COURSE DESCRIPTIONS

Postdoctoral Certificate in Orthodontics

BIOR 9005 – Advanced Oral Biology Core Course. Five (5) credits.
The discipline of Oral Biology deals with the structural development and functions of the oral tissues, their interrelationships, and their relation to other organ systems in both healthy and disease stages. The intent of this course is to provide a basis and a logical educational bridge between the Biomedical Sciences and the Clinical Practice of Dental Specialties.

ORTO 9101 – Orthodontic Literature Review I. One (1) credit. Co-requisites: ORTO 9102, ORTO 9104, ORTO 9105, ORTO 9106.
This is a course in which the graduate orthodontic student will be responsible for obtaining from the library or any other resource, reading, critically evaluating, and presenting to the faculty and their peers, a broad range of scientific articles, dealing with or associated to the art and science of Orthodontics. These articles will be directly related to and complementary with the subject matter of the other Orthodontic courses taken during each semester.

ORTO 9102 – Post Graduate Orthodontic Laboratory I. Three (3) credits. Co-requisites: ORTO 9101, ORTO 9105, ORTO 9106.
Intensive technical instruction and lectures in the assembling and manipulation of orthodontic appliances. Appliances are constructed and when necessary the Typodont Technique is utilized. Emphasis is given to band adaptation, wire manipulation, the edgewise orthodontic appliance, and extraoral orthopedic appliances.

ORTO 9103 – Orthodontic Post Graduate Clinic I. Eight (8) credits. Co-requisites: ORTO 9101, ORTO 9102, ORTO 9104, ORTO 9105, ORTO 9106, ORTO 9107.
This course is designed to expose the Post-Graduate Orthodontics students to their first clinical experience in this specialty area. It provides the opportunity to learn from different clinical cases which students are expected to diagnose, treat, and follow-up the following three years. The use of fixed edgewise, extraoral, removable, functional, and retentive appliances is emphasized. The student should develop analytical biomechanical and motor skills as they apply specifically to Orthodontics. Grading System: Passed (P), Fail (F).

ORTO 9104 – Craniofacial Growth and Development. Two (2) credits. Co-requisites: ORTO 9101, ORTO 9105, ORTO 9106.
This course is designed to provide the Orthodontic graduate resident with basic knowledge in physical growth and development of the craniofacial complex. Theories of growth, teeth, facial bones, and masticatory as well as expression muscles are reviewed in depth. The field constitutes essential knowledge to the practice of Orthodontics. Grading System: Passed (P), Fail (F).

ORTO 9105 – Orthodontic Diagnosis and Treatment Planning I. Ten (10) credits. Co-requisites: ORTO 9101, ORTO 9102, ORTO 9103, ORTO 9104, ORTO 9106, ORTO 9107.
This course is designed to prepare the Orthodontic resident in the processes of taking and analyzing diagnostic records, clinical evaluation and in conjunction with the patient’s medical and dental history, be able to design a problem list and treatment objectives. An intense review of the literature will support the decision making process and scientific articles will be assigned on each session. The didactic experience will be performed through daily seminars or conferences during the month of July and seminars during the First Semester. Grading System: Passed (P), Fail (F).
The course will have a one year (two semesters; approximately 50% of the material will be covered in each
semester) length. It is designed for the First Year Orthodontic graduate students. In depth review of several
topics related to the general area of biomechanical principles necessary to perform orthodontic tooth
general movements is expected. Basic knowledge related to materials and their clinical use is also included.
Mechanics are specifically discussed for the straight wire appliance, the segmented arch technique, and to
a lesser extent older approaches as the standard edgewise and the begg appliance. Grading System:
Passed (P), Fail (F).

