

Program Planning Summary
Medical University of South Carolina, College of Graduate Studies
Master of Science in Medical Sciences
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 Master of Science in Medical Sciences
 Medical University of South Carolina**

Program Classification

Program Name: Master of Science in Medical Sciences
 Program Type: New program
 Academic Unit: College of Graduate Studies
 Program Concentration: Health sciences with medical and dental school tracks
 Program Level and Duration: Master's Degree, One year (three semesters)
 Date of Implementation: Spring 2015
 Scholarship Information: Graduate level - does not qualify for supplemental Palmetto Fellows Scholarship or LIFE Scholarship awards
 Delivery Mode: Face-to-face on MUSC campus with the exception of 1-2 online courses
 Number of Credit Hours: minimum of 33

Justification

The Master of Science in Medical Sciences is proposed to give students seeking acceptance into professional schools (MD, DMD, e.g.) a structured, intensive program to increase their competitiveness. Each year professional schools must turn away many highly qualified students for a limited number of seats. Many of these students seek to reapply and are interested in pursuing opportunities to become better qualified, either through coursework or preparation for standardized tests. The Master of Science in Medical Sciences is a new program, but was piloted by the successful Certificate Program in Biomedical Sciences offered through the College of Graduate Studies. In its first two years the certificate program had 8 students matriculate per year and all students successfully completed the program the first year it was offered. Seven of the students in the first matriculating class were accepted into medical school and all are currently first year medical students at MUSC. At this point we seek to offer a master's program that will accomplish many of the same goals, but will lessen the financial burden on the students by allowing them to be considered for financial aid. In addition, we propose adding additional coursework that will further prepare the students for the rigors of the academic programs they will be entering. Students successfully completing this program should be well prepared to perform in any health sciences professional program and also will be academically prepared to enter industrial or academic technical positions requiring a biomedical sciences background. In addition, added coursework in clinical trials coordination will offer these students the opportunity to be employed as research/clinical coordinators in doctor's offices and hospital settings.

Curriculum

The proposed curriculum for the Master of Science in Medical Sciences will require a minimum of 33 credit hours over three consecutive semesters. The curriculum is outlined in the following table:

Summer Semester (10 weeks)	Fall Semester (15 weeks)	Spring Semester (15 weeks)
BSC 700 Online Histology 4 credits (Ogilvie/Sawyer)	BSC 712 Biochemistry 3 credits (Palanisamy)	BSC 714 Oral Immunobiology (Westwater)

		4 credits
BSC 704 standardized test preparation 3 credits (Wright/ Kasman/ student SIs)	BSC 702 Anatomy (Bacro) 4 credits	BSC 716 Medical Microbiology (Schmidt/Kasman) 4 credits
BSC 706 Professional Development (Wright/Kasman) 1 credit	CGS 700 Biostatistics (Martin) 4 credits	MSCR 724 Introduction to Clinical Trials (King) 3 credits
BSC 708 Grand Rounds (Halushka) 1 credit		
CCRT Core Clinical Research Training (online or classroom, offered several times per year) 2 credits	Electives	Electives
Total of 11 credits	Total of 11-15 credits	Total of 11-15 credits

With the exception of histology, all courses are taught face-to-face on the MUSC campus. The CCRT is a course offered several times per year through our South Carolina Clinical and Translational Research Institute (SCTR) and offers training in clinical trials ethics, research misconduct, and informed consent procedures. BSC courses 704, 706, 708 and 702 were developed specifically for this program and contain only the students in this program, giving them intensive time with the course instructors. BSC 712, 716 and 714 are sections of courses offered to MUSC's dental students and the Master of Science in Medical Sciences students will take the courses alongside the dental students. This offers them the unique opportunity to interact with other health professions students and to experience the coursework similarly to how it will be offered once they enter a professional school program. Additionally, elective courses are available. Suitable electives include PCOL 625 (Physiology), HAP 635 (The Language of Medicine), HAP 704 (Health Policy), PROS 901 (Introduction to Dentistry – for students entering dental programs), IP 704 (Smiles for Life), and IP 732 (History of Health Sciences), CGS 710 (Essentials of Scientific Practice), CGS 711 (Diversity in Science), and a clinical experience called A Month in the Research Nexus where students would get hands-on experience in running and developing clinical research projects.

