

MASTER OF SCIENCE IN ORAL AND CRANIOFACIAL SCIENCES

General Nature of the Program

Program Overview

The overall goals of the Oral & Craniofacial Sciences (OCS) MS program are: 1) to produce graduates knowledgeable in advanced concepts and principles of biomaterials and oral & craniofacial biology; 2) train students to critically evaluate and apply scientific literature; 3) provide students basic research skills; and 4) produce graduates who will advance scientific knowledge in oral and craniofacial health sciences.

This program includes advanced work in basic, behavioral and clinical sciences relating to dentistry. The OCS MS program is designed for individuals who are concurrently enrolled in advanced dental residency certificate programs. Those interested in applying for a residency program (Orthodontics, Periodontics, Endodontics) and also interested in a Master of Science degree should note that an application to the OCS MS program would be subsequent to their acceptance into the residency program.

The coursework and thesis present an opportunity for the student to cross traditional departmental lines and undertake an interdisciplinary approach to the study of problems related to oral and craniofacial sciences. On successful completion of all necessary coursework and thesis requirements, the student is awarded a Master of Science degree in Oral & Craniofacial Sciences.

Admission Information

Master of Science Admission Requirements

- A DDS/DMD or equivalent degree.
- A minimum cumulative GPA of 3.0 for all undergraduate work, including dental school.
- Graduate Record Examination (GRE), with the following minimum scores:

GRE	Score Scale
Quantitative	150
Verbal	155
Analytical Writing	4.0

Application Procedures

The OCS MS programs is designed for applicants, who will be concurrently enrolled in a dental residency program. To be eligible for dental residency programs, you must be a US citizen or permanent resident with a DDS or DMD degree from an institution accredited by the Commission on Dental Accreditation or the Canadian Dental Accrediting Commission.

Application to the OCS MS program should occur after you have been accepted into the dental residency program (Endodontics, Orthodontics, Periodontics). After you have been accepted, if you are interested in applying, please contact Dr. Mary Walker (walkemp@umkc.edu) regarding your interest. From there, you will receive specific guidance on the application process. Items for the OCS MS application will include:

- Official transcripts from all colleges attended
- Official GRE scores
- Two letters of recommendation *
- Personal Statement: indicating your past research experience, your reason for pursuing the Oral and Craniofacial Sciences MS degree and your possible research interests.
- Resume/CV

*Note on Recommendation Letters

Recommendation letters should be addressed to:
 Dr. M.P. Walker, Director of Oral & Craniofacial Sciences Graduate Programs
 UMKC School of Dentistry
 650 East 25th Street
 Kansas City, MO 64108-2795

Student Learning Outcomes and Curriculum

Student Learning Outcomes

Students graduating from this program will:

- Demonstrate a deeper understanding of the link between scientific research and clinical health care practice
- Conduct thorough literature reviews based on an understanding of periodical databases and scholarly journals in the health sciences; have the aptitude to assess the validity of literature and determine how it may be applied in both research and clinical settings
- Demonstrate the ability to conduct original research projects, drawing on an understanding of the current literature, appropriate study design, methodologies, and data analysis
- Develop the capability to produce written materials that are clear, well-organized, insightful, and drawn from evidence-based research
- Employ the communications skills needed to successfully convey important scientific and clinical concepts in oral presentations and communications
- Apply professional ethics with the highest standards of integrity in all facets of research

Student Learning Outcomes

Upon successful completion of the Oral & Craniofacial Sciences MS Program, the student will be able to do the following:

1. Demonstrate a deeper understanding of the link between scientific research and clinical health care practice
2. Conduct thorough literature reviews based on an understanding of periodical databases and scholarly journals in the health sciences; have the aptitude to assess the validity of literature and determine how it may be applied in both research and clinical settings
3. Demonstrate the ability to conduct original research projects, drawing on an understanding of the current literature, appropriate study design, methodologies, and data analysis
4. Develop the capability to produce written materials that are clear, well-organized, insightful, and drawn from evidence-based research
5. Employ the communications skills needed to successfully convey important scientific and clinical concepts in oral presentations and communications
6. Apply professional ethics with the highest standards of integrity in all facets of research

The candidate enrolled in this program must complete a minimum of 30 semester hours of coursework. These courses must be listed on the Master's Degree Program of Study form (available from the Department of Oral and Craniofacial Sciences office).

