

# DENTAL - GRADUATE ORAL HEALTH SCIENCES (GOHS)

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## **GOHS 5011 Cellular & Molecular Biology**

The objectives of the Cellular and Molecular Biology course are to develop a general knowledge of fundamental concepts in cell and molecular biology and metabolism. The course utilizes both lectures and seminars and is presented in three modules with an exam at the end of each module: Module 1: Cell Biology. To develop a thorough understanding of the basic principles of molecular and cell biology. Module 2: Molecular Biology. Comprehension at an advanced level of selected topics in molecular biology including gene therapy.

Fall

4-8 Credit Hours

## **GOHS 5021 Microbiology & Immunology**

This lecture course is structured to provide basic information in four broad categories relating to oral health. 1. The evolutionary relationship, structure, physiology and molecular biology of prokaryotic cells as it relates to oral health. This knowledge provides the rational basis for many aspects of chemotherapy, understanding mechanisms of microbial pathogenesis, sterilization and disinfection and the host response to infection. Emphasis is placed on bacterial genetics physiology and regulatory mechanisms [MODULE 1]. 2. The relationship, structure and molecular biology of viruses and in particular those infections that relate to oral health. This knowledge provides the rational basis for many aspects of understanding mechanisms of viral pathogenesis, the host response to viral infection, the basis of viral vaccines and chemotherapy [MODULE 1]. 3. The human immune system and its response to challenge by microorganisms. Emphasis is placed on the interactions between antibodies and antigens, the roles of the innate and cellular immunity and the activities of B and T cells. This information provides the foundation for understanding how the host responds to invasion by microorganisms to prevent or lessen the severity of infectious disease [MODULE 2].

Fall

4-7 Credit Hours

## **GOHS 5031 Anatomy, Histology & Physiology**

This course will provide the student with an introduction to histology, gross anatomy and physiology of the human body. All basic tissue types, including epithelium, connective tissue and its specialized forms, muscle and nerve will be discussed in detail. This will be followed by a review of the major organ systems, including heart, lung, kidney, hepatobiliary (liver and gall bladder), gastrointestinal tract and endocrine system. Students will be introduced to histology and microscopic identification of anatomic structures using a digital atlas. In conjunction, lectures will introduce the student to the early mechanisms of embryonic development with a focus on tissue patterning and functional mechanisms that give rise to the developing human form including the head and neck and teeth.

Fall

3-5 Credit Hours

## **GOHS 5042 Cellular & Molecular Basis of Diseases**

Cellular and Molecular Basis of Disease focuses on the underlying cellular and molecular basis of disease and is a critical component of a larger subject commonly known as Pathology. In its simplest terms, Pathology is the study of the structural, biochemical and functional abnormalities that develop within cells, tissues and organs resulting in the signs and symptoms of (i.e., clinical manifestations) disease. Traditionally, Pathology is divided into general and systemic pathology. General pathology focuses on the main causes of disease; specifically, the reactions of cells and tissues to abnormal stimuli and to inherited defects. Systemic pathology examines these same reactions as they apply to specific organs. The disease process forms the core of pathology and includes: etiology, pathogenesis, lesions (which may be biochemical and/or structural) and clinical manifestations. Common to all disease is an "initiating" event known as etiology which may be genetic or acquired. Virtually all disease develop through a process (or pathogenesis) that involves one (or more) of six basic mechanisms: inflammation, vascular disturbances, immune-mediated, abnormal growth (neoplasia), genetic defects and infection. General pathology is typically presented in the context of these six pathogenic mechanisms. Cellular and Molecular Basis of Disease will focus on the mechanisms by which cells may be injured and the relationship between cellular injury and the disease process. We will also study three (of six) pathogenic mechanisms: vascular disturbances, inflammation, and infectious diseases. The concepts presented in this course will prepare the student for understanding specific diseases as they apply to the various organ systems.

4.5-7.5 Credit Hours

## **GOHS 5051 Hard Tissue Biology**

Hard tissue biology course will provide the student with foundational and applied knowledge of bone from anatomical, radiological and biological perspectives. Presented in lectures and seminars, the course will have a strong emphasis on craniofacial bones. The course will present a basic knowledge of bone based on developmental, anatomical, histological, radiological, molecular and functional perspectives. It will present fundamental principles of cell-cell interactions, extracellular matrix deposition and mineralization related to bone homeostasis, remodeling and healing. Concepts will be emphasized with relevant clinical and radiological presentation of bone diseases using different imaging modalities

Fall

2-6 Credit Hours

## **GOHS 5062 Introduction to Preclinical Dental Procedures**

This course consisting of preclinical laboratory procedures, introduces the pre-dental Masters' student to skills and techniques in a simulated environment that will enhance their clinical shadowing experience. It introduces the foundational knowledge/theory of fundamental psychomotor skills, relative to operative dentistry procedures, in order to restore the dentition to its healthy state. This is accomplished through the review of individual tooth anatomy and the study of occlusion to define normal and healthy. The study of cariology and treatment of the pathologic process continues afterward. Restoration of form and function with basic intracoronal amalgam and composite procedures then follows. Dental morphology related to operative procedures will be discussed before each session. Teaching of impression making and pouring of stone models will reinforce the concept of occlusion and anatomy. Professional conduct, attitude and appearance are stressed throughout the course as well.

