

**New Program Proposal
Master of Science, Oral Sciences
Medical University of South Carolina**

Summary

The Medical University of South Carolina requests approval to offer a program leading to the Master of Science in Oral Sciences to be implemented in Fall 2015. The proposed program is to be offered through traditional instruction on campus. The following chart outlines the stages for approval of the proposal; the Advisory Committee on Academic Programs (ACAP) voted to recommend approval of the proposal to the Committee on Academic Affairs and Licensing (CAAL). The full program proposal is attached.

Stages of Consideration	Date	Comments
Program Planning Summary received and posted for comment	2/15/2013	
Program Planning Summary considered by ACAP through electronic review	4/1/2013	ACAP members expressed support for the proposed program. Commission staff asked that the full proposal provide examples of comparable programs in the U.S., address employment opportunities in more detail by including employment data, and provide more detail about the estimated costs and sources of financing.
Program Proposal Received	7/25/2013	
ACAP Consideration	10/17/2013	ACAP voted to recommend approval of the program.
Comments and suggestions from CHE staff to the institution	10/22/2013	Staff asked that the proposal be revised for clarity and consistency. Staff also asked for more detail about graduates' employment prospects, for the admission criteria to be made more explicit, and for additional information about library resources and faculty.
Revised Proposal Received	11/6/2013	Revisions made to address staff's questions.

Recommendation

The staff recommends that the Committee on Academic Affairs and Licensing commend favorably to the Commission the program leading to the Master of Science in Oral Sciences at the Medical University of South Carolina to be implemented in Fall 2015, provided that no additional "unique cost" or other special state funding be required or requested.



**Proposal to the
South Carolina Commission on Higher Education**

Proposing Institution:

Medical University of South Carolina

Program Title, Concentrations, Options and Tracks:

Master of Science (M.S.) in Oral Sciences. There will be two tracks within the M.S. in Oral Sciences program: Thesis and Non-thesis.

Submission Date:

May 15, 2013

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
Director, MUSC Center for Oral Health Research
Diplomate, American Board of Periodontology

Raymond S. Greenberg, M.D., Ph.D.
President
Medical University of South Carolina

Classification:

- a. Program Title:**
Master of Science in Oral Sciences
- 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. Academic Unit:**
Department of Craniofacial Biology, College of Dental Medicine, Medical University of South Carolina
- d. Designation, Type and Level of Degree:**
Successful completion of the proposed program will lead to a Master of Science degree in Oral Sciences.
- e. Proposed Date of Implementation:**
Fall 2015
- f. CIP Code:**
51.0503 – Oral Biology and Oral and Maxillofacial Pathology
- g. Site:**
The M.S. in Oral Sciences program will be offered on the Medical University of South Carolina campus in Charleston, SC
- h.** The program does not qualify for supplemental Palmetto Fellows Scholarship or LIFE Scholarship awards.
- i. Delivery mode:**
The program will be offered through traditional instruction.

Institutional Approval

The MS in Oral Sciences program proposal has been approved by:

MUSC Deans' Council	January 13, 2013
MUSC Vice Presidents:	January 23, 2013
Board of Trustees:	May 16, 2013

Purpose

The College of Dental Medicine at the Medical University of South Carolina has multiple research training efforts to engage students and faculty in biomedical, bioengineering, and clinical research as in relates to oral and craniofacial sciences. The Center of Oral Health Research (COHR) was established in 2005 with the overall goals to sustain a nationally competitive multidisciplinary research center in oral and craniofacial health at the Medical University of South Carolina. The COHR provides a strong thematic research focus and unique resources, along with formal graduate training and junior faculty guidance, in an integrative framework that emphasizes mentoring, scientific advancement, academic career development, grantsmanship and productivity. Training in Craniofacial and Oral Health Research (T-COHR)

is an integrated research training program based in the College of Dental Medicine that presently includes: a) the Dental Scientist Training Program (DSTP), a consolidated DMD/PhD degree pathway; b) pre-doctoral research training leading to the Ph.D. degree in craniofacial biology or bioengineering with applications to oral/craniofacial health; and c) postdoctoral research training for dentist-scientists and/or non-clinician Ph.D. scientists in basic, translational or bioengineering sciences important to dental, oral or craniofacial health. T-COHR is an integral component of the COHR and an essential element of the College's research strategic plan. T-COHR complements the COHR's research and faculty development activities and reflects the culture of research excellence. The MUSC M.S. in Oral Sciences will become an integral component within T-COHR and the Center of Oral Health Research.

