

Department of Otorhinolaryngology and Head and Neck Surgery

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The Department of Otorhinolaryngology—Head and Neck Surgery offers clinical postgraduate resident training to MD graduates. It also offers clinical clerkships to medical students and specialty electives to interns and residents.

The residency program consists of five years with a gradual escalation in the clinical and surgical responsibilities of each resident. During the internship year, residents spend nine months rotating in relevant general surgical specialties, radiology, and emergency medicine and three months in the Otorhinolaryngology service. The acquired general surgical skills during this year act as a foundation for their future development as surgeons in Otorhinolaryngology—Head and Neck Surgery.

During the next four years of training, residents are exposed to all subspecialties in Otorhinolaryngology—Head and Neck Surgery, namely Otolaryngology, Rhinology, Laryngology, Head and Neck Surgery, Pediatric Otorhinolaryngology, and Facial Plastic and Reconstructive Surgery. In each subspecialty, residents learn the clinical and surgical principles required for the diagnosis and medical and surgical management of various diseases. The corresponding faculty members give a series of courses covering the updates of each subspecialty. A temporal bone surgical dissection course is also given yearly. For interdisciplinary exposure, faculties from other departments and services are often invited as speakers. Residents also contribute and learn from the monthly activities of the department, which include the Grand Rounds, Tumor Board, Mortality and Morbidity, Pathology conferences, Radiology conferences, and Journal Clubs. To ensure a busy clinical load, residents rotate in affiliated hospitals with diverse exposure to different areas of the country. These include Clemenceau Medical

Master of Science in Orthodontics

The Division of Orthodontics and Dentofacial Orthopedics in the department offers post graduate residency training to dental graduates. The specialty program lasts 36 months and is designed to carry clinical activities in a scholarly environment where basic science and clinical orthodontics are integrated. The major part of the postdoctoral program consists of clinical education and training with a spectrum of treatment ranging from childhood to adulthood, including patients who require orthognathic surgery. In addition, residents are enrolled in the Master of Science (MS) in Orthodontics program. The completion of a research project and defense of a corresponding thesis, related to clinical or basic sciences, is a requirement toward certification. Under specific conditions related mainly to the research thesis PGY II and PGY III residents are allowed to spend a period of one month per year in approved US programs under appropriate conditions of attendance in the program.

Program and Curriculum

The curriculum leading to the degree of Master of MS in Orthodontics and a residency certificate is structured after the scientist-practitioner model with dual emphasis on the scientist and practitioner aspects of the profession. The program covers, in addition to achieving competence in clinical practice, two essential requirements (also stipulated for accreditation by the American Dental Association's Commission on Dental Accreditation) which are the following:

- The inclusion of core credits of basic science courses (e.g. somatic, craniofacial growth and development biomechanics of tooth movement, research design and statistics)
- The conduct of original research and the corresponding successful defense of a written thesis

The degree is pursued concurrently with the clinical specialty training, which is also subject to defined requirements for clinical certification.

Basic knowledge courses include material on growth and development of the craniofacial complex and body, anatomy, anthropology, imaging of the head, scientific method, biostatistics, dental materials and biomechanics.

Daily seminars and classes are scheduled in a planned sequence over the three years and cover the basic topics as well as those related to orthodontics and other specialties necessary for multidisciplinary treatment, such as periodontics, restorative and cosmetic dentistry, minor oral and orthognathic surgery, temporomandibular dysfunction and pediatric dentistry.

Technical clinical courses and actual treatment requirements are non-credit activities commensurate with the AUBMC residency requirements. The clinical sessions include treatment delivery in the dentofacial clinic, encompassing specific requirements for the correction of malocclusions in children, adolescents and adults, as well as discussions of treatment planning, treatment progress and case reports. Practice is based on scientific evidence interpreted to the individual conditions of each patient.

The degree is awarded after successful completion of both didactic coursework and research (thesis defense).

Admission

Admission is offered on a highly selective basis only to students who have shown distinct academic ability and success on the entrance examination. The applications to the Residency and MS in Orthodontics are separate. The application process follows the conditions currently used at AUB and AUBMC for the MS degrees and the Residency. Final acceptance in the MS program will be through the Graduate Committee (MS requirements) and the Graduate Medical Education Committee (Residency), then through the institutional process.

