



HARVARD
School of Dental Medicine

Advanced Graduate Education Course Catalog

Spring 2022

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SPRING 2021 COURSE OFFERINGS

This catalog is subject to change and location of the courses below is TBD. Please click on the course number links to reach the online course catalog for more information.

Core Courses	Credits	Day	Time	Dates
ORB607 : Clinical Pharmacology	3	T	1:00 PM - 3:00 PM	1/26 to 5/11
ORB610 : Advanced Oral Medicine, Pathology, and Radiology	3	M	10:00 AM - 12:00 PM	1/25 to 5/10
ORB611 : Craniofacial Development and Genetics	3	M	8:00 AM - 10:00 AM	1/25 to 5/10
ORB614 : Mineralized Tissue Biology and Diseases	3	T	3:00 PM - 5:00 PM	2/2 to 5/11
IDP600, 700, 800, & 900 : AGE Research Seminar Series	N/A	Th	5:00 PM -6:00 PM	1/4 to 6/30
Non-Clinical Electives	Credits	Day	Time	Dates
DHE601 : Global Oral Health: Interdisciplinary Approaches	3	F	9:00 AM - 12:00 PM	1/29 to 3/12
ORB606 : Fundamentals of Oral Implantology	3	T	1:00 PM - 3:00 PM	1/26 to 5/11
<i>Courses continuing from the fall are listed in the course descriptions below.</i>				

Spring 2022 Calendar

December 1, 2021	Online Course Shopping begins
January 1, 2022	Holiday: New Year's Day
January 5, 2022	Online Course Registration begins
January 9, 2022	Grades for Fall Semester due
January 17, 2022	Holiday: Martin Luther King's Day
January 24, 2022	AGE Spring Courses begin
February 9, 2022	Add/Drop/Change Deadline
February 21, 2022	Holiday: Presidents' Day
April 5, 2022	Research Day
December 17, 2022	AGE Spring Courses and Final Examinations end
<u>May 26, 2022</u>	<u>Commencement</u>
May 30, 2022	Holiday: Memorial Day

Course Descriptions

ORAL BIOLOGY

ORB607: Clinical Pharmacology

Course Director: Jeffrey Shaefer

Format: Didactic lectures, nitrous and emergency medicine practical exercises

Evaluation: Assessment will be based on a final exam and class presentation.

Description: Building upon the basic principles of pharmacology learned in dental school, the student will understand the nature, administration, effects and potential complications of many drug classes. The emphasis will be on appropriate and accurate use of therapeutic agents commonly used in the practice of dentistry. This course will examine topics to include basic principles of pharmacokinetics and pharmacodynamics; pain control - intraoperative and postoperative; techniques for conscious sedation to include pediatric sedation; antibiotics; opioids; anxiolytic agents; NSAIDs; pharmacologic precautions with ASA III-IV patients; and drug interactions that occur with medications used in the practice of dentistry.

Prerequisites: Review of the principles of pharmacology at the pre-doctoral level

Open to Cross Registrants: Yes

ORB610: Advanced Oral Medicine, Pathology, and Radiology

Course Director: Reshma Menon

Format: Lectures and case-based projects

Evaluation: Weekly quizzes, cumulative mid-term, and final examinations (multiple choice, matching, and short-answer questions)

Description: The goal of this course is to provide students with formal instructions in advanced oral pathology, oral medicine, and oral radiology. Students will be expected to be familiar with the etiology, clinical and radiographic manifestations, associated laboratory findings, and managements of common oral pathology entities. These conditions include inflammatory disorders, infections, neoplasms, immune dysregulations, and other acquired and developmental disorders. Students will gain an understanding of and appreciation for advanced diagnostic techniques in cytology and pathology, including special staining, immunohistochemistry, and direct and indirect immunofluorescence studies. Students will learn to demonstrate an ability to formulate a reasonable differential diagnosis based on available histories and clinical, radiographic, and laboratory findings as well as an ability to plan an appropriate course of treatment. Class participation is an important component of the course.

Prerequisites: Pre-doctoral foundation in oral pathology and oral medicine

Open to Cross Registrants: Yes

ORB611: Craniofacial Development and Genetics

Course Director: Bjorn Olsen

Format: Lecture followed by discussion

Evaluation: Mid-term and final examinations

Description: Required course for all first year MMSc and DMSc students. This course provides AGE students with an opportunity to apply some of the general principles of developmental biology and genetics to specific problems of craniofacial, oral and dental medicine. The course features Case Discussions and supporting Lectures in an interactive format. Reading assignments, group presentations and a Take-home Exam are also important components of the course. At the end of the Craniofacial Development and Genetics Course, the students are expected to: better understand how genetic diseases can affect the intracellular processes, intercellular interactions and biological signaling pathways essential for tooth and bone development; know about strategies for determining whether a craniofacial/dental birth defect is the result of a genetic, environmental, or chance event; understand strategies for diagnosing and identifying a genetic cause of craniofacial abnormalities and associated dental defects; demonstrate ability to discuss mechanisms by which mutations in genes can give rise to clinical phenotypes; know about treatment strategies for patients with genetic diseases affecting craniofacial bones and teeth; demonstrate learning progress based on a good record of participation in case discussions and presentation assignments and perform well on a take-home exam.