The MUSC Master of Science in Oral Sciences program has three main goals. The first is to train personnel for careers in basic, translational, and clinical research methodologies in the field of oral health. The other goals of this program are to complement existing training opportunities that currently reside in COHR under T-COHR (see Justification below) and provide new programming in order to help establish a stable pipeline into both the Ph.D. in Craniofacial Biology program and the DMD/Ph.D. (Dentist Scientist Training Program) in the Colleges of Graduate Studies and Dental Medicine, respectively.

With this Master of Science in Oral Sciences 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 submission of an application to dental school at MUSC or other U.S. institutions. Foreign dental graduates with an M.S. 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 Ph.D. programs and dental school.

Justification

Post matriculation of the M.S. in Oral Sciences program, students will have a variety of options for employment within the State. The following bulleted job opportunities and information was obtained from the U.S. Bureau of Labor Statistics 2012-13 Occupational Outlook Handbook <http://www.bls.gov/ooh/>.

- Employment of biological technicians is projected to grow 14 percent from 2010 to 2020, as fast as the average for all occupations. Continued growth in biotechnology and medical research is expected to increase demand for these workers.
- Employment of microbiologists is expected to increase by 13 percent from 2010 to 2020, about as fast as the average for all occupations. More microbiologists will be needed to apply knowledge from basic research to develop biological products and processes that improve our lives.
- Employment of biomedical engineers is expected to grow by 62 percent from 2010 to 2020, much faster than the average for all occupations. Biomedical engineers typically need a bachelor's degree in biomedical engineering from an accredited program to enter the occupation. Alternatively, they can get a bachelor's degree in a different field of engineering and then either get a graduate degree in biomedical engineering or get on-the-job training in biomedical engineering.

- Employment of biological technicians is projected to grow 14 percent from 2010 to 2020, as fast as the average for all occupations.
- Employment of medical laboratory technicians is expected to grow by 15 percent between 2010 and 2020, about as fast as the average for all occupations.
- Employment of biochemists and biophysicists is projected to increase by 31 percent from 2010 to 2020, much faster than the average for all occupations.
- Employment of dentists is expected to grow by 21 percent from 2010 to 2020, faster than the average for all occupations. Dentists will continue to see an increase in public demand for their services as studies continue to link oral health to overall health.

The M.S. in Oral Sciences is thematically aligned with the Medical University of South Carolina which is a public institution of higher learning the “purpose of which is to preserve and optimize human life in South Carolina and beyond. The university provides an interprofessional environment for learning and discovery through education of health care professionals and biomedical scientists, research in the health sciences, and provision of comprehensive health care.”

The M.S. in Oral Sciences directly aligns with the education of students to “become caring, compassionate, ethical, and proficient health care professionals and creative biomedical scientists.” This latter part is the central mission of the program and thus directly supports the University mission relative to creating biomedical scientists. The M.S. in Oral Sciences program also aligns with multiple other mission statements relative to research and interprofessionalism, diversity, and economic development for the State of South Carolina.

The MUSC Board of Trustee-designated MUSC Center for Oral Health Research (COHR) was established over 10 years ago. The mission of the COHR is to provide research services to its members and the MUSC research community as well as training for the next generation of scientists focused on oral health problems. Currently, the COHR provides the institutional framework for existing training programs within T-COHR (Training in Craniofacial and Oral Health Research) including a Ph.D. program in Craniofacial Biology, a DMD/PhD Dentist/Scientist Training Program (DSTP), along with postdoctoral fellowships. In addition, T-COHR currently supports an undergraduate research experience during the summer through the MUSC Summer Undergraduate Research Program (SURP). The Department of Craniofacial Biology was established in 2008 and currently provides administrative housing for all of these programs.