The specific prerequisites for acceptance in the MS program include, in addition to the AUBMC general conditions for admission in an MS program, the following:

- Only applicants possessing the doctoral degree in Dental Medicine or its equivalent (Dental Surgery, Dentistry) from a recognized institution in Lebanon or abroad are accepted. The course requirements are designed to build upon the basic biological sciences common to those required for the dental doctoral degree.
- A cumulative average in dental school of at least 3.3 or its equivalent is required if ascertained by a school using a different grading system. The candidate may be accepted on probation if the grades are between B and B+.
- The candidate must pass the entrance examination that includes practical (wire bending), written exam, and oral exams. This balanced and comprehensive examination helps evaluate the candidate's critical and scientific approach to dentistry in general and orthodontics in particular.
- Evidence of proficiency in English is required by passing the English Language Proficiency Requirement or its equivalent as required by AUB. (refer to the requirements listed in the Graduate Studies section of the AUB graduate catalogue).
- Applicants will also be interviewed.

Courses and Credits

The total number of credits required for the proposed MS in Orthodontics is 30. The Graduate Studies Committee may waive a maximum of 6 credits of graduate course work taken as part of the candidate's dental graduate studies upon the proposal of the Orthodontic Admissions Committee. Accordingly, a total of 24 credits including the 9 research thesis credits represent the minimal requirement. Elective courses are offered as part of the MS courses within the scope of potential research topics from clinical to interdisciplinary research. Didactic courses make up nearly a third of the curriculum. They include lectures, seminars, literature review sessions, journal club, research presentations and case discussions.

Typically, the core courses and related course work will be completed within the first two years of the program. The clinical specialty training will span over the three years of study. Most of the research will take place in years two and three, with a major focus on the research project and thesis defense in the third year. The degree will not be awarded no earlier than three years after matriculation in the program.

Clinical Curriculum

The clinical component encompasses a spectrum of treatments ranging from childhood to adulthood, including management of patients who require orthognathic surgery and those with craniofacial anomalies (e.g. cleft lip/palate). Trainees will be exposed to a variety of disorders and training experiences. Each resident will have a range of

problems to treat that cover a full scope of malocclusions and craniofacial anomalies, as well as a spectrum of treatment approaches and mechanics, including orthognathic surgery of skeletal dysplasias. Supervised clinical activities are supplemented with classroom activities (seminars, case presentations, literature review).

Research

The research project may be clinical or basic. Each student will have the opportunity to develop strong research skills and conduct an original study fulfilling rigorous scientific norms. Students will register for courses in clinical and basic research methods (relative to applicable research) and elective basic medical and health sciences that are needed for the conduct of the specific project. The residents will be initiated into the formulation of research hypotheses and aims, research design, and statistical analyses that should provide them with the skills required to complete theses of publishable quality.

Collaborative projects between AUB faculties foster the concept of inter-professional cooperation, bringing together medical/dental disciplines with not only public health (most natural alliance) and business (e.g. medical management, third party pay and insurance development), but also engineering (e.g. biomedical engineering developments) and education (e.g. education policy, higher education management). Participation of mentors from other faculties/departments is based on mutual interests between the specialties and actual professors from both sides.

Faculty

All faculty members in the program are full-time or part-time associated faculty. Depending on the courses and instruction they provide, their role is either in the basic studies, the clinical program or both. Credentials of the teaching faculty are distinguished including clinicians with certification from highly recognized orthodontic programs, including the AUB program, and American or European specialty boards.

Course Descriptions

The Division of Orthodontics and Dentofacial Orthopedics offers postgraduate courses to dentists specializing in Orthodontics at the American University of Beirut Medical Center/Faculty of Medicine. The courses required for the MS in Orthodontics are listed below. They do not include elective courses listed in the catalogue of graduate FM, FHS and other AUB faculties.

ODFO 301 Craniofacial Growth and Development 48; 3 cr.
 This course focuses on basic growth concepts and mechanisms (including underlying biological and cellular growth events), the main craniofacial components (cranial base, maxilla and mandible, and their interrelationships at different stages of growth), the tissues involved in facial growth (bone, cartilage, muscle and teeth), the relationship between main somatic and facial growth, and the development of growth deformities. *Lectures, seminars, review of key articles and presentations by residents of selected assignments.*

ODFO 302	Craniofacial Imaging	48.0; 3 cr.
	Craniofacial Imaging I	8.0; 0.5 cr.
	Principles and applications of advanced radiology	
	Craniofacial Imaging II	30; 1.9 cr.
	Cephalometric method and science	

This multifaceted series includes lectures and laboratory applications through assignments to impart knowledge on correspondence of cephalometric radiographs to anatomy, assessment of craniofacial growth and maxillofacial orthopedic treatment, visualization of orthodontic/orthognathic surgical treatment, simulation of growth and treatment outcome. *Lectures, seminars, review of key articles and presentations by residents of selected assignments.*

	Craniofacial Imaging III	10.0; 0.6 cr.
	Applications of 3D Imaging in Orthodontics	

This advanced knowledge series encompasses current and developing methods utilizing 3D technology related to: diagnosis and treatment planning of specific conditions (e.g. impacted canines, orthodontic- surgical treatment, airway assessment, placement of mini-implants); biologic boundaries of tooth movement; use of CBCT in orthodontic research (e.g. volume assessment of palate and chin); assessment of treatment changes upon 3D cephalometric and palatal rugae superimpositions; modelling and prediction of tooth movement, including the utilization of finite element analysis.

