

# Oral Health Sciences (OHSC)

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Course information contained within the Bulletin is accurate at the time of publication in July 2024 but is subject to change. For the most up-to-date course information, please refer to the Course Catalog.

**OHSC 8011. Molecular Oral and Craniofacial Biology. 1 Credit Hour.**

Basic concepts of physiology, biochemistry, and cell biology related to the oral cavity and craniofacial complex are explored. Topics include connective tissue biology, the role of saliva in health and disease, muscle function, taste, smell, and other sensory functions, with emphasis on current research. These seminars are designed for first-year students in postdoctoral programs in which advanced courses are combined with specialty training. The course outlines scientific information about molecular biology that contributes to our understanding of normal structures and disease processes. Wherever possible, it indicates how this information is useful or impinges on clinical dentistry. This course presupposes a broad background in the basic sciences and interrelates much recently acquired scientific information about the oral cavity that has not been attempted at the predoctoral level.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8012. Advanced Dental Pharmacology and Therapeutics. 1 Credit Hour.**

Pharmacotherapeutics of drugs most often used in dentistry, with emphasis on mechanisms, interactions, and effects of drugs used in prevention, diagnosis, and treatment of oral diseases, and drugs used for systemic diseases that may influence the progression or management of oral diseases.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8013. Introduction to Evidence-Based Dentistry. 1 Credit Hour.**

Contemporary topics and research presentations on oral and craniofacial biology.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8014. Clinical Anatomy of the Head and Neck. 1 Credit Hour.**

Growth and development of the head and neck in relation to general gross anatomy; surgical anatomy of the head and neck region with neuroanatomic studies of cranial nerve anatomy, function and pathology; temporomandibular joint structure, function and dysfunction.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8015. Research Methodology and Study Design. 1 Credit Hour.**

Fundamental principles involved in planning, conducting, analyzing, and reporting of scientific research studies, including classification of study designs, hypothesis testing, clinical trial requirements, protocol and grant preparation, scientific writing, analysis and interpretation of data, and approaches to critical evaluation of the scientific literature.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8016. Cases in Oral and Maxillofacial Pathology. 1 Credit Hour.**

Students are taught to formulate appropriate clinical and radiographic differential diagnoses for common soft and hard tissue abnormalities of the oral and perioral region via case based discussions. Students receive instruction in the management of patients with common oral mucosal diseases. Indications for patient referral to medical or dental specialists for diagnostic evaluation or disease management are presented. Critical thinking is emphasized in case-based modules. During the case based discussions, students will be asked to describe the lesions using appropriate terminology, offer a prioritized differential diagnosis, suggest a diagnostic plan and recommend management strategies for the entities discussed. The use of a SOAP note format for documenting problem focused patient encounters in oral and maxillofacial pathology will be applied.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8017. Oral Microbiology and Immunology. 1 Credit Hour.**

Study of microorganisms and host responses important in oral microbial ecology, oral infectious processes, and the pathogenesis of dental caries, periodontal diseases, dental implant infections, endodontic infections, oral mucosal lesions, and dental focal infections at non-oral body sites.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8018. Biostatistics. 1 Credit Hour.**

Introduction to statistical analysis as it applies to biomedical research, including descriptive and inferential statistics. Topics include summarizing and displaying data, theory of measurements and distribution, significance testing, and basic concepts of probability and association.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8019. Advanced Oral and Maxillofacial Radiology. 1 Credit Hour.**

Applications of digital dental radiography, panoramic radiology, tomographic imaging for dental implants, computed tomography (CT), and magnetic resonance imaging (MRI); differential interpretations of clinically significant oral and maxillofacial lesions.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8021. Application of Artificial Intelligence for Dental Research and Patient Care I. 1 Credit Hour.**

This comprehensive course will explore the application of artificial intelligence (AI) and informatics methods in the field of dentistry, including dental and oral health research, quality improvement, and patient care. This course will cover critical concepts showcasing innovative AI applications that enhance diagnostics, treatment planning, and patient care. Participants will gain a deep understanding of how AI technologies are revolutionizing traditional dental practices and contributing to improved efficiency and precision. The scientific basis will cover overview of three significant dental informatics and AI areas: big dental electronic records analytics, human factors engineering, and AI methods such as information retrieval (dental language processing, large language models), deep learning, and machine learning designed specifically for dentistry. This course will cover topics including dental clinical decision support systems, dental disease prediction modeling using big data and AI, contextual inquiry and user-centered designs for electronic dental records (EDR), and automated learning dental systems. This course is required for all dental residents. Evaluation in the course will be based on project assignments, research topic presentations, exams, and final projects.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Dentistry, Kornberg School.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8022. Application of Artificial Intelligence for Dental Research and Patient Care II. 1 Credit Hour.**

