

# Oral Science

## Director

- Jeffrey A. Banas (Pediatric Dentistry)

**Graduate degrees:** MS in oral science; PhD in oral science

**Faculty:** <https://dentistry.uiowa.edu/directory>

**Website:** <https://dentistry.uiowa.edu/education/specialty-programs/oral-science-graduate-program>

Graduate programs in oral science require that students complete courses from a core curriculum and conduct independent research leading to a thesis. The programs prepare and equip graduates for a variety of career options for which the ability to conduct research and understand the principles of scientific inquiry are essential.

Students must enroll in a professional certificate program offered by a College of Dentistry department in order to enroll in the Master of Science program in oral science. The following departments offer their certificate students the opportunity to earn MS degrees in oral science: endodontics, prosthodontics, operative dentistry, periodontics, and oral pathology, radiology, and medicine.

## Programs

### Graduate Programs of Study

#### Majors

- Master of Science in Oral Science
- Doctor of Philosophy in Oral Science

## Courses

### Oral Science Courses

**ORSC:5200 Seminars in Dental Research** 0-1 s.h.

**ORSC:5210 Dental Sciences Research Methodology** 0,2 s.h.

Practical, experimental procedures in dental research; literature and design; writing of research protocols. Offered summer session.

**ORSC:5212 Statistical Methods for Dental Research** 0,3 s.h.

Descriptive methods, elementary probability, distributions, populations and samples, methods for analyzing percentage data and paired and unpaired measurement data, regression, correlation, and analysis of variance.

**ORSC:5215 Research Design in Dentistry** 0,2 s.h.

Types of studies used in dentistry; design validity; sampling methodologies; major descriptive and experimental designs used in dental research; application of statistical tests to these designs. Offered spring semesters.

**ORSC:5240 Pathophysiology of the Pulp-Dentin Complex** 0-3 s.h.

Biology of tissue; emphasis on pathological changes. Offered spring semesters of even years. Prerequisites: ORSC:5210.

**ORSC:5250 Current Concepts of Cariology** 0,2 s.h.

Etiology of dental caries; pathogenesis, development of preventive measures. Offered spring semesters of odd years. Prerequisites: ORSC:5210.

**ORSC:5260 Bone and Tooth Support Structure and Implants** 0,2 s.h.

Biology of bone and periodontal structures; biologic basis for therapeutic use of dental implants. Offered fall semesters of odd years.

**ORSC:5275 Oral Microbiology and Immunology** 0,2 s.h.

Principles of microbiology and immunology, aspects of microbial community development in the oral cavity, basic concepts of host/parasite interactions related to development of oral diseases; biological, immunological, and clinical manifestations induced by major oral pathogens. Offered spring semesters of odd years. Requirements: microbiology, biochemistry, and biology. Recommendations: immunology.

**ORSC:5280 Advanced Dental Therapeutics** 0-1 s.h.

Antimicrobial, analgesic, related therapies; emphasis on drug/drug interactions, dental implications of chronic cardiovascular and central nervous system medications. Offered fall semesters.

**ORSC:5300 Dental Management for Patients with Complex Medical History** 0-1 s.h.

Risk assessment, treatment planning, medically compromised patients, systemic complications, medical emergency in dental offices. Offered fall semesters of odd years.

**ORSC:5600 Research in Oral Science** arr.

Thesis research. Requirements: oral science MS or PhD candidacy.

**ORSC:5610 Independent Study** 0-3 s.h.

Opportunity to pursue in-depth study in a particular area of interest; students meet with faculty member to design plan of study.

**ORSC:5620 Oral Sciences Colloquium** arr.

Presentations, seminars, and discussion sessions on research presentations; career and individual development plans for graduate and postdoctoral students in the oral sciences program.