Overlap with current MUSC programs

The College of Graduate Studies offers research-intensive, departmentally based master's programs that have been one resource for students seeking additional preparation. A number of applicants each year enter the master's programs with the goal of pursuing professional school upon graduation. However, the master's programs as currently structured are not the ideal solution for these students. Most of the programs entail significant research time and a limited amount of coursework and take 2-3 years to finish. Thus, they do not offer the structured, intensive preparation these students are seeking. The current Certificate in Biomedical Sciences program, which was established to address this issue, will no longer be offered once the Master of Science in Medical Sciences program is inaugurated.

Overlap with other programs in the state

A variety of other schools in South Carolina offer MS degrees in biological/biomedical sciences, however most of these are two year degrees requiring a thesis. Clemson University does offer a one-year MS degree in Biological Sciences and Microbiology. However, this program is offered online only and is focused on improving the skills of K-12 teachers. The College of Charleston offers MS degrees focused on environmental studies, teaching and education, and the arts and so our proposed program does not duplicate these efforts. USC Columbia offers MS degrees in Biological Sciences and Biomedical Sciences, but again, these are multi-year, research degrees. Claflin University offers a MS in Biotechnology, which is focused in forensics, plant biotechnology and biostatistics and so is not similar at all to our proposed program. The Citadel offers MS programs in computer science and sports science so our program is again very distinct from this. Winthrop University offers MS degrees in Biology, Psychology and Nutrition, which do not have the health sciences focus of our program. Finally, Coastal Carolina offers a MS degree, but it is focused in marine and environmental studies.

Anticipated Enrollment and Productivity

We have now had two years of enrollment experience with our Certificate in Biomedical Sciences program, which we anticipate has much the same applicant pool as the proposed Master of Science in Medical Sciences. Without officially advertising the program we had 16 applicants the first year and 21 applicants the second year. We have now developed a web site and begun to advertise through mailings and a presence on other websites (AAMC for example). We have had many inquiries into the program in the past few months and anticipate that our applications will continue to increase each year. Considering instructor load and class size, we can accommodate 15-20 students per year in the program. All students who matriculated in our first year successfully completed the program and 7/8 are current first year students in medical school. Therefore, at capacity we anticipate that the program will graduate 15-20 students annually.

Employment Opportunities for Graduates

The program will provide graduates a foundational experience and stronger credentials for applying for and being accepted into graduate medical programs (MD, DMD, etc.). It would also provide foundational coursework for students applying to PhD programs in biomedical sciences in the context of a student who also had research experience. The curriculum additions in clinical trials coordination will offer these students the opportunity to be employed as research/clinical assistants in doctor's offices and hospital settings in lieu of attending a medical program. The Bureau of Labor Statistics does not benchmark clinical research associate jobs, however they predict that clinical laboratory technician jobs (which are considered similar) are expected to rise 14% between 2008 and 2018. Clinical research associate jobs were ranked as a top 100 job by CNN Money with a projected 10-year growth of 12%:

(<http://money.cnn.com/magazines/moneymag/bestjobs/2010/snapshots/57.html>). At MUSC an appropriate job position would be as a Program Coordinator I, which requires a BS degree and one year of experience/additional education.

Estimate of Costs

The proposed program costs will be similar to the current costs for the Certificate of Biomedical Sciences program. Therefore, most of the necessary faculty and staff are in place. However, the program will incur additional costs to offer the Biostatistics course at approximately \$7,000, and will need additional administrative staff to accommodate the increased student load at an estimated cost of \$9,500 for 25% effort for a Program Coordinator. This person will be responsible for advertising the program, collating applications, correspondence with applicants, orientation, registration, general paperwork, and program evaluation. Therefore, total additional expenses are estimated at \$16,500.