ORTO 9107 – Case Presentation Seminar I. Two (2) credits. Co-requisites: ORTO 9101, ORTO 9102,
ORTO 9104, ORTO 9105, ORTO 9106.
During the sessions, the residents will present all their clinical cases to the clinical instructor responsible for
the clinic on that day. All diagnostic records will be thoroughly evaluated and a treatment plan will be
developed to address the clinical problems presented on each case. The residents will be examined in their
knowledge on diagnosis and a treatment planning, scientific literature, treatment modalities, and orthodontic
appliances. Based on this experience the resident will be exposed to different treatment alternatives and
will develop a sense of clinical judgment based on a multidisciplinary approach. Grading System: Passed
(P), Fail (F).

ORTO 9201 – Orthodontic Literature Review II. Two (2) credits. Pre-requisites: ORTO 9101, ORTO 9102,
ORTO 9103, ORTO 9104, ORTO 9105, ORTO 9106, ORTO 9107. Co-requisites: ORTO 9202, ORTO
9203, ORTO 9205, ORTO 9206, ORTO 9207, ORTO 9208.
This is a course in which the graduate orthodontic student will be responsible for obtaining from the library
or any other resource, reading, critically evaluating, and presenting to the faculty and their peers, a broad
range of scientific articles, dealing with or associated to the art and science of Orthodontics. These articles
will be directly related to and complementary with the subject matter of the other orthodontic courses taken
during each semester.

ORTO 9202 – Post Graduate Orthodontic Laboratory II. Two (2) credits. Pre-requisites: ORTO 9101,
ORTO 9102, ORTO 9103, ORTO 9104, ORTO 9105, ORTO 9106, ORTO 9107. Co-requisites: ORTO
9201, ORTO 9203, ORTO 9205, ORTO 9206, ORTO 9207, ORTO 9208.
Intensive technical instruction and lectures in the assembling and manipulation of orthodontic appliances.
Appliances are constructed and when necessary the Typodont Technique is utilized. Emphasis is given to band
adaptation, wire manipulation, the edgewise orthodontic appliance and extraoral orthopaedic appliances.

ORTO 9203 – Orthodontic Post Graduate Clinic II. Eight (8) credits. Pre-requisites: ORTO 9101, ORTO
9102, ORTO 9103, ORTO 9104, ORTO 9105, ORTO 9106, ORTO 9107. Co-requisites: ORTO 9201,
ORTO 9202, ORTO 9205, ORTO 9206, ORTO 9207, ORTO 9208.
This course is designed to expose the Post-Graduate Orthodontic students to their first clinical experience in
this specialty area. It provides the opportunity to learn from different clinical cases which students are
expected to diagnose, treat and follow up for the following three years. The use of fixed edgewise, extraoral removable, functional and retentive appliances is emphasized. The student should develop
analytical biomechanical and motor skills as they apply specifically to Orthodontics. A higher level of
proficiency and greater independence levels are expected in this course as compared to ORTO 9103.
Grading System: Passed (P), Fail (F).
ORTO 9205 – Orthodontic Diagnosis and Treatment Planning II. Two (2) credits. Pre-requisites: ORTO 9101, ORTO 9102, ORTO 9103, ORTO 9104, ORTO 9105, ORTO 9106, ORTO 9107. Co-requisites: ORTO 9201, ORTO 9202, ORTO 9203, ORTO 9206, ORTO 9207, ORTO 9208.
This course is designed to prepare the Orthodontic resident in the processes of taking and analyzing diagnostic records, clinical evaluation and in conjunction with the patient’s medical and dental history, be able to design a problem list and treatment objectives. An intense review of the literature will support the decision making process and scientific articles will be assigned on each session. The didactic experience will be performed through daily seminars or conferences during the month of July and weekly seminars during the First Semester. Grading System: Passed (P), Fail (F).

The course is designed for the First Year Orthodontic graduate students. In depth review of several topics related to the general area of Orthodontic dental materials. Basic knowledge related to structure of mater is reviewed. Grading System: Passed (P), Fail (F).