The proposed M.S. in Oral Sciences program will augment and strengthen existing academic programming within the T-COHR program and College of Dental Medicine (CDM). While T-COHR provides DMD/Ph.D., Ph.D. and postdoctoral training as well as short-term summer undergraduate training, there is not a M.S. 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 unless they are also accepted and enrolled in a dental clinical specialty e.g., periodontics or orthodontics.

The College of Dental Medicine 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 the College of Dental Medicine, the M.S. 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.

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. The closest similar program is offered at University of North Carolina at Chapel Hill. There are no other similar programs in states in the Southeast that have dental schools, including Alabama, Georgia, Virginia, and Florida. Other dental schools that offer a Master of Science in Oral Sciences include the University at Buffalo, University of Missouri-Kansas City, University of Washington, New York University, Temple University, and Boston University.

Admission Criteria

All applicants must have completed a bachelor's degree or its equivalent, or a master's degree in biological or bioengineering sciences. Applicants may also hold a foreign dental degree that may be a doctorate degree from an institution of higher education. While it is not anticipated, applicants with foreign doctorates may be considered for this program if training was in an unrelated field (not in biological or biomedical engineering sciences). Applicants are expected to have a cumulative GPA of at least 3.0 (on a 4.0 scale) and have taken coursework in biology and/or biological engineering. All applicants must also take the Graduate Record Examination (GRE) and have a combined score (verbal + quantitative) above the 65th percentile.

Official original records of academic achievement (transcript, diploma, degree, certificate, and/or official statements showing the class or quality of marks compared with those possible to achieve) are required from all institutions of higher education attended. Academic records from foreign institutions must be provided in English and must be certified or validated as true by a university or government official.

Foreign applicants whose native language is not English will be required to submit a score report of the Test of English as a Foreign Language (TOEFL) to demonstrate proficiency in English. Exceptions may be made if a student has attended a United States institution for an extended period of time. Scores must be sent directly from the Education Testing Service (ETS) to the university.

Enrollment

The duration of the M.S. in Oral Sciences program is anticipated to be 24 months. This time is adequate for candidates to complete the requirements for the M.S. 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).

The proposed program will be fully operational within a two-year period with an expected average of 4-6 graduates per year. This number is estimated based on enrollment in other M.S. programs at MUSC and the space available for additional students in the currently offered courses. It is expected that approximately one third of the students accepted to the program will have a foreign dental degree, such as a BDS, and will utilize the program to increase the chance of admission to a U.S. DMD or DDS program. As the faculty in the department increases and

becomes more nationally and internationally recognized, it is anticipated that the number of graduates will increase.

Table A – Projected Total Enrollment

Assumptions made for the following projections:

1. No students will transfer in from other programs.
2. *2 students will be accepted in the first year the program is offered.
3. **3 students will be accepted the second year the program is offered.
4. All students will graduate after 24 months (six semesters) in the program.
5. ***5 students will be accepted in the third year the program is offered.
6. ****6 students will be accepted the fourth year the program is offered.

PROJECTED TOTAL ENROLLMENT						
YEAR	FALL		SPRING		SUMMER	
	Headcount	Credit Hours	Headcount	Credit Hours	Headcount	Credit Hours
2014-15	2*	18	2	18	2	18
2015-16	5**	45	5	45	5	45
2016-17	8***	72	8	72	8	72
2017-18	11****	99	11	99	11	99
2018-19	11	99	11	99	11	99