2.5-5.5 Credit Hours

**GOHS 5072 Advanced Library, Biostatistics, and Nutrition**

The course will provide information about the fundamentals of literature search, and appraisal and introduction to basic statistical methods and discuss the significance of nutrition for oral health.

1-3 Credit Hours

**GOHS 5081 Clinical Rotations I**

This course will provide an opportunity for chairside observation of initial patient visits, medical consultation requests for medically-compromised patients, treatment planning and ongoing patient dental care. Upon completion of this course, students should have a good knowledge of chair-side dentist-patient interactions.

Fall

4-7 Credit Hours

**GOHS 5082 Clinical Rotations II**

Introduction to dental practice. Students will rotate one day per week in the pre-doctoral clinic observing skills such as patient communication, team building, and record keeping.

6-10 Credit Hours

**GOHS 5091 Capstone Course I**

Capstone course will provide the student with foundational and applied knowledge needed to conduct a capstone research project. Presented in lectures and seminars, the course will guide the student on how to design and complete an oral health related project. Concepts learned will be emphasized by written and oral presentation of the student's capstone project proposal.

Fall

2-6 Credit Hours

**GOHS 5092 Capstone Course II**

Guiding students to design and complete an oral health related project and present it in the form of a thesis.

6-9 Credit Hours

**GOHS 5102 Professionalism, Ethics, and Healthcare Communities**

This course will provide foundational knowledge on the doctor patient relationship, medical history skills and the basics of dental orofacial physical exam and developing the doctor patient relationship. All throughout, students will receive instruction in the principles of professionalism and ethical decision making with emphasis on case-based discussions.

0.5-1.5 Credit Hour

**GOHS 5501 Introduction to Professionalism, Community and Patient Management**

Introduction to Professionalism, Patient Management, and Community is a mixed-methods course designed to introduce best practices in patient interaction and management, concepts of medical evaluation of the dental patient, and considerations around ethical and inclusive treatment of all patients. This course will provide foundational knowledge in: -cultural competency -fundamental concepts in principles of professionalism and ethical decision making -the doctor patient relationship -considerations of academic integrity and professional communication -components and application of the medical history -basics of a dental/orofacial exam and components of a general physical exam, including the general survey, vital signs, cranial nerve exam, head and neck examination, and examination of the heart and lungs. The course is designed as an introduction to professionalism and patient evaluation. This module will consist of lectures, three seminar sessions devoted to an investigation of ethical decision making, and two mandatory small group practical rotations where you will be exposed to application of the medical history and physical examination in practice. The ethics seminars will ask you to practice the skills reviewed during ethics lecture 1 and applied in ethics lecture 2. These discussion-based gatherings have a goal of providing students with knowledge and experiences in identifying and resolving ethical dilemmas. This includes stating the facts of a given case, explaining any temptations that may interfere with ethical behavior, creating and applying strategies for effectively dealing with ethical dilemmas, identifying resources available for resolving ethical concerns, and understanding aspects of professional communication among patients, colleagues, faculty, and staff, such as verbal, non-verbal, and written communication (including use of social media), and diversity and inclusion. The first practical workshop will also take place in a seminar setting and review components of medical history and physical exam, providing an opportunity for practice on classmates. The second rotation will occur in the Personalized Care Suite where you will assist senior students as they take a medical history and perform a physical examination on comprehensive care patients.

Fall

1.75-3 Credit Hours

**GOHS 5511 Multidisciplinary Seminars I**

The main objective of this course is to ensure that you develop the ability to understand biomedical, behavioral and clinical sciences and apply such information in a problem solving context for the comprehensive treatment planning and management of your patients. This course is broken up into three different modules. Each module will be directed by three to four faculty members. The modules will consist of an online component and a seminar component. The online component will include review of a multi-disciplinary case, video lectures, pertinent research articles and a knowledge assessment. The module directors will be the primary knowledge experts and content providers for the course. The discussion leaders will facilitate the seminar component.

Fall

0.25-2 Credit Hours

**GOHS 5512 Multidisciplinary Seminars II**

Continuation of the fall semester seminars which will develop knowledge in biomedical, behavioral and dental sciences and practice management for comprehensive treatment planning and patient management.

0.5-1 Credit Hour

**GOHS 5522 Clinical Seminars**

The seminar is an open forum discussion in which students make patient case presentations including the diagnosis, treatment plan, and therapy.

0.75-1.5 Credit Hour

**GOHS 5532 Advanced Library, Biostatistics, and Nutrition**

The course will provide information about the fundamentals of literature search, and appraisal and introduction to basic statistical methods and discuss the significance of nutrition for oral health.