ORTO 9207 – Case Presentation Seminar II. Two (2) credits. Pre-requisites: ORTO 9101 to ORTO 9107. Co-requisites: ORTO 9201 to ORTO 9203, ORTO 9205 to ORTO 9207.
During the sessions, the residents will present their clinical cases to the clinical instructor responsible for the clinic on that day. All diagnostic records will be thoroughly evaluated and treatment plan will be developed to address the clinical problems presented on each case. The residents will be examined in their knowledge on diagnosis and treatment planning, scientific literature, treatment modalities and orthodontic appliances. Based on this experience, the resident will be exposed to different treatment alternatives and will develop a sense of clinical judgment based on a multidisciplinary approach.

ORTO 9208 – Orthodontic Interdisciplinary Seminar I. Two (2) credits. Pre-requisites: ORTO 9101 to ORTO 9107. Co-requisites: ORTO 9201 to ORTO 9203, ORTO 9205 to ORTO 9207.
This course is designed to train the Orthodontic graduate residents in the diagnosis, treatment planning, and clinical management of patients undergoing orthognathic or craniofacial surgery. A broad variety of lectures covering the most important aspects of surgical orthodontics including its multi-disciplinary management will be presented. Readings will be assigned for each lecture and the residents will actively participate during the presentation. Seminars and interdisciplinary staffings concerning congenital malformations of the jaw with particular emphasis placed on congenital clefts of the lip and palate, craniofacial syndromes and orthognathic surgery cases will be presented. The embryology, etiology and morphology of congenital facial malformations will be discussed. Post-natal growth problems and associated complications in respiration, deglutition, mastication and speech will be studied. Longitudinal growth studies will be presented revealing growth, developmental and functional changes. Treatment modalities and outcomes will be critically evaluated. Grading System: Passed (P), Fail (F).

ORTO 9301 – Orthodontic Literature Review III. Two (2) credits. Pre-requisites: ORTO 9101, ORTO 9102, ORTO 9103, ORTO 9104, ORTO 9105, ORTO 9106, ORTO 9107, ORTO 9201, ORTO 9202, ORTO 9203, ORTO 9205, ORTO 9206, ORTO 9207, ORTO 9208. Co-requisites: ORTO 9303, ORTO 9304, ORTO 9307, ORTO 9306.
This is a course in which the graduate Orthodontic student will be responsible for obtaining from the library or any other resource, reading critically, evaluating, and presenting to the faculty and their peers a broad range of scientific articles, dealing with or associated to the art and science of Orthodontics. These articles will be directly related to and complementary with the subject matter of the other orthodontic courses taken during each semester.
ORTO 9303 – Orthodontic Post Graduate Clinic III. Eight (8) credits. Pre-requisites: ORTO 9101, ORTO 9102, ORTO 9103, ORTO 9104, ORTO 9105, ORTO 9106, ORTO 9107, ORTO 9201, ORTO 9202, ORTO 9203, ORTO 9205, ORTO 9206, ORTO 9207, ORTO 9208. Co-requisites: ORTO 9301, ORTO 9304, ORTO 9307, ORTO 9308.

This course is designed to expose the postgraduate students to clinical experiences in this specialty area. It provides the opportunity to learn from different clinical cases which students are expected to diagnose, treat, and follow-up for the following two years. The use of fixed edgewise, extraoral removable, functional, and retentive appliances is emphasized. The student should develop analytical biomechanical and motor skill as they apply specifically to Orthodontics. A higher level of proficiency and greater independence levels are expected in this course as compared to ORTO 9203. Grading System: Passed (P), Fail (F)

ORTO 9304 – Craniofacial Anomalies Seminar I. Two (2) credits. Pre-requisites: ORTO 9101 to 9107, ORTO 9201 to 9203, ORTO 9205 to 9208. Co-requisites: ORTO 9301, 9303, 9307, 9308.