Curriculum

The M.S. in Oral Sciences curriculum will require successful completion of a minimum of 30 credit hours of coursework and research for successful completion of the degree. All students will be required to register for nine credit hours of coursework each semester they are enrolled in the program. The majority of the coursework is currently offered by the College of Dental Medicine (applicable course numbers of available courses indicated below; new/proposed courses are in **bold**) and there is room available in the classes for additional students in the M.S. in Oral Sciences Program. 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 Thesis Research (new course described below), 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 Topics in Craniofacial Biology (CRFB-745) and Craniofacial Biology Seminar Series (CRFB-747) each semester. Both of these courses are currently offered within the College and have space available for additional registered students. In addition, students in both thesis and non-thesis tracks will be required to complete courses in research design (Introduction to Research Methodologies, CRFB-901), research ethics (offered through the MUSC College of Graduate Studies, CGS-710) and biostatistics. There is currently no biostatistics course available in the College for M.S. students, so a new course will be designed to include with the program. The new course will be a two-credit course offered in the fall of each year entitled “Biostatistics for Dental Research” (CRFB-90x). The course will be taught by a faculty member with an advanced degree in biostatistics and will include lectures on the appropriate use of statistical analysis in oral research methodologies including in vitro studies, in vivo animal models and clinical research. The course will also be available to DMD students and MSD students as an elective and students will receive merit grades.

The M.S. in Oral Sciences program will include three foundational courses already offered in the College, Cell & Molecular Biology of Mineralized Tissue (CRFB-801), Oral Immunobiology (CRFB-624) and Biochemical Aspects of Oral Biology (CRFB-902), to provide enrolled students with a broad background in the biological sciences and oral biology. Students selecting 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.

Students in both the thesis and non-thesis tracks will be encouraged to rotate through at least two laboratories during their first semester before selecting a research mentor. All students will be required to identify a research mentor and research project at the beginning of their second semester in the program. The College does not currently have a course that would cover the optional laboratory rotations so a new course will be designed for this purpose (CRFB-91x). The new course will be a three credit course available in the fall of each year. Students will be required to submit a brief description of the research questions addressed during the two rotations and complete an evaluation of the rotation experience at the end of the semester. The course will be graded as pass-no pass and the selected mentors will submit grades for each rotation to the program director.

Once the student has selected a mentor for his or her research project, non-thesis track students will be required to register in CRFB-900, Independent Research and will complete a research project. The students will be required to submit a written summary of their research project to the graduate committee and present their work to the faculty. Students choosing the thesis track will register for a new course to be created (CRFB-99x; Thesis Research). Both courses will be graded as pass-no pass by the research advisor chosen by the student.

Elective courses will be selected upon 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.

Sample Curriculum:

<u>Thesis Track</u>		<u>Non-thesis track</u>
Year 1		
Fall Semester		
0.5 cr	CRFB-745 Topics in Craniofacial Biology	0.5 cr
0.5 cr	CRFB-747 Craniofacial Biology Seminar Series	0.5 cr
1 cr	CGS-710 Essential Scientific Practices I	1 cr
2 cr	CRFB-901 Introduction to Research Methodologies	2 cr
(3 cr)	CRFB-91x Laboratory Rotation (optional)	(3 cr)
(3 cr)	CRFB-900 Independent Research (in lieu of CRFB-91x)	(3 cr)
2 cr	CRFB-90x Biostatistics for Dental Research	2 cr
Spring Semester		
0.5 cr	CRFB-745 Topics in Craniofacial Biology	0.5 cr
0.5 cr	CRFB-747 Craniofacial Biology Seminar Series	0.5 cr
3 cr	CRFB-902 Biochemical Aspects of Oral Biology	3 cr

(2 cr)	Optional elective	(2 cr)
3-5 cr	CRFB-900 Independent Research	3-5 cr
	Summer Semester	
9 cr	CRFB-900 Independent Research	9 cr
Year 2		
Fall Semester		
0.5 cr	CRFB-745 Topics in Craniofacial Biology	0.5 cr
0.5 cr	CRFB-747 Craniofacial Biology Seminar Series	0.5 cr
3 cr	CRFB-801 Cell & Molecular Biology of Mineralized Tissue	3 cr
-	CRFB-900 Independent Research	3-5 cr
(2 cr)	Optional elective	(2 cr)
3-5 cr	CRFB-99x Thesis Research	-
	Spring Semester	
0.5 cr	CRFB-745 Topics in Craniofacial Biology	0.5 cr
0.5 cr	CRFB-747 Craniofacial Biology Seminar Series	0.5 cr
-	CRFB-624 Oral Immunobiology	4 cr
(2 cr)	Optional elective	(2 cr)
-	CRFB-900 Independent Research	2-4 cr
6-8 cr	CRFB-99x Thesis Research	-
	Summer Semester	
-	CRFB-900 Independent Research	9 cr
9 cr	CRFB-99x Thesis Research	-