Curriculum

Code	Title	Credits
Required Core Curriculum		
BIO-SCI 5751	Elements of the Scientific Method	1 credit hour
BIO-SCI 5752	Research Methods in Oral and Craniofacial Sciences	2-3 credit hours
BIO-SCI 5799	Research And Thesis	6 credit hours
RES-ME 5700	Introduction to Research Methodology	2-3 credit hours
RES-ME 5703	Thesis Writing	1 credit hour
RES-ME 5704	Introduction to Biostatistics	2-3 credit hours

Additional Courses

Some examples of additional courses applicable to the program:

BIO-SCI 5710	Genetics and Biochemistry of Cranial Facial Biology
BIO-SCI 5739	Biomaterials for the Dental Specialist
BIO-SCI 5740	Oral Pathology I
BIO-SCI 5743	Advanced Seminar in Dental Biomaterials
BIO-SCI 5747	Research Instrumentation Used in Dental Biomaterials
BIO-SCI 5759	Special Problems in Pharmacology
BIO-SCI 5760	Physiology of Oral Mineralized Tissues

BIO-SCI 5802	Immunopathology
BIO-SCI 5805	Molecular Biology of Oral Microflora
BIO-SCI 5830	Structural Characterization of Dental Biomaterials

Program Requirements

Thesis Research & Writing

To successfully graduate from the Oral & Craniofacial Sciences MS program, students must complete a minimum of 30 semester hours of graduate coursework as outlined on their program of study while maintaining a minimum 3.0 GPA. In addition to coursework, there are four major stages of the Oral & Craniofacial Sciences (OCS) MS program that students must successfully complete:

1. Qualifying Exam: Written Component-Research Proposal and Oral Component-Presentation/Exam
2. Research Project
3. Thesis
4. Thesis Defense

The OCS Graduate Program Director will serve as the student's academic advisor throughout the program and will assist with the selection of a thesis committee chair. The selection process will be based on the student's research interests, the various research opportunities, and meetings with potential MS degree advisors. Once the committee chair is selected, the chair and the OCS Graduate Program Director will assist the student with selecting two or three additional faculty members to serve on the thesis committee.

Qualifying Exam: Research Proposal and Oral Presentation/Exam

The Research Proposal is the written component of the Qualifying Exam that also includes an oral component, a student presentation about the proposed project followed by questions about the proposal, associated literature, and applicable coursework.

The required courses, BIO-SCI 5751 Elements/Scientific Methodology and BIO-SCI 5752 Research Methods in Oral & Craniofacial Sciences, are the foundation for writing the Research Proposal for the MS thesis project. These courses are individualized instruction with the Program Director and your thesis committee chair. As part of the Research Proposal development process, IRB and/or IACUC protocol approvals must be obtained as needed with the assistance of the Thesis committee chair.

The Oral Component of the Qualifying Exam is scheduled once the committee has reviewed the written proposal. The oral exam consists of the student doing a presentation about the proposal in addition to answering related questions.

Research Project

The student will enroll in BIO-SCI 5799 Research & Thesis (6 credit hrs). Credit hours will be distributed across various semesters. Until the thesis is successfully completed and defended, a grade of incomplete (I) is given for each term of enrollment in this course. Upon successful defense and completion of the thesis, incomplete grades will be changed to an appropriate letter grade. The thesis committee members will advise and guide the students in the successful completion of their research project.

Thesis

Following completion of the research project, the student will write a master's thesis. Original research will be used to construct a formal thesis conforming to the standards set by the School of Graduate Studies. The thesis chair and committee members will provide guidance in this process. Following initial approval by the chair, the thesis will be submitted to the entire committee for review.

Thesis Defense

School of Dentistry regulations require students to defend their thesis at a university-wide seminar on their research. The Thesis Defense Examination will be scheduled following preliminary thesis approval by the committee. After a successful Thesis Defense Examination and pending any thesis revisions based on committee feedback, the student will work closely with the School of Dentistry Librarian on thesis formatting procedures and policies as part of RES-ME 5703 Thesis Writing.

Other Requirements

Students will be expected to comply with all rules, regulations and requirements specified in the General Graduate Academic Regulations and Information section of this catalog