introduction to forces, statics, and dynamics, scalars and vectors, and analysis of force systems. Force and movement; basic concepts fundamental to an understanding of tooth movement.

ORTH 5107 Material Science in Orthodontics
Credits 0.5-1. 0.5-1 Lecture Hours.
Evaluation and utilization of dental materials used in clinical orthodontics.

ORTH 5108 Advanced Cephalometrics
Credit 1. 1 Lecture Hour.
Advanced topics relating to the cephalometric technique are presented, including superimposition, growth and treatment prediction, treatment assessment, consideration of error, orthognathic surgery treatment planning, and image enhancement techniques.

ORTH 5109 Orthognathic Surgery Conference I
Credits 0 to 10. 0 to 10 Other Hours.
This seminar/conference series involves the departments of Orthodontics and Oral and Maxillofacial Surgery in a multidisciplinary approach to the treatment of those patients with substantial craniofacial deformities. The course begins in the first year with a series of lectures/seminars on specific diagnostic and treatment procedures, followed by assignment of patients that will be supervised jointly by both specialties. Regular conferences are held to discuss pertinent literature, review patient progress, plan treatment and present completed cases. Each student is involved in all phases of treatment: presurgical orthodontics, the surgical procedure, finishing and retention.

ORTH 5110 Orthognathic Surgery Conference II
Credits 0 to 10. 0 to 10 Other Hours.
This seminar/conference series involves the departments of Orthodontics and Oral and Maxillofacial Surgery in a multidisciplinary approach to the treatment of those patients with substantial craniofacial deformities. The course begins in the first year with a series of lectures/seminars on specific diagnostic and treatment procedures, followed by assignment of patients that will be supervised jointly by both specialties. Regular conferences are held to discuss pertinent literature, review patient progress, plan treatment and present completed cases. Each student is involved in all phases of treatment: presurgical orthodontics, the surgical procedure, finishing and retention.

ORTH 5111 Orthognathic Surgery Conference III
Credits 0. 0 Other Hours.
This is a seminar course in which senior orthodontic and oral surgery residents work jointly to diagnose and treatment plan patients who are anticipating combined orthodontic/orthognathic surgery treatment to correct a dental/skeletal imbalance. The diagnosis and treatment plan(s) will be presented to the residents from both programs as well as attending faculty for critique and evaluation.

ORTH 5112 Orthognathic Surgery Seminar
Credits 0.5.
Surgical rotations in Oral and Maxillofacial Surgery. Can be repeated each academic term.

ORTH 5115 Clinical Specialty Seminars I
Credits 0 to 3. 0 to 3 Other Hours.
This series of courses is a companion to clinical training in orthodontics and involves faculty and student evaluation of historically significant as well as contemporary literature. In other sessions, lectures and seminars complement the clinic experience with topics including patient management, treatment of variously aged patients and types of malocclusions, and various types of orthodontic and orthopedic appliances. The students also are exposed to the historical development of orthodontics, additional treatment philosophies through guest speakers and new developments in treatment. Students present their cases through descriptions of diagnosis, treatment planning and treatment results.

ORTH 5125 Clinical Specialty Seminars II
Credits 0 to 10. 0 to 10 Other Hours.
This series of courses is a companion to clinical training in orthodontics and involves faculty and student evaluation of historically significant as well as contemporary literature. In other sessions, lectures and seminars complement the clinic experience with topics including patient management, treatment of variously aged patients and types of malocclusions, and various types of orthodontic and orthopedic appliances. The students also are exposed to the historical development of orthodontics, additional treatment philosophies through guest speakers and new developments in treatment. Students present their cases through descriptions of diagnosis, treatment planning and treatment results.
ORTH 5126 Clinical Specialty Seminars III
Credits 0 to 10. 0 to 10 Other Hours.
This series of courses is a companion to clinical training in orthodontics and involves faculty and student evaluation of historically significant as well as contemporary literature. In other sessions, lectures and seminars complement the clinic experience with topics including patient management, treatment of variously aged patients and types of malocclusions, and various types of orthodontic and orthopedic appliances. The students also are exposed to the historical development of orthodontics, additional treatment philosophies through guest speakers and new developments in treatment. Students present their cases through descriptions of diagnosis, treatment planning and treatment results.

ORTH 5129 Advanced Orthodontic Practice Management
Credits 0 to 2. 0 to 2 Lecture Hours.
This course considers the ethical approach to practice promotion and professional interactions in addition to the basic principles of office management. The latter include consideration of staff selection, office design, accounting methods, insurance considerations, inventory control and financial planning.

ORTH 5143 Principles of Scientific Methodology/Thesis Protocol
Credits 0.5. 0.5 Lecture Hours.
Basic precepts of research and the methodology of critical literature review in preparation of a research proposal.

ORTH 5144 Scientific Writing
Credits 0.5. 0.5 Other Hours.
A series of courses designed to assist the student in the preparation of a research proposal, a proposal to secure extramural funding and the thesis. When the research is concluded, instruction is given to enable the preparation of a manuscript suitable for publication.