This course is designed to train the Orthodontic graduate resident in the diagnosis, treatment planning, and clinical management of patients undergoing orthognathic or craniofacial surgery. A broad variety of lectures covering the most important aspects of surgical orthodontics including its multidisciplinary management will be presented. Readings will be assigned for each lecture and the residents will actively participate during the presentation. Seminars and interdisciplinary staffings concerning congenital malformations of the jaws with particular emphasis placed on congenital clefts of the lip and palate, craniofacial syndromes and orthognathic surgery cases will be presented. The embryology, etiology, and morphology of congenital facial malformations will be discussed. Post natal growth problems and associated complications in respiration, deglutition, mastication, and speech will be studied. Longitudinal growth studies will be presented revealing growth, developmental, and functional changes. Treatment modalities and outcomes will be critically evaluated. Grading System: Passed (P), Fail (F)

ORTO 9307 – Case Presentation Seminar III. Two (2) credits. Pre-requisites: ORTO 9101 to ORTO 9107, ORTO 9201 to ORTO 9203, ORTO 9205 to ORTO 9208. Co-requisites: ORTO 9301, ORTO 9303, ORTO 9304, ORTO 9308.

During the sessions, the resident will present their clinical cases to the clinical instructor responsible for the clinic on that day. All diagnostic records will be thoroughly evaluated and treatment plan will be developed to address the clinical problems presented on each case. The residents will be examined in their knowledge on diagnosis and treatment planning, scientific literature, treatment modalities, and orthodontic appliances. Based on this experience the resident will be exposed to different treatment alternatives and will develop sense of clinical judgment based on a multidisciplinary approach. Grading System: Passed (P), Fail (F)

ORTO 9308 – Orthodontic Interdisciplinary Seminar II. Two (2) credits. Pre-requisites: ORTO 9101 to ORTO 9107, ORTO 9201 to ORTO 9203, ORTO 9205 to ORTO 9208. Co-requisites: ORTO 9301, ORTO 9303, ORTO 9304, ORTO 9307.

This course is designed to train the Orthodontic graduate residents to evaluate all the dental aspects that need to be taken into consideration before the diagnosis and treatment planning of a case. A broad variety of lectures reviewing the important aspects of the clinical areas of Periodontics, Endodontics, and Prosthodontics, implants, occlusion and TMJ and their interrelationship with orthodontic treatment will be presented. Readings will be assigned for each lecture and the resident will actively participate during the presentation. Seminars with interdisciplinary staffings will be conducted where emphasis will be placed on the early diagnosis and detection of dental problems that will affect the orthodontic treatment and the adequate treatment sequence that should be followed. Each resident is responsible of presenting a clinical case that requires the multidisciplinary approach. Grading System: Passed (P), Fail (F)
This is a course in which the graduate Orthodontic student will be responsible for obtaining from the library or any other resource, reading critically, evaluating and presenting to the faculty and their peers a broad range of scientific articles, dealing with or associated to the art and science of Orthodontics. These articles will be directly related to and complementary with the subject matter of the other orthodontic courses taken during each semester.

This course is designed to expose the post-graduate Orthodontic students to clinical experiences in this specialty area. It provides the opportunity to learn from different clinical cases which students are expected to diagnose, treat and follow-up for the following 1.5 years. The use fixed edgewise, extraoral removable, functional and retentive appliances is emphasized. The student should develop analytical biomechanical and motor skill as they apply specifically to Orthodontics. A higher level of proficiency and greater independence level is expected in this course as compared to Orthodontic Post-Graduate Clinic III (ORTO 9303). Grading System: Passed (P), Fail (F)