This comprehensive course is a continuation of the previous course, "Application of Artificial Intelligence for Dental Research and Patient Care I," which will allow students to apply the application of artificial intelligence (AI) and informatics methods in the field of dentistry, including dental and oral health research, quality improvement, and patient care. This course will provide technical training to the students, including extracting, manipulating, and cleaning electronic dental records (EDR) data. This course will also allow students to build dental language processing models that will include hands-on experience in manually annotating dental clinical notes, progress notes, and other free-text data to train and test named entity recognition and other dental language processing models. Participants will also gain a deep understanding of how AI technologies can be built, trained, and tested using big EDR and other datasets. This course is not required for all dental residents. Evaluation in the course will be based on project assignments, research topic presentations, exams, and final projects.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Dentistry, Kornberg School.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in OHSC 8021.

**OHSC 8023. Application of Artificial Intelligence for Dental Research and Patient Care III. 1 Credit Hour.**

This comprehensive course is a continuation of the previous course, "Application of Artificial Intelligence for Dental Research and Patient Care II." In this course, students will create dental-specific health information technology, including dental disease prediction models, dental clinical decision support systems, or dental learning health systems. Students will utilize knowledge and skills gained from the prerequisite courses. Finally, students will also test and validate performances of their dental specific technology developed as a part of this course using various evaluation and de-bias approaches.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Dentistry, Kornberg School.

**Repeatability:** This course may not be repeated for additional credits.

**Pre-requisites:** Minimum grade of B- in OHSC 8021 and OHSC 8022.

**OHSC 8033. Bioethics and Critical Thinking in Dentistry. 1 Credit Hour.**

This course introduces dental residents to the theoretical and practical foundations of bioethics. After an introduction to the history of bioethics and its theories, tools, and strategies for identifying and resolving ethical dilemmas, students will critically explore four key components of contemporary dental ethics: 'Ethics at the Chairside' covering topics such as confidentiality, truth telling, and cultural competency; 'Oral Health Disparities' which introduces the social determinants of health into the oral health equation; 'Research and Industry' designed to teach residents to critically think about conflicts of interest and professionalism; and 'Policy Perspectives' which covers oral health and social justice and the relationships between dental practitioners, health care reform, and oral health.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8041. Evidence-Based Health Care. 2 Credit Hours.**

Evidence-based health care has been defined as the practice of health care that integrates the best available evidence with clinical experience and what a patient prefers in making clinical decisions. It is vital that all clinicians are trained to adopt a constructively and professionally critical mindset in making their own assessments of published work. The Evidence-Based Health Care course is designed to provide foundation knowledge and practical experience in five main domains: 1) Asking evidence-based questions (framing an answerable question from a clinical problem); 2) Searching for the best evidence; 3) Reviewing and critically appraising the evidence; 4) Applying this information in a way to help the clinical practice and 5) Managing existing data and conducting basic statistical analyses.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8056. Oral and Maxillofacial Pathology for Non-Clinicians. 1 Credit Hour.**

Students learn to formulate differential diagnoses for common soft and hard tissue abnormalities of the oral and perioral region via case-based discussions. Students receive instruction in the management of patients with common oral mucosal diseases. Indications for patient referral to medical or dental specialists for diagnostic evaluation or disease management are presented. Critical thinking is emphasized in case-based modules. The use of a SOAP note format for documenting problem-focused patient encounters in oral and maxillofacial pathology will be applied.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8059. Oral Radiology for Non-Clinicians. 1 Credit Hour.**

This course provides the information and experience necessary for non-clinical graduate students to be contemporary with the concepts and practices of oral and maxillofacial radiology. Clinical applications, position guidelines, anatomy, and imaging findings of cone-beam computed tomography (CBCT), the latest development of three dimensional dental image, will be presented. Diagnostic imaging for dental implants and other advanced oral and maxillofacial imaging systems, such as conventional CT and magnetic resonance imaging (MRI) will be demonstrated. Differential interpretations of common oral and maxillofacial lesions (radiolucencies and radiopacities) are discussed.

