

HDO

Oral Biology and Pathology

HDO 500: Biology of the Oral Mineralized Tissues

This course deals with the basic chemistry, crystallography, ultrastructure, and metabolism of the calcium phosphates involved in the formation and physiological and pathological resorption of the various mineralized tissues found in or associated with the oral cavity (enamel, dentin, cementum, bone). Ectopic calculus formation will be examined.

Prerequisites: HDO 560, 561, 562, and 563 or their equivalent. Fall and Spring

3 credits, Letter graded (A, A-, B+, etc.)

HDO 510: Salivary Metabolism and Secretion

Consideration is given to the normal and abnormal structure and function of the glandular systems found in the oral cavity. The composition, regulation, and functions of the secretions from the major and minor salivary glands will receive particular attention.

3 credits, Letter graded (A, A-, B+, etc.)

HDO 520: Oral Microbial Systems

Consideration is given to the structural composition, metabolism, and environmental relationships of the bacterial systems formed on and in association with the oral hard and soft tissues. Specific and mixed bacterial populations, such as those resident on extra-oral mucosal surfaces and the skin and their role in oral disease will be dealt with.

Prerequisite: HDO 560, 561, 562, and 563 or their equivalent. Fall and Spring

3 credits, Letter graded (A, A-, B+, etc.)

HDO 530: Molecular Biology and Pathology of the Periodontium

This course deals with the ultrastructure and biochemical composition of the periodontal tissues, remodeling of the extracellular matrix with an emphasis on the role of metalloproteinases; the microbial interrelations with the organic and inorganic components of the periodontal tissues, the biochemical dynamics of gingival inflammation and wound healing, and the metabolic processes responsible for the composition and flow of gingival crevicular fluid. Prerequisites: HDO 560, 561 and 563 or their equivalent. Fall and Spring. Please note that this may be taken twice for a total of 4 credits.

2 credits, Letter graded (A, A-, B+, etc.)

May be repeated 2 times FOR credit.

HDO 531: Normal and Reparative Tissue Development in the Oral Cavity

This course includes a series of lectures and student-led discussions dealing with specific oral tissues, biologic mineralization, osseointegration, hard and soft tissue development, and tissue regeneration. The molecular aspects leading to oral cancer and osteonecrosis will also be presented and discussed.

2 credits, Letter graded (A, A-, B+, etc.)

HDO 532: Host-Parasite Interaction

This course includes a series of lectures and student-led discussions dealing with specific oral tissues, growth factors, cytokines, prostaglandins, biologic mineralization and wound healing. The biology of the immune system and phagocytic cells is presented, including the relationship of nutrition to inflammation and oral health. The microbiology of the oral cavity in health and disease as well as oral mucosal infections is presented as the basis of the understanding of immunopathobiology of dental caries and periodontal disease. The oral manifestations of pharmacologic agents are reviewed in terms of both their immunologic and non-immunologic mechanisms of pathology. Finally, antimicrobial chemotherapy and principles of infection control are reviewed in terms of clinical practice of dentistry.

2 credits, Letter graded (A, A-, B+, etc.)

HDO 533: Regional Anatomy, Orofacial Neuroscience and Pain Control

This course includes a series of lectures and discussions dealing with head and neck gross anatomy and microanatomy and biochemistry of orofacial pain. It will provide an in-depth understanding of the underlying neuroanatomy and biochemical events leading to the perception of acute and chronic orofacial pain.

2 credits, Letter graded (A, A-, B+, etc.)

HDO 535: Epithelial Keratinization and Differentiation

The course examines the growth and differentiation of stratified squamous epithelia. Particular emphasis is placed on molecular events involved in the differentiation program. Consideration is also given to mechanisms involved in oral and cutaneous disorders.

Prerequisites: Permission of instructor required; HBP 531 suggested; students must have had a background in cellular biochemistry molecular biology.

Fall and Spring, 2 credits, Letter graded (A, A-, B+, etc.)

HDO 541: Principles of Mucosal Immunology

The mucosal immune system is essentially the primary site of interaction between invading pathogens and the immune system. The overall aim of this graduate course is to facilitate a deeper understanding of the fundamentals of the immune system at mucosal surfaces. It will provide a broad overview of several core mucosal immunology topics and has been designed for graduate students and post-docs who have recently entered the field. This class will provide in-depth analysis of the structural features that distinguish the mucosal immune system from the peripheral immune system. Features of innate and adaptive immunity as they relate to mucosal immune responses will also be covered. As well as delivering in depth lectures on relevant and emerging topics the course will engage participants in interactive discussions on topics in an informal setting. The course content is based on the "Principles of Mucosal Immunology" textbook.