ORTO 9404 – Craniofacial Anomalies Seminar II. Two (2) credits. Pre-requisites: ORTO 9103, ORTO 9303, ORTO 9304, ORTO 9307, ORTO 9308. Co-requisites: ORTO 9401, ORTO 9403, ORTO 9404, ORTO 9407, ORTO 9408.
This course is designed to train the Orthodontic graduate resident in the diagnosis, treatment planning and clinical management of patients undergoing orthognathic or craniofacial surgery. A broad variety of lectures covering the most important aspects of surgical Orthodontics including its multidisciplinary management will be presented. Readings will be assigned for each lectures and the residents will actively participate during the presentation. Seminars and interdisciplinary staffings concerning congenital malformations of the jaws with particular emphasis placed on congenital clefts of the lip and palate, craniofacial syndromes and orthognathic surgery cases will be presented. The embryology, etiology and morphology of congenital facial malformations will be discussed. Post natal growth problems and associated complications in respiration, deglutition, mastication and speech will be studied. Longitudinal growth studies will be presented revealing growth, developmental and functional changes. Treatment modalities and outcomes will be critically evaluated. Grading System: Passed (P), Fail (F)

ORTO 9407 – Case Presentation Seminar IV. Two (2) credits. Pre-requisites: ORTO 9103, ORTO 9303, ORTO 9304, ORTO 9307, ORTO 9308. Co-requisites: ORTO 9401, ORTO 9403, ORTO 9404, ORTO 9408.
During the sessions, the residents will present their clinical cases to the clinical instructor responsible for the clinic on that day. All diagnostic records will be thoroughly evaluated and treatment plan will be developed to address the clinical problems presented on each case. The residents will be examined in their knowledge on diagnosis and treatment planning, scientific literature, treatment modalities and orthodontic appliances. Based on this experience the resident will be exposed to different treatment alternatives and will develop a sense of clinical judgment based on a multidisciplinary approach. Grading System: Passed (P), Fail (F)

This course is designed to expose the residents to a variety of topics related to the clinical, legal and practical aspects in the field of Orthodontics. A broad variety of lectures covering the topics of Radiology, Arthroscopy, Pharmacology, Dental Emergencies, Psychological Effects of Dental Malocclusion, Infection Control, Total Quality, Ethics, Jurisprudence and Practice Management will be presented. In addition, readings will be assigned for the lectures and the residents will actively participate during the presentation. This course will enable the residents to integrate all the different aspects in the management of an orthodontic case, not only clinically but also medicolegally and ethically. Also, with this course the residents will be aware of what to expect in private practice scenario. Grading System: Passed (P), Fail (F)


This is a course in which the graduate Orthodontic student will be responsible for obtaining from the library or any other resource, reading critically, evaluating and presenting to the faculty and their peers a broad range of scientific articles, dealing with or associated to the art and science of Orthodontics. These articles will be directly related to and complementary with the subject matter of the other orthodontic course taken during each semester.


This course is designed to expose the post-graduate Orthodontic students to clinical experience in this specialty area. It provides the opportunity to learn from different clinical cases which students are expected to diagnose, treat and follow-up for the following year. The use of fixed edgewise, extraoral, functional and retentive appliances is emphasized. The student should develop analytical biomechanical and motor skill as they apply specially to Orthodontics. A higher level of proficiency and greater independence level is expected in this course as compared to Orthodontics Post-Graduate Clinic IV (ORTO 9403). Grading System: Passed (P), Fail (F)

ORTO 9507 – Case Presentation Seminar V. Two (2) credits. Pre-requisites: ORTO 9401, ORTO 9403, ORTO 9404, ORTO 9407, ORTO 9408. Co-requisites: ORTO 9501, ORTO 9503, ORTO 9507, ORTO 9508.

During the sessions, the residents will present their clinical cases to the clinical instructor responsible for the clinic on that day. All diagnostic records will be thoroughly evaluated and treatment plan will be developed to address the clinical problems presented on each case. The residents will be examined in their knowledge on diagnosis and treatment planning, scientific literature, treatment modalities and orthodontics appliances. Based on this experience the resident will be exposed to different treatment alternatives and will develop a sense of clinical judgment based on a multidisciplinary approach. Grading System: Passed (P), Fail (F)