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 8111. Endodontology Clinical Rotation. 2 Credit Hours.**

This course is intended for students enrolled in the Master of Science in Oral Health Sciences program. Participation in the course requires prior approval by the course director and clinic supervisor. Master's students will participate in a clinical rotation to observe clinical operations and delivery of patient care, and may include chairside assisting for students with appropriate qualifications. Master's students on the Clinical Internship track with appropriate qualifications may be considered on a case-by-case basis to participate in limited direct patient care at the sole discretion of the department chair and program director. A wealth of clinical information and learning can be gleaned from this experience, as well as establishing a level of familiarity and comfort with clinical and logistical operations.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Master of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Dentistry, Kornberg School.

**Repeatability:** This course may be repeated for additional credit.

**OHSC 8112. General Dentistry Clinical Rotation. 2 Credit Hours.**

This course is intended for students enrolled in the Master of Science in Oral Health Sciences program. Participation in the course requires prior approval by the course director and clinic supervisor. Master's students will participate in a clinical rotation to observe clinical operations and delivery of patient care, and may include chairside assisting for students with appropriate qualifications. Master's students on the Clinical Internship track with appropriate qualifications may be considered on a case-by-case basis to participate in limited direct patient care at the sole discretion of the department chair and program director. These clinics include pre-doctoral general dentistry clinic and the Advanced Education in General Dentistry (AEGD) program, a CODA-recognized advanced training program beyond a dental degree. A wealth of clinical information and learning can be gleaned from this experience, as well as establishing a level of familiarity and comfort with clinical and logistical operations.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Master of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Dentistry, Kornberg School.

**Repeatability:** This course may be repeated for additional credit.

**OHSC 8113. Oral Surgery Clinical Rotation. 2 Credit Hours.**

This course is intended for students enrolled in the Master of Science in Oral Health Sciences program. Participation in the course requires prior approval by the course director and clinic supervisor. Master's students will participate in a clinical rotation to observe clinical operations and delivery of patient care, and may include chairside assisting for students with appropriate qualifications. Master's students on the Clinical Internship track with appropriate qualifications may be considered on a case-by-case basis to participate in limited direct patient care at the sole discretion of the department chair and program director. A wealth of clinical information and learning can be gleaned from this experience, as well as establishing a level of familiarity and comfort with clinical and logistical operations.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Master of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Dentistry, Kornberg School.

**Repeatability:** This course may be repeated for additional credit.

**OHSC 8114. Orthodontics Clinical Rotation. 2 Credit Hours.**

This course is intended for students enrolled in the Master of Science in Oral Health Sciences program. Participation in the course requires prior approval by the course director and clinic supervisor. Master's students will participate in a clinical rotation to observe clinical operations and delivery of patient care, and may include chairside assisting for students with appropriate qualifications. Master's students on the Clinical Internship track with appropriate qualifications may be considered on a case-by-case basis to participate in limited direct patient care at the sole discretion of the department chair and program director. A wealth of clinical information and learning can be gleaned from this experience, as well as establishing a level of familiarity and comfort with clinical and logistical operations.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Master of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Dentistry, Kornberg School.

**Repeatability:** This course may be repeated for additional credit.

**OHSC 8115. Pediatric Dentistry Clinical Rotation. 2 Credit Hours.**

This course is intended for students enrolled in the Master of Science in Oral Health Sciences program. Participation in the course requires prior approval by the course director and clinic supervisor. Master's students will participate in a clinical rotation to observe clinical operations and delivery of patient care, and may include chairside assisting for students with appropriate qualifications. Master's students on the Clinical Internship track with appropriate qualifications may be considered on a case-by-case basis to participate in limited direct patient care at the sole discretion of the department chair and program director. A wealth of clinical information and learning can be gleaned from this experience, as well as establishing a level of familiarity and comfort with clinical and logistical operations.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Master of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Dentistry, Kornberg School.

**Repeatability:** This course may be repeated for additional credit.

**OHSC 8116. Periodontology Clinical Rotation. 2 Credit Hours.**

This course is intended for students enrolled in the Master of Science in Oral Health Sciences program. Participation in the course requires prior approval by the course director and clinic supervisor. Master's students will participate in a clinical rotation to observe clinical operations and delivery of patient care, and may include chairside assisting for students with appropriate qualifications. Master's students on the Clinical Internship track with appropriate qualifications may be considered on a case-by-case basis to participate in limited direct patient care at the sole discretion of the department chair and program director. A wealth of clinical information and learning can be gleaned from this experience, as well as establishing a level of familiarity and comfort with clinical and logistical operations.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Master of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Dentistry, Kornberg School.