Prerequisites: None

Open to Cross Registrants: Yes

ORB614: Mineralized Tissue Biology and Diseases

Course Director: Francesca Gori

Format: Lectures, plus handouts of relevant articles/reviews on each lecture topic

Evaluation: One examination 50% of the overall grade; 50% classroom participation.

Description: Required course for first year MMSc and DMSc students. The focus of this course is on the biology and pathology of mineralized tissues, including bone, cartilage and the tooth components. In the first part, the extracellular matrix, its inorganic, organic, and cellular components and the mechanisms by which the extracellular matrix is formed and remodeled will be analyzed. These basic principles will then be applied to tissues such as teeth, bone, and cartilage and will explain common features as well as tissue-specific aspects, integrating the biology and the pathology of the most significant diseases. The course will cover diseases affecting these tissues such as gain- or loss of bone mass (osteoporosis and osteopetrosis) and osteo-arthritis and Rheumatoid arthritis, as well as a detailed description of the calcium and phosphate metabolism and its disorders. The course will then move on to local treatment-related topics including distraction osteogenesis and bone regeneration. After completion of the course, the participant will have an in-depth understanding of the skeletal and tooth system, the extracellular matrix, its components, diseases, and treatment options.

Prerequisites: Biochemistry, Cell Biology, Molecular Biology, Advanced Protein Chemistry, and Molecular Enzymology

Open to Cross Registrants: Yes

Research

IDP600, 700, 800, & 900: Advanced Graduate Education Research Seminar Series

Course Director: Jennifer Gibbs & Corneliu Sima

Format: Oral presentations and discussion

Evaluation: Oral presentation (50%) and classroom participation (50%)

Description: Required every year for MMSc and DMSc students, as well as selected Certificate students. The goal of the research seminars is for DMSc, MMSc and selected Certificate candidates to share their current research work with faculty, students, and staff from all departments of HSDM. The seminars provide fellows with the chance for academic and research exchange among the different departments. This course is mandatory for all degree students and selected Certificate students and attendance is therefore mandatory. Fellows are required to prepare an abstract summarizing their research that will be distributed one week prior to their scheduled presentation at HSDM. Each oral presentation is scheduled for 20 minutes with 5-10 minutes of questioning. Presenters are encouraged to use feedback from faculty for their research. Mentors are required to attend on the day of their student's presentation.

Prerequisites: HSDM AGE Student

Open to Cross Registrants: No

Non-Clinical Electives

OB606: Fundamentals of Oral Implantology | Spring 2020

Course Directors: German Gallucci & Adam Hamilton

Format: Lecture

Evaluation: Class participation, final examination

Description: This course is designed to expose advanced graduate education students to the multiple basic and clinical concepts relevant to dental implant osseointegration and to bone regeneration. Basic concepts include a review of bone healing, tissue response to biomaterials, review of biomechanics, and systemic conditions that might affect implant success. Multiple clinical applications of dental implants will be reviewed, as well as the different specialty approaches to bone regeneration. This course does not fulfill the Oral Biology Core or Basic Science credit requirement.

Prerequisites: None

Open to Cross Registrants: Yes

DHE601: Global Oral Health: Interdisciplinary Approaches

Course Director: Brittany Seymour

Format: Lecture

Evaluation: Attendance (25%), Class Preparedness and Participation (35%), and Final Exam (40%)

Description: This is a discussion-based critical thinking course that examines the extensive relationship between oral health and global health, and concept development is heavily determined by class participation. By incorporating the global burden of oral diseases, their risk factors, and solutions into discussions of foundational global health themes, students will begin to define the principles of global oral health as they apply to all oral health practitioners. These include the ways in which global trends such as population growth, rising rates of non-communicable diseases, rapid urbanization, migration, and aging are impacting the current roles and responsibilities of dentists, specialists, and allied health care providers. This course addresses oral health as integral to primary care through a common risk factor approach for prevention and oral health promotion. Complete health and health equity are not possible without including oral health in global policies and practices, and this course demonstrates how interdisciplinary approaches are necessary through the example of oral health. This course does not fulfill the Oral Biology Core or Basic Science credit requirement.

Prerequisites: None

Open to Cross Registrants: Yes

Year-long courses continuing from the fall

IDP602: Fundamentals of Research (ends 2/3)

Course Directors: Malcolm Whitman, H. Elani, & G. Naveh

Format: Seminar

Evaluation: Quizzes: 40%, Assignments: 30%, Presentation: 30%

Description: The Fundamentals of Research course will expose students to the basic and clinical research that is being conducted at HSDM. It will also provide the students the necessary tools for developing a testable scientific hypothesis, design and critique a scientific experiment, as well as organize and write a scientific paper. The course will also teach the students proper oral scientific presentation and communication. Students will be required to complete writing and group assignments, lesson quizzes, and prepare a presentation.