New Course Descriptions:

CRFB-910 Laboratory Rotation, 3 credit hours, fall

Students will rotate through 2 independent research labs of their choosing during the semester to identify a research mentor for their independent or thesis research project. Students will be required to write a brief summary of their research at the end of each 6 week rotation and will be allowed to evaluate the laboratory experience. Mentors will submit a pass/no pass grade and evaluation of the student at the end of each rotation. Grades will be pass/no pass and will be determined by averaging the two mentor evaluations.

CRFB-90x Biostatistics for Dental Research, 2 credit hours, fall

This course will introduce students to the use of biostatistics in the area of dental research. Topics will include how to use statistical methods during experimental design and data analysis as well as the limitations of commonly used statistical methodologies. Statistical methods covered will include those most frequently used in both basic and clinical research methodologies. The course is open to all MS, MSD, DMD and PhD students. The course will be merit graded.

CRFB-99x Thesis research, 1-9 credit hours, fall/spring/summer

MS students who have chosen the thesis-track will be allowed to register for this course after successful completion of their oral qualifying exam when they begin their formal thesis research project. The course will be pass/no pass graded by the chosen research mentor.

Assessment

In non-merit graded courses such as research and laboratory rotations, mentors/research supervisors will complete and evaluation form detailing the student's abilities in several areas

such as knowledge in the area of research, participation in laboratory meetings and discussions, ability to communicate research questions and methodologies, and general work ethic at the end of each semester. The results of the evaluation will be shared with the student to allow for improvement in the future. Students will also evaluate mentors/research supervisors at the end of rotations. These evaluations will be confidential but will provide program administrators to identify mentors that do not meet the expectations of the program. The anonymous evaluations will also be made available to future students to assist with their selection of appropriate laboratories for completion of their thesis research or independent studies.

Oral qualifying exams will be graded by completion of a table by each committee member detailing whether the student fails to meet, meets or exceeds expectations in the areas being tested. The evaluation will include whether the student responds adequately to questions in his or her chosen research area, demonstrates knowledge of the field, can critically evaluate the research in the field, and can clearly communicate ideas to others.

The oral defense for students choosing the thesis-track will be evaluated similarly to the oral qualifying. In addition to the review criteria listed above, the student will be rated as does not meet, meets, or exceeds expectations on his or her ability to respond to questions regarding the project and can respond to challenges professionally.

The M.S. in Oral Sciences program will be assessed regularly through several methods. For merit-graded courses, all students will be given the opportunity to complete an E-value evaluation at the end of the course. The evaluations will include metrics such as instructors, quality and adequacy of instructional materials provided, clarity of presentations, fairness of tests/assignments, and clarity of course objectives. The data collected from these evaluations will be used by the M.S. in Oral Sciences curriculum committee (detailed below) to modify and improve courses for subsequent years. Comments on instructor quality will be forwarded to the appropriate instructors and course directors.

A curriculum committee will be formed to assess the quality of individual courses within the program, approve new courses prior to their implementation, and modify the program requirements if necessary based on evaluations and outcomes. The committee will consist of seven faculty members with representatives from both basic and clinical research areas within the College of Dental Medicine, the Education Specialist employed by the College, and at least one faculty member from the College of Graduate Studies.

In order to assess the effectiveness of the program in achieving its goals, students will be asked to provide administrative staff with a non-MUSC, permanent e-mail address (such as Gmail or Yahoo) at the time of graduation. This e-mail address will be used to communicate with graduates after completion of the program. Students will be asked their goals following completion of the program at the time of admission to allow individual assessment of program success. Success for each student may be defined as acceptance to an accredited DMD or DDS program, acceptance to a Ph.D. program, or full-time employment in dental research.