This is a course in which the resident will be exposed to a variety of topics related to the administrative, management and marketing aspects of an Orthodontic Office. A broad variety of topics such as Office Layout and Dental Equipment, Human Resources, Labor Laws, Computer Systems, Dental Insurances, Property Insurances, Investments, Disability Insurance, Accounting, Practice Management, Marketing and Public Health will be discussed. Guest experts on each topic will be invited. This course will enable the residents to be exposed to administrative considerations in establishing an office. Other alternatives such as buying in or out and partnerships will also be explored so that the resident can make an educated decision in terms of the alternatives available to practice Orthodontics. Grading System: Passed (P), Fail (F)
This is a course in which the graduate Orthodontic student will be responsible for obtaining from the library or any other resource, reading critically, evaluating and presenting to the faculty and their peers a broad range of scientific articles, dealing with or associated to the art and science of Orthodontics. These articles will be directly related to and complementary with the subject matter of the other orthodontic course taken during each semester.

This course is designed to provide the post-graduate Orthodontic resident with basic knowledge and experience in scientific data analysis, data interpretation and scientific writing. It is expected that the resident will perform these objectives based on data recollected from the scientific project assigned during the first two and a half years of residency. The data will be analyzed and discussed with the Thesis mentor and will follow the strict protocol proposed in the original project proposal. All drafts and the final version of the document will be distributed to the Thesis Committee for evaluation and recommendations. Once the written document is approved by the Thesis Committee, a formal oral defense will be conducted to evaluate the degree of matership of the specific subject by the resident. The written Thesis and the oral defense will follow the specific rules and regulations of the Research Committee of the School of Dentistry, University of Puerto Rico, in order to receive a Master’s Degree in Dental Sciences. If the resident fulfills the required expectations by the committee members, they will recommend that a Master’s Degree can be granted. Grading System: Passed (P), Fail (F)

This course is designed to expose the post-graduate students to clinical experience in this specialty area. It provides the opportunity to learn from different clinical cases which students are expected to diagnose, treat and follow-up for the following semester. The use of fixed edgewise, extraoral, removable, functional and retentive appliances is emphasized. The student should develop analytical biomechanical and motor skill as they apply specifically to Orthodontics. Grading System: Passed (P), Fail (F).

This course is designed for the post-doctoral student at the School of Dental Medicine to prepare a research project to obtain a Master in Sciences in Dentistry. It is conducted as an independent study under the supervision of a thesis committee. Grading System: Honor (H), Satisfactory (S), Not Passed (NP).

The course is designed for post-doctorate (residents) in Dentistry. It focuses on basic concepts of oral health research, study design and planning, statistical analysis for various types of research studies, as well as basics of hypothesis testing and statistical inference. This course is conducted by means of lectures, discussions, and computer lab sessions.

PDOC 9101 – Introduction to Research Planning. Two (2) credits. Pre-requisites: PDOC 9006.
This course is designed for the post-doctoral student (resident) to complete a literature review and write an outline of the methods to be employed for a research project on a topic related to oral health. The course will be conducted by means of discussions and presentations of students' work.

This course is designed for the post-doctorate student (resident) to complete the methods and statistical design section of a research proposal. This course will be conducted by means of discussions and presentations of students' work. Grading System: Honor (H), Satisfactory (S), Not Passed (NP)
PROG 9515 – Professional Studies in Dentistry. Zero (0) credit.
This is a course directed to graduated students in Dentistry. The student selects a specific area of Dentistry in which he/she shows interest in order to deepen his/her knowledge and to develop even more the skills previously acquired. The student is exposed to the most recent literature in all fields of Dentistry and to enhance his/her capacity to critically analyze divergent points of view and to become familiar with the new trends. The theoretical knowledge acquired will be place into practice through clinical work, in a full time basis during the semester. The course is offered through lectures, literature review, seminars, clinical work, laboratory and research. At the end of the course the student will have a deep knowledge of the selected subject and will be able to integrate the acquired concepts and the refined skills to apply them in real clinical situations. Grading System: Passed (P), Not Passed (NP).