3 credits, Letter graded (A, A-, B+, etc.)

HDO 550: Oral Diagnostics and Therapeutic Technology, Lectures and Laboratory Techniques

Recent advances in the use and development of research technology for the early diagnosis and treatment monitoring of oral and systemic disease. Special attention is paid to the principles of technology transfer including patents and patenting; searching of on-line databases is a key component. The course includes relationships of dry mouth to salivary physiology, diabetes, and drug medications; salivary film measurements, wetting of oral surfaces, viscoelasticity and lubricity; the use of the Periotron and enzyme assays for the diagnosis of gingivitis and periodontal disease; instrumentation used in sensitive teeth measurement and evaluation of treatment effectiveness using oral compositions and iontophoresis; oral candidiasis and denture stomatitis and early detection and causes of dental caries; oral malodor measurements including use of the Halimeter and its use in the formulation of oral compositions. Application to clinical practice and clinical studies is covered.

3 credits, Letter graded (A, A-, B+, etc.)

HDO 560: Oral Biology and Pathology I

The first of four comprehensive courses on molecular structure, biochemical and physiological function, developmental anatomy and pathology of the various systems that constitute the oral apparatus. Covers the embryological development of the face and oral cavity and the biology and pathology of the oral mineralized tissues. Prerequisites:

Undergraduate degree in basic science; permission of instructor. Fall and Spring
3 credits, Letter graded (A, A-, B+, etc.)

HDO 561: Oral Biology and Pathology II

The second of four comprehensive courses on molecular structure, biochemical and physiological function, developmental anatomy and pathology of the various systems that constitute the oral apparatus. Covers the biology and pathology of the periodontal structures and the microbiology of the oral cavity. Prerequisites: Undergraduate degree in basic science; permission of instructor. Fall and Spring

3 credits, Letter graded (A, A-, B+, etc.)

HDO 562: Oral Biology and Pathology III

This course is the third of four comprehensive courses on molecular structure, biochemical and physiological function, developmental anatomy, and pathology of the various systems that constitute the oral apparatus. The course consists of the following two units of instruction; (1) the biology and pathology of the salivary glands and their products and (2) the biology and pathology of the periodontal structures. Prerequisites: Undergraduate degree in basic science and permission of instructor. Fall and Spring

3 credits, Letter graded (A, A-, B+, etc.)

HDO 563: Oral Biology and Pathology IV

This course is the last of four comprehensive courses on molecular structure, biochemical and physiological function, developmental anatomy and pathology of the various systems that constitute the oral apparatus. Covers the biology and pathology of the oral sensory systems and the biology and pathology of oral motor systems. Prerequisites: Undergraduate degree in basic science and permission of instructor. Admission to Graduate Health Sciences Center Program.

3 credits, Letter graded (A, A-, B+, etc.)

HDO 590: Research Projects in Oral Biology and Pathology

Individual laboratory projects closely supervised by faculty members to be carried out in their research laboratories.

3 credits, Letter graded (A, A-, B+, etc.)
May be repeated 2 times FOR credit.

HDO 599: Graduate Research

Original investigations undertaken with supervision of a faculty member.

1-12 credits, Letter graded (A, A-, B+, etc.)

May be repeated for credit.

HDO 690: Oral Biology and Pathology Seminar

Research seminars by students, staff, and visiting scientists which may include review of current literature and presentation of student research. Prerequisite: Enrollment in the MS or PhD program in Oral Biology and Pathology. Fall and Spring. 1 credit, Letter graded (S/U) May be repeated for credit.

1 credit,

May be repeated for credit.

HDO 695: Oral Biology and Pathology Teaching Practicum

Practice instruction in the teaching of oral biology and pathology at the undergraduate level carried out under faculty orientation and supervision.

3 credits, Letter graded (A, A-, B+, etc.)

HDO 699: Thesis Research Oral Biology and Pathology

Dissertation Research, Prerequisite: Advancement to Candidacy Passing, Fall, Spring, and Summer, 1-9 credits, Letter graded (A, A-, B+, etc.)
May be repeated for credit.

HDO 704: Translational Oral Biology

Covers the biochemical, physiological, microbiological and electronic principles involved in a variety of techniques used as aids in the diagnosis of oral diseases.

Letter graded (A, A-, B+, etc.)

HDO 706: Oral Facial Genetics

Focuses on the utilization, preparation and analysis of basic human genetics in clinical situations. Covers genetic disorders of the craniofacial complex and dentistry for the multiple handicapped patient. 30 course hours Prerequisite: HD 501 or permission of instructor

Letter graded (A, A-, B+, etc.)

HDO 805: Summer Research

SUMMER RESEARCH

S/U grading

May be repeated for credit.