For students whose goal is to obtain a DMD or DDS degree, students will be asked to provide the program administration with the total number of dental school applications submitted, DAT scores (or an increase in prior DAT scores), number of interviews at dental schools, and number of offers of acceptance. Later data that will be collected could include successful completion of a dental degree, participation in dental research, membership in dental societies, and current

employment (e.g. private dental practice, academic faculty, alternate career in dental research, specialty training).

Students whose goal is to obtain a Ph.D. will be asked for similar information regarding graduate school applications, interviews, GRE scores, and acceptance. Longer term data will include postdoctoral positions offered/accepted, grant funding status, and obtaining employment in dental education or oral health-related research.

Success of the program for students not desiring to pursue an advanced degree will be monitored on an individual basis with regards to achievement of their goal(s) at the time of matriculation into the program. Students may be interested in pursuing a career in oral health-related research, but not in obtaining an advanced degree; success will be defined as achievement of that goal upon graduation and into the future.

Graduates will also be asked to complete a brief opinion survey. Students will be asked to comment on the amount of didactic coursework required, the topics and appropriateness of the core curriculum, availability of appropriate mentors and electives, and the oral qualifying and defense (thesis track only) required by the program.

The above data regarding outcomes following completion of the program will be collected and the curriculum committee will use the results to determine if the current structure and focus of the program is adequate to allow students to achieve success after graduation. If students identify gaps or overlaps in the core courses, we will work with the course directors to adjust the curriculum to minimize these areas. Graduates may also identify areas of interest that are not addressed in the core curriculum or available as electives providing the committee with the opportunity to develop additional courses that would be beneficial to the program and potentially other programs within the College. In addition to regular review of the curriculum and student success, all faculty participating in teaching of the core curriculum will attend an annual retreat jointly with the DMD and MSD program faculty within the College. This will provide opportunities for aligning the courses in all three curricula and provide continuing training in educational methods.

Faculty

Table B – Faculty List

Faculty by Rank	Highest Degree Earned	Field of Study	Teaching in Field (Yes/No)
Professor #1	Ph.D.	Oral Biology/Immunology	Yes
Professor #2	Ph.D.	Cell Biology	Yes
Professor #3	Ph.D.	Cell Biology	Yes
Professor #4	Ph.D.	Biochemistry	Yes
Professor #5	Ph.D.	Immunology	Yes
Professor #6	Ph.D.	Biochemistry	Yes
Associate Professor #1	Ph.D.	Microbiology	Yes
Associate Professor #2	Ph.D.	Biochemistry	Yes
Associate Professor #3	Ph.D.	Biomedical Engineering	Yes

Associate Professor #4	Ph.D.	Cell Biology	Yes
Associate Professor #5	Ph.D.	Biochemistry	Yes
Associate Professor #6	Ph.D.	Immunology	Yes
Assistant Professor #1	Ph.D.	Cell Biology/Mineralized Tissue Biology	Yes
Assistant Professor #2	Ph.D.	Cancer Biology	Yes
Assistant Professor #3	Ph.D.	Biochemistry	Yes
Assistant Professor #4	Ph.D.	Biostatistics	No
Assistant Professor #5	Ph.D.	Oral Biology	No
Assistant Professor #5	Ph.D.	Biomedical Engineering	No
Research Assistant Professor #1	Ph.D.	Biomedical Engineering	Yes
Research Assistant Professor #2	M.D.	Oral Pathology	No

All faculty necessary to implement the M.S. in Oral Sciences program are currently within the College of Dental Medicine faculty. Additional faculty are being sought by the College with research expertise in oral microbiology, mineralized tissue biology or biostatistics at this time to strengthen the research program within the College and University. While these new positions are not essential for initiation of the program, they will enhance the educational mission of the M.S. in Oral Sciences program in the future.

