MUSC
JAMES B. EDWARDS COLLEGE of DENTAL MEDICINE

COHR
TRAINING IN CRANIOFACIAL & ORAL HEALTH RESEARCH

1. **Cover Page**
   a. **Proposing Institution:**
   Medical University of South Carolina

   b. Master's of Science (M.S.) in Oral Sciences

   c. **Submission Date:**
   February 15, 2013

   d. **Program Contact:**
   Keith L. Kirkwood, D.D.S., Ph.D.
   Associate Dean for Research
   Professor and Chair of Craniofacial Biology
   Professor of Microbiology and Immunology
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Raymond S. Greenberg 02/08/13

Raymond S. Greenberg, MD, PhD **Date**
President

2. **Classification**
    a. **Program Title:**
    Master's of Science in Oral Science
    b. **Concentrations, options and tracks:**
    There will be two tracks within the MS in Oral Sciences program: Thesis and Non-thesis. Thesis track students will complete a minimum of 30 credit hours of coursework including at least 10 credit hours of independent research. Students in the non-thesis track will be required to take additional course work in lieu of completing a full research project but will be required to complete a condensed research project and present their findings in an oral presentation and in writing. Both tracks will require oral qualifying examinations.
    c. **Designation, type and level of degree:**
    Successful completion of the proposed program will lead to a Master's of Science degree in Oral Sciences.
    d. **Proposed date of implementation:**
    Fall 2014
    e. The program does not qualify for supplemental Palmetto Fellows Scholarship or LIFE Scholarship awards.
    f. **Delivery mode:**
    MS in Oral Sciences students will receive focused formal (course/credit hours) didactic training in oral health related topics, training in research methodology, conduct of research, research ethics, data analysis and writing/defending original research.
3. **Justification:**
    The Department of Craniofacial Biology was established in 2008 and currently provides administrative housing for the MUSC Board of Trustee-designated MUSC Center for Oral Health Research (COHR). Currently, the COHR provides the umbrella for research services as well as training for PhD, DMD/PhD, and postdoctoral fellows through T-COHR (Training in Craniofacial and Oral Health Research). In addition, T-COHR currently supports an undergraduate research experience during the summer through the MUSC Summer Undergraduate Research Program (SURP).

    The proposed MS in Oral Sciences program will augment and strengthen existing academic programing within the T-COHR program and College of Dental Medicine (CDM). While T-COHR provides DMD/PhD, PhD and postdoctoral training as well as short-term summer undergraduate training, there is not a MS program. The Master of Science in Dentistry (MSD) program is restricted to dentists enrolled in clinical specialty training and is therefore not open to students with bachelor's or foreign dental degrees.

    There are no similar programs offered by institutions of higher education in the State of South Carolina. Similar programs, however, are offered in other academic health centers/Schools of Dentistry in many other states.

    CDM is one of six colleges within MUSC, an academic health center in the State of South Carolina, and has active collaborations with the Colleges of Medicine, Nursing, and Graduate Studies with joint academic and research programs. In addition to the courses offered within CDM, the MS in Oral Sciences will take advantage of some excellent courses offered through the College of Graduate Studies and offer research opportunities through other MUSC colleges for partial fulfillment of requirements of the proposed program.

4. Program demand and productivity:

The duration of the MS in Oral Sciences program is anticipated to be 24 months. This time is adequate for candidates to complete the requirements for the MS in Oral Sciences program including the completion of a research project and writing and defense of an original thesis. The program will only be offered to students who have obtained a bachelor's degree with coursework in the field of biology or a dental degree (DDS, DMD or BDS). Only full-time students will be registered in the program.

The proposed program will be fully operational within a two-year period with an expected average of 4-6 graduates per year. As the number of faculty the department increases and becomes more nationally and internationally recognized, it is anticipated that the number of enrolled students and graduates will increase.

Anticipated enrollment	
Year	**Students**
2014-2015	2*
2015-2016	5**
2016-2017	8***
2017-2018	11****

* Students accepted to program in first year
** Includes 2 students in second year plus 3 new first-year students
*** Includes 5 first-year students and 3 students in their second year
****Includes 5 second-year students and 6 first-year students

5. Employment opportunities for graduates:

The proposed Master's of Science in Oral Sciences program will train personnel for careers in basic, translational and clinical research methodologies in the field of oral health, complement existing training opportunities and well as provide new programing in order to help establish a stable pipeline into both the PhD in Craniofacial Biology program and the DMD/PhD (Dentist Scientist Training Program) in the College of Graduate Students. With this MS in Oral Science program, there is an opportunity to recruit foreign dentists (having DDS or BDS degrees) into this program for basic and translational research training. These potential trainees would be able to apply for both programs in the future increasing existing program candidate pools. Also, this program will provide an opportunity for students to receive additional training and experience in oral health-related research before or after they apply to dental school at MUSC or other U.S. institutions. Foreign dental graduates with an MS in Oral Sciences will have a competitive edge in earning faculty positions in their home countries. Likewise, graduates who remain in the U.S. will likely be competitive for acceptance in additional programs including PhD programs and dental school.

6. Curriculum:

The MS in Oral Sciences curriculum will require successful completion of 30 credit hours of coursework and research for completion of the degree. Students will be able to select either a thesis or non-thesis track. Students electing to enter the thesis track will be required to complete at least ten credit hours of independent research while students choosing the non-thesis track will be required to complete at least 22 credit hours of didactic coursework. All students will be required to register for craniofacial biology journal club and research seminars in craniofacial biology each semester. In addition, students in both thesis and non-thesis tracks will be required to complete courses in research design, research ethics and biostatistics. The MS in Oral Sciences program will

offer three foundational courses, Mineralized Tissues, Oral Immunobiology and Biochemical Aspects of Oral Biology, to provide enrolled students with a broad background in the biological sciences and oral biology. Students in the thesis track will be required to take and pass two of the three foundational courses while students selecting the non-thesis track will be required to complete all three foundational courses. Elective courses will be selected following discussion with the student's graduate committee, and typically cover the area of research pertinent to the student's thesis work or specific research interests. Before completion of the second semester, all students will be required to select a graduate examination committee and pass an oral qualifying exam covering the general oral sciences. Students choosing the thesis option will be required to write and defend a thesis describing the independent research that they performed prior to completion of the program. Students choosing to complete the non-thesis option will be required to submit a written report of their research project to the graduate examination committee and present their research findings orally to the program faculty in the last semester of the program.

7. Articulation and inter-institutional cooperation:

MUSC and Clemson University have an active collaborative relationship in the area of bioengineering. The CDM faculty actively collaborate with Clemson faculty on research projects, mentoring of students, and serve on students' thesis committees currently. MS of Oral Science students will be allowed to take Clemson Bioengineering courses and work directly with Clemson faculty who conduct research in the areas of oral and craniofacial bioengineering.

8. Estimate of costs:

The MS in Oral Sciences program will be implemented with existing faculty and staff resources. Partial faculty and staff salary compensation is needed to fully commit and implement this program along with partial salary compensation for the program director.

Anticipated Annual Expenses	
Director (partial time commitment)	33,000
Staff	20,000
Printing/program marketing	3,480
IT support	6,200
Outcomes assessments	5,000
Library/office supplies	5,000
Total Annual	72,680
Anticipated Non-recurring Expenses	
Consultant	3,000
Faculty retreat	1,000
Total Non-recurring	4,000