**Repeatability:** This course may be repeated for additional credit.

**OHSC 8150. Fundamentals of General Dentistry. 1 Credit Hour.**

This course is intended for students enrolled in the Master of Science in Oral Health Sciences program and will present lectures on the various topics in general dentistry organized by discipline. Both general dentists and faculty members with advanced education certificates will lecture on their specific area of interest.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**OHSC 8151. Advanced General Dentistry. 2 Credit Hours.**

This course is intended for students enrolled in the Master of Science in Oral Health Sciences program and will present lectures on advanced topics in general dentistry and medicine. Both general dentists and faculty members with advanced education certificates will lecture on their specific area of interest. Students will present lecture topics on the medical implications in dentistry. Lecture topics will be of either greater depth or higher degree of specialization.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**OHSC 8152. General Dentistry Literature Review. 1 Credit Hour.**

This course is designed to develop a knowledge of pertinent topics in general dentistry in addition to an understanding of how to assess the validity of scientific articles published in peer-reviewed professional journals. Specific topics are assigned for each seminar with relevant articles assigned prior to each class. Articles are reviewed by students and the course is directed by a faculty member. Individual students will review and report on each article. The review will be a synopsis of each article identifying all pertinent points discussed. The student must determine the clinical significance of each article and how it affects their clinical practice.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**OHSC 8153. General Dentistry Implant Literature Review. 1 Credit Hour.**

This course is designed to develop a knowledge of pertinent topics in Implantology for the general dentist, in addition to an understanding of how to assess the validity of scientific articles published in peer-reviewed professional journals. Specific topics are assigned for each seminar with relevant articles assigned prior to each class. Articles are reviewed by students and the lecture is directed by a faculty member. Individual students will review and report on each article. The review will be a synopsis of each article identifying all pertinent points discussed. The student must determine the clinical significance of each article and how it affects their clinical practice.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**OHSC 8250. Periodontology and Prosthodontic Treatment Planning. .5 Credit Hours.**

This course is intended for students enrolled in the Master of Science in Oral Health Sciences program and will present clinical cases for discussion on advanced topics in the unique interaction between periodontology and oral implantology and prosthodontics. Basic science and evidence-based treatment prescriptions will be used at each session to support the clinic case scenarios presented. The course will teach how data collection will support a diagnosis, and how treatment prescriptions will address a diagnosis.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Master of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Dentistry, Kornberg School.

**Repeatability:** This course may be repeated for additional credit.

**OHSC 8350. Interdisciplinary Treatment Planning. 1 Credit Hour.**

This course is intended for students enrolled in the Master of Science in Oral Health Sciences program and will present clinical cases for discussion on advanced topics in dentistry across all dental specialties/disciplines. Basic science and evidence-based treatment prescriptions used at each session to support the clinic case scenario presented.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Degree Restrictions:** Must be enrolled in one of the following Degrees: Master of Science.

**College Restrictions:** Must be enrolled in one of the following Colleges: Dentistry, Kornberg School.

**Repeatability:** This course may be repeated for additional credit.

**OHSC 9991. Research in Oral Health Sciences. 1 to 6 Credit Hour.**

Limited to M.S. in Oral Health Sciences degree students with graduate program approval.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Dentistry, Kornberg School.

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:** Minimum grade of B- in OHSC 9993.

**OHSC 9993. Master's Research Qualifying Examination. 1 Credit Hour.**

The Masters project must be formally accepted by the student's advisory committee prior to commencing the project. A comprehensive proposal will be reviewed by the student's mentor and advisors, and will be presented in a qualifying exam presentation to demonstrate appropriate understanding of the project. This proposal contains an introduction, theories, hypotheses, scholarly literature review, research methods, proposed alternatives and any other issues relevant to the project.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**College Restrictions:** Must be enrolled in one of the following Colleges: Dentistry, Kornberg School.

**Course Attributes:** DI

**Repeatability:** This course may not be repeated for additional credits.

**OHSC 9996. Master's Thesis in Oral Health Sciences. 1 Credit Hour.**

Limited to, and required of, M.S. in Oral Health Sciences degree students with graduate program approval.

**Level Registration Restrictions:** Must be enrolled in one of the following Levels: Graduate.

**Repeatability:** This course may be repeated for additional credit.

**Pre-requisites:** Minimum grade of B- in OHSC 9993 and 4 credits in OHSC 9991.