Any new faculty hires necessary for the program will be required to hold a professional degree (D.M.D., Ph.D., D.M.D./Ph.D., or M.D./Ph.D.) from an accredited institution and have experience in basic, translational or clinical oral health-related research. New appointees will be required to be fluent in both written and spoken English.

No changes in duties for faculty or administrative staff are expected following implementation of the M.S. in Oral Sciences program. The administrative staff currently handles the corresponding duties for the D.M.D./Ph.D. and D.M.D. program in the College and has sufficient staff to accommodate the additional students. Faculty are currently teaching the offered courses and no changes will be necessary to their allotted time for teaching relative to other duties.

The Institutional plan for faculty development will be based on the existing program. Faculty member time is allotted according to the needs of the didactic course component and will include time allotted for research activities, curriculum development, and administrative duties such as mentoring. The University currently offers many activities for faculty development including seminars and interprofessional programs.

The Institutional definition of a full time equivalent (FTE) is a faculty position requiring at least forty hours per week of commitment.

Table C – Unit Administration, Faculty and Staff Support Table

UNIT ADMINISTRATION, FACULTY, AND STAFF SUPPORT						
YEAR	NEW		EXISTING		TOTAL	
	Headcount	FTE	Headcount	FTE	Headcount	FTE
Administration						
2014-15	0	0	2	.15	2	.15
2015-16	0	0	2	.15	2	.15
2016-17	0	0	2	.15	2	.15
2017-18	0	0	2	.15	2	.15
2018-19	0	0	2	.15	2	.15
Total	0	0	2	.15	2	.15
Faculty						
2014-15	3	0.1	16	0.4	19	0.5
2015-16	0	0	19	0.5	19	0.5
2016-17	0	0	19	0.5	19	0.5
2017-18	0	0	19	0.5	19	0.5
2018-19	0	0	19	0.5	19	0.5
Total	3	0.1	16	0.4	19	0.5
Staff						
2014-15	0	0	2	.15	2	.15
2015-16	0	0	2	.15	2	.15
2016-17	0	0	2	.15	2	.15
2017-18	0	0	2	.15	2	.15
2018-19	0	0	2	.15	2	.15
Total	0	0	2	.15	2	.15

Physical Plant

The proposed M.S. in Oral Sciences program will not require any changes or additions to the physical plant in place at the Medical University of South Carolina, College of Dental Medicine. Adequate classroom space is already available and most of the courses included in the program are currently offered in the College. Additionally, the Administrative staff and office space currently in place for the D.M.D./Ph.D. program within the College will support the new M.S. in Oral Sciences program.

Equipment

The University and college currently operate sufficient equipment for the proposed M.S. in Oral Sciences program so no additions to equipment will be necessary for implementation of the program. Lecture halls, conference rooms, computer-equipped offices are currently available within the College of Dental Medicine for implementation of the program. Research facilities are available in the Center for Oral Health Research and mentors are provided with research space and equipment sufficient to conduct their studies that the students will have access to.

Library Resources

The mission of the Library is to meet the information needs of faculty, staff and students of the University and to support the curriculum, research, and patient care goals of MUSC. The Library serves as a major medical resource library within the state, and within local, regional, and national networks.

The MUSC Library is located on the second, third, and fourth floors of the James W. Colbert Education Center and Library Building located on Ashley Avenue between the Clinical Sciences and Basic Science Buildings. Students and Faculty have MUSC ID card access to the 2nd, 3rd and 4th floors of the library 24 hours a day, seven days a week, 365 days a year. Entrance is via the 2nd floor.

The Library's collections includes electronic books, books, electronic journals, journals, journal article indexes, knowledge bases, electronic clinical collections, and selected Internet resources. The library is committed to electronic access to the databases, clinical collections, journals and books wherever the students are physically located. The Library provides access to 220 electronic databases and clinical collections, over 19,000 electronic journals and 8 print journals and over 200,000 electronic books and approximately 6,700 books in the circulating collection.

Library faculty and staff are available to assist users in the location of information, to provide instruction in the use of various resources, and to educate users in the process of information access and retrieval.