Open to Cross Registrants: Yes

IDP500, 501, & 502: Interdepartmental Multidisciplinary Case Presentation Seminars

Course Director: Lin Jarshen

Format: Case presentation, discussion

Evaluation: Class participation and attendance

Description: These seminars involve faculty and students from endodontics, periodontics, orthodontics and prosthodontics. Cases are selected by a senior graduate student and presented by the student. For each case, there are several students from other disciplines serving as consultants. Open, animated discussion and commentary follow these presentations. In addition, third year AGE students in Endodontics, Orthodontics, Periodontics and Prosthodontics will present a single lecture on a topic concerning "mortality and morbidity."

Prerequisites: HSDM AGE Student

Open to Cross Registrants: No

DEN601: Dental Education Longitudinal Seminar Series

Course Director: Sang Park & Edward Krupat

Format: Literature review and presentation

Evaluation: Class participation (30%), Attendance (20%), Preparation (30%), ePortfolio (20%)

Description: The Dental Education Seminar Series is based on related scientific evidence applied to educational quality, educational research, curriculum design and academic leadership. The goal of this course is to enable residents to read, understand, and analyze published research in dental and health care education.

Prerequisites: HSDM AGE Student

Open to Cross Registrants: No

DEN703: Dental Education Seminar Series – Effective Leadership Communication

Course Director: Jill Slye

Credits: N/A

Format: Presentation and student participation

Evaluation: Student presentations (30%), Attendance (20%), Preparation (30%), Participation (20%)

Description: As future leaders of dental education, it is important to know how to communicate effectively as a leader. We will focus on advanced public speaking techniques, effective communication, connecting with an audience and persuasion. The main objective of this course is to have students learn how to organize a well-structured message, develop a connection with their audience, and leave with a strong understanding of their personal communication style.

Prerequisites: HSDM AGE Student

Open to Cross Registrants: No

DHE501: Career Development in Global and Community Health

Course Director: Brittany Seymour

Format: Discussion, presentation, question/answer with guest speakers

Evaluation: Attendance, participation, small group preparation

Description: This is a seminar series course that examines the extensive career opportunities in global and community health through seminars provided by invited speakers currently working in the field. A variety of topics and areas of global health will be covered, and speakers may be added throughout the year as opportunities arise. By incorporating their current places of work and projects into presentations, discussions, and question and answer sessions, speakers will introduce students to a spectrum of global health career opportunities, both in the local community and abroad. Students will be required to attend a minimum of eight seminar sessions offered throughout the year. Students are evaluated on attendance and participation, as well as small group preparation through readings and discussion prior to scheduled lectures. By the end of this course, the student will be able to demonstrate understanding of the variety of career options in global health (possibly including program and policy development, private practice outreach, community health practice, research, and academics), as well as to demonstrate an understanding of the development of professional relationships in the field of global and community health.

Prerequisites: DMD students for credit (all years, as long as there are no pre-existing schedule conflicts), open to AGE students for audit, open to cross-registrants

Open to Cross Registrants: Yes

DPH703: Design and Implementation of Complex Survey Data I

Course Director: Israel Agaku

Format: Lecture, intensive interactive sessions, group projects, and one-on-one consultations with instructors

Evaluation: Research Protocol (50%), Attendance (10%), Class Participation (10%), & Final Presentation (30%)

Description: The first of two progressive sections which will be covered as two courses in two consecutive fall semesters. Students may take this Part I course alone. Part I will cover the design and implementation, while Part II will cover analyses and reporting of complex survey data. The deliverables will be a research proposal/protocol, 15-20 pages in length (Part I), or a draft manuscript that is of enough quality to be

submitted to a peer-reviewed journal (Part II). Students will also be required to deliver a PowerPoint presentation of their proposal (Part I) or research (Part II). Completion of Part I is a pre-requisite for taking Part-II. These courses will provide a comprehensive hands-on approach for the design, implementation, analyses, and reporting of cross-sectional survey data.

Prerequisites: Students should be familiar with basics of probability and statistical inference and should have taken a course in basic biostatistics. Previous knowledge of statistical software (e.g., STATA, SAS, R) will be beneficial.

Open to Cross Registrants: No

Cross-Registration

General Information

Selection of elective courses should be done in conjunction with the Program Director and should relate to the student's academic and research interests. It is expected that students will take *graduate level courses* to fulfill their elective requirements and will not repeat coursework taken as an undergraduate or in dental school. To add courses, students should sign in to my.harvard.edu and use [my.harvard Course Search](#) to access course schedules and descriptions. For further information on the cross-registration, please visit <https://hsdm.harvard.edu/cross-registration>.

Basic Science and Education Electives

AGE degree programs require students to complete either Basic Science or Education electives. Visit <https://hsdm.harvard.edu/age-electives> for a list of courses that have been previously evaluated for Basic Science and Education credit types. Please consult the Harvard University Catalog for current course offerings.

Students who cross-register for courses that have not been evaluated by HSDM Registrar Services will receive non-clinical elective credit. NO EXCEPTIONS.