

# Oral Biology (ORBG)

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Course information contained within the Bulletin is accurate at the time of publication in August 2023 but is subject to change. For the most up-to-date course information, please refer to the Course Catalog.

## **ORBG 5001. Introduction to Dental Assisting. 2 Credit Hours.**

Designed to provide the student with an introduction to the dental profession, the dental team and the roles and responsibilities of each member of the team, infection control procedures, sterilization and patient confidentiality. Students will also receive basic knowledge of dental terminology, anatomical structures of the oral cavity, and classification of occlusion. Emphasis is placed on applying information to the clinical setting.

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

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

## **ORBG 5002. Chairside Dental Assisting. 3 Credit Hours.**

Designed to give the student an introduction to dental terminology, medical-dental histories, dental instruments, charting, oral evacuation, instrument transfer and procedure specific tray set-ups. Emphasis is placed on utilization of four handed dentistry skills.

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

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

## **ORBG 5004. Dental Radiology Lecture and Lab. 2 Credit Hours.**

Designed to provide the student with basic knowledge of the principles of radiology and radiographic techniques including the principles and methods employed in the paralleling technique and radiographic interpretation. Emphasis is placed on the practice of exposing, processing, mounting, and interpreting intraoral radiographs.

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

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

## **ORBG 5005. Dental Anatomy. 1 Credit Hour.**

Designed to provide students a basic knowledge of dental terminology, anatomical structures of the oral cavity, head and neck region, classification of occlusion and oral pathology of the head and soft tissue.

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

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

## **ORBG 8021. Microbiome. 3 Credit Hours.**

Course will focus on the biology, ecology, and cell behaviors in the human microbiome in the whole body with a specific emphasis on the oral cavity. Course will also cover the epigenetic changes that may occur in the microbiome and the range of health issues such as obesity, infections, and risk of developing dental and oral mucosal diseases.

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

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

## **ORBG 8022. Microbiome Techniques. 2 Credit Hours.**

This course will cover topics related to laboratory techniques employed to study microorganisms in general and the human microbiome in particular. The topics will range from basic techniques including microscopy, cultivation and biochemical and immunological identification to advanced molecular techniques including nucleic acid amplification, hybridization and sequencing, with particular focus on microbiome analysis.

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

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

## **ORBG 8023. Craniofacial Bone Biology and Maxillofacial/Dental Orthopedic Care. 2 Credit Hours.**

This introductory course will review bone biology and how bone develops and remodels in orthodontic and orthopedic care.

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

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

**ORBG 8024. Regeneration of Bone and Dental Hard Tissues. 1 Credit Hour.**

This course will focus on dentin and bone regeneration research already being conducted at the dental school and Temple University Center for Bioengineering Research.

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

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

**ORBG 8025. Temporomandibular Joint Biology. 2 Credit Hours.**

This course will cover the anatomy, mechanics, and function of the temporomandibular joint (TMJ) and associated muscles and ligaments. The course will also cover the dysfunctions commonly diagnosed in dental practice and how they may be manifested in the operation of the TMJ complex.

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

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

**ORBG 8026. Neuroscience of Pain. 2 Credit Hours.**

This course will focus on the understanding of the biology of pain and how the transmission of pain signals throughout the central and peripheral nervous system. The course will also cover the mechanisms involved in determining pain thresholds and the myriad of psychological responses to pain sensations.

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

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

**ORBG 8027. Biology of Drug Delivery Mechanisms. 2 Credit Hours.**

This course will focus on how the oral cavity and salivary glands can be used as bioreactors that may be used to deliver drugs, genes, proteins and other molecules to treat a variety of oral and systemic conditions. The course will also cover the mechanisms involved in determining pain thresholds and the myriad of psychological responses to pain sensations.

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

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

**ORBG 8028. Basic and Advanced Statistical Methods. 3 Credit Hours.**

An introduction to statistical theory and applied methods, including modeling techniques, to analyze dental data. The course will describe the impact of clustering effects of data points in the oral cavity; correction for design effects; methods of analysis of different dental outcomes; and appropriate statistical modeling methods useful in contemporary studies.

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

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

**ORBG 8029. Behavioral Change Theories and Practice. 2 Credit Hours.**

This course will review and apply selected behavioral change theories in addressing common behavioral problems including addiction.

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

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

**ORBG 8031. Biomaterials. 2 Credit Hours.**

Developing materials for use in dentistry and medicine is a challenging interdisciplinary process and requires an understanding of material bulk and surface properties, the various biological responses to materials, the clinical context of their use, manufacturing processes, cost, sterilization, packaging, and regulatory issues. This course is designed to introduce students to the various classes of biomaterials in use, their analysis and regulation, and examination of some of their applications in selected subspecialties of dentistry and medicine.

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

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

**ORBG 8032. Practical Clinical Practice. 3 Credit Hours.**

Students will be assigned as dental assistants, quality evaluators, or patient advocates in the dental school clinics.