The proposed M.S. in Oral Sciences program will not require any changes or additions in Library resources already in place at the Medical University of South Carolina. The existing resources offer both online and print journals along with other publications appropriate and necessary for any scholarly activities. Regular innovations in Library technologies are anticipated but would be completed regardless of the addition of this program. Such innovations in Library technologies will only serve to enhance access to necessary scholarly works and reference materials to facilitate both student and faculty activities.

Accreditation, Approval, Licensure, or Certification

The Medical University of South Carolina is fully accredited by the Southern Association of Colleges and Schools (SACS). The proposed M.S. in Oral Sciences program is not designed to be linked to any certification or licensure program and as such, no certification or licensure will be obtained upon completion of the program.

Articulation

The MUSC Center for Oral Health Sciences (COHR) has been on significant growth trajectory for the past five years. With the Department of Craniofacial Biology as the academic home, the Center currently administers over \$4,000,000 in federal grants for fiscal year 2013. Dental schools in the US are often ranked by federal National Institute of Health (NIH) research dollars. In the past several years, the College of Dental Medicine has gone from being unranked in NIH funding to now 23rd in the US of 64 dental schools currently conferring either a DMD or DDS degree. In addition, MUSC and Clemson University have an active collaborative relationship in the area of bioengineering through the MUSC-Clemson Bioengineering Program. Joint faculty positions and recruitments are part of this programmatic alignment. The College of Dental Medicine faculty actively collaborate with Clemson faculty on research projects, mentoring of students, and serve on students' thesis committees currently. Clemson students are already part of T-COHR (Training in Craniofacial and Oral Health Research). M.S. in Oral Sciences 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. Finally, the dental school has forged a strong alliance with the Hollings Cancer Center at MUSC becoming a pivotal component of this NCI-designated center through support of the research services, internal administration, joint recruitments, and grants administration. Thus, the MUSC COHR is truly a campus-wide and statewide interdisciplinary and interprofessional center that fosters research and education in a highly interactive and collaborative environment.

Estimate of costs

The M.S. in Oral Sciences program will be implemented with existing faculty and staff resources. The majority of the courses are currently offered in the College of Dental Medicine. Partial faculty and staff salary compensation is needed to fully commit and implement this program along with partial salary compensation for the program director.

Table D – Estimated Costs and Sources of Financing by Year

ESTIMATED COSTS BY YEAR						
CATEGORY	1st	2nd	3rd	4th	5th	TOTALS
Program Administration	33,000	33,000	33,000	33,000	33,000	165,000
Faculty Salaries	50,000	50,000	50,000	50,000	50,000	250,000
Graduate Assistants	0	0	0	0	0	0
Clerical/Support Personnel	20,000	20,000	20,000	20,000	20,000	100,000
Supplies and Materials	0	0	0	0	0	0
Library Resources	5,000	5,000	5,000	5,000	5,000	25,000
Equipment	0	0	0	0	0	0
Facilities (IT support)	6,200	6,200	6,200	6,200	6,200	31,000
Other – outcomes assessment	5,000	5,000	5,000	5,000	5,000	25,000
Other – program marketing	3,480	3,480	3,480	3,480	3,480	17,400
Other – Consultant	3,000	0	0	0	0	3,000
Other – Faculty Retreat	1,000	0	0	0	0	1,000
TOTALS	126,680	122,680	122,680	122,680	122,680	617,400
SOURCES OF FINANCING BY YEAR						
Tuition Funding*	46,429	111,058	185,716	250,345	250,345	843,893
Program Specific Fees	0	0	0	0	0	0
State Funding	0	0	0	0	0	0
Reallocation of Existing Funds	0	0	0	0	0	0
Federal Funding	0	0	0	0	0	0
Other Funding (Specify)	0	0	0	0	0	0
TOTALS	46,429	111,058	185,716	250,345	250,345	843,893

*Assumes 50% of students in-state and 50% of students out-of-state. For years with odd student numbers in Table A, the majority of the students are estimated to be in-state. Tuition numbers are based on full time tuition for MUSC M.S. in Biomedical Sciences 2012-2013.