0.5-1.25 Credit Hour

**GOHS 5541 Dental Auxiliary Utilization IA**

DAU (Dental Auxiliary Utilization) is an interdisciplinary clinical course designed for MOHS students who have earned dental degrees in countries outside of the United States and who are enhancing academic and clinical skills in order to become familiar with US dentistry in clinical practice through participation and observation as a trained dental assistant in a multi-specialty practice setting at the University of Pennsylvania Family Dental Practice and selected post-graduate specialty clinics. MOHS students will learn the role of a trained dental assistant, as well as the roles of every auxiliary member of the dental care team: assistant, hygienist, EFDA assistant, front desk, billing office, etc. through lecture and then through completion of assigned rotations in the Family Practice and selected clinics. Coursework will include learning fundamentals of obtaining standard radiology views as identified by the Dental Assistant National Boards (DANB) and preparation for the exam and licensure. In addition, topics such as ergonomics, infection control, team building, materials management, and record keeping among others will be explored in the lecture series. Through hands-on assisting practicing dentists and dental residents, MOHS DAU students will learn US norms of dental practice care including patient communication and management, dental team roles and responsibilities, operatory management, infection control, commonly utilized dental materials management, standard radiology technique, and records management among others. Each MOHS student is required to attend all lectures where these topics will be introduced and explored, and prior to the first clinical rotation each student will be required to pass a written assignment to assess and document their understanding of the topics explored in lectures. Students are also required to comply with all Penn Dental and University requirements for immunizations, documentation and completion of onboarding coursework.

Fall

4-6 Credit Hours

**GOHS 5542 Dental Auxiliary Utilization IB**

Continuation of the fall semester course designed to teach four-handed dental assisting technique as well as skills such as patient communication, team building, and record keeping.

2-3 Credit Hours

**GOHS 5552 Pharmacology**

The student will gain understanding of the effect of drugs on human body.

0.25-1 Credit Hour

**GOHS 5561 Clinical Rotations I**

This course will provide an opportunity for one day per week of clinical rotations through specialty clinics in Endodontics, Oral Surgery, Orthodontics, Periodontics, Periodontal Prosthesis, Prosthodontics, other PDM extramural community sites and the PDM Office of Fiscal Operations.

Fall

4-7 Credit Hours

**GOHS 5562 Clinical Rotations II**

Rotations through specialty clinics in Endodontics, Oral Surgery, Orthodontics, Periodontics, Periodontal Prosthesis, Prosthodontics, other PDM extramural community sites and the PDM Office of Fiscal Operations.

1.5-2.25 Credit Hours

**GOHS 5571 Dental Auxiliary Utilization**

DAU (Dental Auxiliary Utilization) is an interdisciplinary clinical course designed for MOHS students who have earned dental degrees in countries outside of the United States and who are enhancing academic and clinical skills in order to become familiar with US dentistry in clinical practice through participation as a trained dental assistant in a multispecialty practice setting at the University of Pennsylvania Family Dental Practice. MOHS students will learn the role of a trained dental assistant, as well as the roles of every auxiliary member of the dental care team: assistant, hygienist, EFDA assistant, front desk, billing office, etc. through lecture and then through completion of assigned rotations in the Family Practice. In addition, topics such as ergonomics, infection control, team building, materials management, and record keeping among others will be explored in the lecture series. Through hands-on assisting practicing dentists in the Penn Dental Family Practice, MOHS DAU students will learn US norms of dental practice care including patient communication and management, dental team roles and responsibilities, operatory management, infection control, commonly utilized dental materials management, and records management among others. Each MOHS student is required to attend all lectures where these topics will be introduced and explored, and prior to the first clinical rotation each student will be required to pass a written assignment to assess and document their understanding of the topics explored in lectures. Students are also required to comply with all Penn Dental and University requirements for immunizations, documentation and completion of onboarding coursework. The course consists of 6 1.5 hour lectures, successful completion of the written evaluation, compliance with all Penn Dental Medicine and University onboarding coursework, and completion of a weekly assigned rotation in the Penn Dental Family Practice of four hours each following a clinical orientation.

Fall

0.25 Credit Hours

**GOHS 5572 Behavioral Sciences I**

Students will gain the necessary knowledge and skills in oral health promotion and disease prevention activities with individuals, communities and populations. Course topics include discussion of the philosophy, modalities, rationale and evaluation of health promotion and disease prevention activities related to caries, periodontal diseases and oral cancer.

1.5-2.5 Credit Hours

**GOHS 5591 Capstone Course I**

Capstone course will provide the student with foundational and applied knowledge needed to conduct a capstone research project. Presented in lectures and seminars, the course will guide the student on how to design and complete an oral health related project. Concepts learned will be emphasized by written and oral presentation of the student's capstone project proposal.

Fall

2.5-6 Credit Hours

**GOHS 5592 Capstone Course II**

Guided research or service project that addresses at least three competencies including literature review & synthesis, patient-based surveys & analysis, quantitative/qualitative analysis and others.

0.75-1.75 Credit Hour