Lectures, seminars, review of key articles and presentations by residents of selected assignments.

ODFO 303	Biology and Mechanics of Tooth Movement and Properties of Wire	48; 3 cr.
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Biological responses to and physical principles of tooth movement. *Lectures, seminars, review of key articles and presentations by residents of selected assignments.*

ODFO 304	Research Science: Method, Design and Conduct	26.12; 2 cr.
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A guided laboratory course in methods used as aids in morphologic research. *Lectures, seminars, review of key articles and presentations by residents of selected assignments.*

ODFO 305A/ ODFO 305B	General and Maxillofacial Medicine	16; 1 cr.
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Issues in dentistry and medicine.

Lecture series by invited speakers from various medical and dental fields pertinent to the science of orthodontics and medical/dental care (e.g. nose anatomy and physiology, pediatric Otorhinolaryngology, head and neck pathology, genetics principles, counseling and prenatal diagnosis, sleep apnea, practical concepts on general anesthesia, pharmacology and pain management).

ODFO 306 **Journal Club** **1 cr.**
Weekly.

ODFO 307 **Craniofacial Seminar** **1 cr.**
Monthly over 3 years.

ODFO 395 **Comprehensive Exam** **0 cr.**

ODFO 399 **MS Thesis** **9 cr.**
 Original research under staff supervision leading to the MS degree.

Clinical Residency Sections

ODOC 3800/ **Clinical Clerkship** **0 cr.**
ODOC 3900
 The course includes pretreatment (record taking, diagnosis and treatment planning) and treatment (morning and afternoon sessions in the Dentofacial Clinic). *Modules. Daily.*

ODOC 3000 **Courses in Orthodontics** **0 cr.**
 Exposure to orthodontics and its allied fields. *Daily.*

ODFO 301S **Community Service Project** **0 cr.**
 Development of, or involvement in, project that benefits the community.

Residency and Master of Science in Clinical Orthodontics

Orthodontics Postgraduate Courses

Core Courses (ODFO)		Year	Credit Hrs.
Craniofacial Biology and Imaging			
ODFO 301	Craniofacial Growth and Development	1	3 cr.
ODFO 301A	Craniofacial Development		
ODFO 301B	Somatic Growth		
ODFO 301C	Development of the Dentition		
ODFO 301D	Facial Musculature in Orthodontics		
ODFO 302	Craniofacial Imaging		
ODFO 302A	Craniofacial Imaging I: Basics of Radiographic Imaging	1	0.5 cr.
ODFO 302B	Craniofacial Imaging II: Cephalometrics	1	1.9 cr.
ODFO 302C	Applications of 3D Imaging in Orthodontics	1	0.6 cr.
ODFO 303A	Biology of Tooth Movement		
ODFO 303B	Mechanics of Tooth Movement		
ODFO 303C	Properties of Wires		

General and Maxillofacial Medicine			
ODFO 305	General and Maxillofacial Medicine – Issues in Dentistry and Medicine	1/2/3	
ODFO 305A	Comparative mammal anatomy (2), nose anatomy and physiology (2), pediatric Otorhinolaryngology (2), overview of head and neck anatomy pathology and treatment (4), speech pathology (2), sleep apnea (4)		1 cr.
ODFO 305B	Genetics principles, counseling and prenatal diagnosis (2); practical concepts on general anesthesia (3), pharmacology (3), pain management (4), overview of adolescent medicine (2), jurisprudence and patient privacy (2)		1 cr.
Scientific Methods and Reviews			
ODFO 304	Research Science: Method, Design and Conduct <i>Scientific Method and Research Design</i>	1	2 cr.
ODFO 306	Journal Club	2/1	1 cr.
Craniofacial Anomalies			
ODFO 307	Craniofacial Seminar	1/2/3	1 cr.
Elective Courses			
	Credits in the existing AUB FM/FHS/other faculties graduate programs, if deemed relevant to the field of individual research and upon recommendation by the research adviser.		2 to 6 cr.
ODFO 399	Thesis	3	9 cr.