ORTH 5148 Independent Research
Credits 0 to 10. 0 to 10 Other Hours.
Activity related to definition of a research problem, searching the literature, conducting the research, analyzing the results and preparing the thesis.

ORTH 5199 Thesis
Credit 1. 1 Other Hour.
During the term in which the thesis is defended, the student must elect this course. It includes activities related to the completion of the thesis.

ORTH 5200 Introduction to Orthodontics I
Credits 0.50 to 1.5. 0.50 to 1.5 Lecture Hours.
A course covering the basic topics related to the specialty of orthodontics. This series of lectures covers material presented in a textbook directed toward graduate education.

ORTH 5201 Introduction to Orthodontics II
Credits 1 to 2. 1 to 2 Lecture Hours.
Courses covering the basic topics related to the specialty of orthodontics. This series of lectures covers material presented in textbooks directed toward graduate education.

ORTH 5202 Introduction to Cephalometrics (Advanced Cephalometrics)
Credit 1. 0.5 Lecture Hours. 0.5 Lab Hours.
This course provides a thorough understanding of craniofacial radiographic techniques with emphasis on cephalometric roentgenography. This course is designed to acquaint the student with the use of X-rays, radiation hygiene, pathology and cephalometric techniques to assure proficiency in technical skills and in interpretation as needed for diagnostic procedures. This course includes both lecture and laboratory instruction.

ORTH 5230 Craniofacial Growth and Development
Credits 1 to 1.5. 1 to 1.5 Lecture Hours.
The clinical implications of changes in craniofacial form and function are presented. A critical review of the literature is conducted relating knowledge of facial growth and clinical practice.

ORTH 5248 Independent Research
Credits 0 to 2. 0 Lecture Hours. 0 to 2 Other Hours.
The course provides the guidance and time necessary for the residents to successfully complete the journal article summarizing the methods and results of their Master's research projects. Orthodontic residents should endeavor to publish their research projects. To that end, they need to know how to prepare their work for publication. Publication requires a good understanding of the IMRAD structure. By working closely with their mentors, committees and Dr. Buschang, the residents will learn how to outline the manuscript, prepare tables and figures, and write the text of the manuscript. This will be accomplished primarily by one-to-one interactions with Dr. Buschang.

ORTH 5532 Orthodontic Techniques
Credits 2. 2 Other Hours.
This offering includes basic preclinical exercises designed to prepare the student for clinical practice. A series of exercises are performed involving wire bending, soldering, impressions and model trimming, and the manipulation of acrylic. An edgewise course is conducted on typodonts simulating the treatment of various malocclusions.

ORTH 5533 Clinical Orthodontics I
Credits 0 to 10. 0 to 10 Other Hours.
Diagnosis and treatment of patients with a broad variety of malocclusions. Patient with typical malocclusions and requiring early treatment, dentofacial orthopedics, orthognathic surgery, and interdisciplinary care are selected as educational models. Techniques focus on standard edgewise technique including pretorqued and preangled brackets and lingual orthodontics.

ORTH 5534 Clinical Orthodontics II
Credits 0 to 10. 0 to 10 Other Hours.
Diagnosis and treatment of patients with a broad variety of malocclusions. Patients with typical malocclusions requiring early treatment, dentofacial orthopedics, orthognathic surgery, and interdisciplinary care are selected. Emphasis is on the edgewise appliances system with its many variations including pretorqued and preangled brackets, self-ligation systems and lingual orthodontics.
ORTH 5535 Clinical Orthodontics III

Credits 1 to 3.

Clinical Orthodontics entails the core clinical education of the orthodontic program. Treatment of malocclusions requiring early treatment, dentofacial orthopedics, orthognathic surgery and multidisciplinary care are selected as educational models. Clinical Orthodontics follows a structured, yet flexible, course outline to ensure that the resident becomes familiar with all aspects of contemporary clinical practice as presented by the various well-qualified clinical instructors. It is envisaged that no one treatment technique or philosophy will outrank another; a complete orthodontic education is of the essence. A broad range of appliance usage is taught ranging from removable appliances to the more sophisticated fixed preangulated brackets and lingual orthodontics (018 and 022). The clinics include the screening of potential orthodontic patients, underling the importance of obtaining ABO standard clinical records, complete case diagnosis, case analysis, treatment techniques, individualization of appliances, evidence-based treatment procedures, a pursuit of ABO treatment outcomes, as well as proven retention protocols. Furthermore, the course also places an emphasis on the attendance of continuing in orthodontic private practice; a philosophy of continued learning is encouraged. This clinical course provides an opportunity to consolidate the basic principles of case analysis and treatment planning, communication between clinician and patient, as well as interaction between different specialties to ensure competency in multidisciplinary treatment. Planning for long-term esthetic, healthy, functional and stable treatment is the order of the day.