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

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

**Pre-requisites:** Minimum grade of C in ORBG 5001, ORBG 5002, ORBG 5004, and ORBG 5005.

**ORBG 8034. Advanced Practical Clinical Practice. 3 Credit Hours.**

This is an advanced course where students will continue to be assigned as dental assistants, quality evaluators or patient advocates throughout the dental school clinic.

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

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

**ORBG 8035. Introduction to Orthodontics. 2 Credit Hours.**

The objective of the course is to introduce the post baccalaureate student to the processes of normal craniofacial growth and development in order to recognize and identify deviations from normal. The course emphasizes developmental dentistry, application to clinical orthodontics and postnatal craniofacial growth. Foundation knowledge in orthodontic diagnosis will be developed to allow systematic description of clinical orthodontic problems, orthodontic diagnosis and generation of an orthodontic patient clinical problem list.

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

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

**ORBG 8036. Molecular Technology for Translation to the Dental Clinic. 2 Credit Hours.**

Molecular Biology research holds great promise for translation to clinical Medicine and Dentistry. This course is a survey of molecular technology along with its contemporary applications to clinical diagnosis and treatment. The course consists of didactic presentations to review basic concepts and student group discussions to address the importance of new technology for clinical applications, particularly in Dentistry.

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

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

**ORBG 8037. Science of Taste Sensation and Relation with Oral Conditions. 1 Credit Hour.**

The "taste" is one of the chemosensory senses (taste, smell, and chemesthesis (or chemical feel, including burn from hot chili peppers and cooling from menthol)). Taste receptors convert gustatory stimuli into signals that sensory afferent fibers could transport to the brain where we have sensory experience of foods and beverages. This course is designed to give students a basic understanding of the anatomy, physiology, and biochemistry of this process. This course is intended to give students a working understanding of the taste cells and taste sensation systems important in dentistry.

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

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

**ORBG 8038. Inflammation and Oral Disease. 2 Credit Hours.**

This course will review all aspects of the inflammatory processes and how they relate to pulpal, periapical and periodontal disease. The course topics will include surveys of the cells and the chemical mediators responsible for the inflammatory processes. In addition, as the primary initiators of the body's inflammatory systems, the organisms comprising the microbial world will be surveyed in order to define the characteristics that distinguish each of the different microbiological groups, including those associated with pulpal, periapical and periodontal inflammatory disease. Finally, the inflammatory manifestations exhibited in oral diseases (pulpal inflammation, periapical periodontitis, and marginal periodontitis) will be examined.

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

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

**ORBG 8039. Introduction to Dental Biochemistry and Oral Health Sciences. 3 Credit Hours.**

The Introduction to Dental Biochemistry and Oral Health Sciences course is designed for postbaccalaureate and dental school students. The main lecture part of this course is designed to be an introduction to biochemical compounds, processes, and concepts for students in the dental and related health professions. The broad goal of the teaching of introductory dental biochemistry is to make students understand the scientific basis of the life processes at the biochemical and molecular level and to orient them towards the application of the knowledge acquired in solving dental-oriented clinical problems.

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

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

**ORBG 8042. Introduction to Dental Biological and Oral Health Sciences. 3 Credit Hours.**

The Introduction to Dental Biological and Oral Health Sciences course is designed for postbaccalaureate and dental school students. It will provide students advanced understanding and appreciation of current topics in molecular and cellular biology, while developing skills in critical thinking. The course will provide strong information about application of contemporary biology knowledge and techniques to understand molecular and biological background of human oral health and diseases. Course topics include classical and contemporary issues of biological and molecular techniques related to dental clinics such as stem cells and tissue engineering. The roles of recent progress made in biology and related disciplines in the diagnosis and treatment of oral diseases and oral health issues are examined. In addition, students will gain knowledge in the application of molecular and biological techniques in diagnosis of human oral health and diseases.

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

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

**ORBG 9885. Pre-clinical Dental Experience for the Kuwaiti Program I. 6 Credit Hours.**

This course is for selected post-graduate students enrolled in the Kuwaiti Program at Temple University Kornberg School of Dentistry. Prior to participation in assigned clinics, the resident's knowledge and skills in the disciplines of direct and indirect restorative dentistry, prosthodontics, and endodontics are assessed. Needed review or update of skills and knowledge are obtained with either assigned exercises in the pre-clinic laboratory, assigned assisting in the AEGD clinic, or with assigned literature reviews.

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

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

**ORBG 9886. Pre-clinical Dental Experience for the Kuwaiti Program II. 6 Credit Hours.**

This course is for selected post-graduate students enrolled in the Kuwaiti Program at Temple University Kornberg School of Dentistry. Prior to participation in assigned clinics, the resident's knowledge and skills in the disciplines of direct and indirect restorative dentistry, prosthodontics, and endodontics are assessed. Needed review or update of skills and knowledge are obtained with either assigned exercises in the pre-clinic laboratory, assigned assisting in the AEGD clinic, or with assigned literature reviews.

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

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