



Proposal to the
South Carolina Commission on Higher Education

from

Medical University of South Carolina

For the program:

Master of Public Health in Biostatistics

December 12, 2014

A handwritten signature in black ink, appearing to read "D. J. Cole", is positioned above a horizontal line.

David J. Cole, M.D.

President

Medical University of South Carolina

Background Information

State the nature and purpose of the proposed program, including target audience and centrality to institutional mission. (1500 characters)

List the program objectives. (2000 characters)

Assessment of Need

Provide an assessment of the need for the program for the institution, the state, the region, and beyond, if applicable. (1500 characters)

Employment Opportunities

Is specific employment/workforce data available to support the proposed program?

- Yes
- No

If yes, complete the table and the component that follows the table on page 4. If no, complete the single narrative response component on page 5 beginning with "Provide supporting evidence."

Employment Opportunities			
Occupation	Expected Number of Jobs	Employment Projection	Data Source

Provide additional information regarding anticipated employment opportunities for graduates.
(1000 characters)

Provide supporting evidence of anticipated employment opportunities for graduates, including a statement that clearly articulates what the program prepares graduates to do, any documented citations that suggests a correlation between this program and future employment, and other relevant information. Please cite specific resources, as appropriate. (3000 characters)

Note: Only complete this component if you did not complete the Employment Opportunities table and the component that follows the table on page 4.

Will the proposed program impact any existing degree programs and services at the institution (e.g., course offerings or enrollment)?

Yes

No

If yes, explain. (500 characters)

Description of the Program

Projected Enrollment						
Year	Fall		Spring		Summer	
	Headcount	Credit Hours	Headcount	Credit Hours	Headcount	Credit Hours

Besides the general institutional admission requirements, are there any separate or additional admission requirements for the proposed program?

- Yes
- No

If yes, explain. (1000 characters)

Are there any special articulation agreements for the proposed program?

Yes

No

If yes, identify. (1000 characters)

Total Credit Hours Required

Course Descriptions for New Courses

Course Name	Description

Total FTE needed to support the proposed program (i.e., the total FTE devoted just to the new program for all faculty, staff, and program administrators):

Faculty

Staff

Administration

Faculty /Administrative Personnel Changes

Provide a brief explanation of any additional institutional changes in faculty and/or administrative assignment that may result from implementing the proposed program. (1000 characters)

Library and Learning Resources

Identify current library/learning collections, resources, and services necessary to support the proposed program and any additional library resources needed. (1000 characters)

Student Support Services

Identify academic support services needed for the proposed program and any additional estimated costs associated with these services. (500 characters)

Physical Resources

Identify any new instructional equipment needed for the proposed program. (500 characters)

Will any extraordinary physical facilities be needed to support the proposed program?

- Yes
 No

Identify the physical facilities needed to support the program and the institution's plan for meeting the requirements, including new facilities or modifications to existing facilities. (1000 characters)

Financial Support

Estimated New Costs by Year						
Category	1 st	2 nd	3 rd	4 th	5 th	Total
Program Administration						
Faculty and Staff Salaries						
Graduate Assistants						
Equipment						
Facilities						
Supplies and Materials						
Library Resources						
Other*						
Total						
Sources of Financing						
Category	1 st	2 nd	3 rd	4 th	5 th	Total
Tuition Funding						
Program-Specific Fees						
State Funding (i.e., Special State Appropriation)*						
Reallocation of Existing Funds*						
Federal Funding*						
Other Funding*						
Total						
Net Total (i.e., Estimated New Costs Minus Sources of Financing)						

*Provide an explanation for these costs and sources of financing in the budget justification.

Budget Justification

Provide a brief explanation for the other new costs and any special sources of financing (state funding, reallocation of existing funds, federal funding, or other funding) identified in the Financial Support table. (1000 characters)

Note: Only provide this budget justification if any other new costs, state funding, reallocation of existing funds, federal funding, or other funding are included in the Financial Support table.

Evaluation and Assessment

Programmatic Assessment: Provide an outline of how the proposed program will be evaluated, including any plans to track employment. Identify assessment tools or software used in the evaluation. Explain how assessment data will be used. (3000 characters)

Student Learning Assessment

Expected Student Learning Outcomes	Methods of/Criteria for Assessment

Will the proposed program seek program-specific accreditation?

- Yes
 No

If yes, provide the institution's plans to seek accreditation, including the expected timeline for accreditation. (500 characters)

Will the proposed program lead to licensure or certification?

- Yes
 No

If yes, explain how the program will prepare students for licensure or certification. (500 characters)

Teacher or School Professional Preparation Programs

Is the proposed program a teacher or school professional preparation program?

Yes

No

If yes, complete the following components.

Area of Certification

Attach a document addressing the South Carolina Department of Education Requirements and SPA or Other National Specialized and/or Professional Association Standards.

Response to CHE Review

Assessment of Need (cont)

There is another accredited and well-respected MPH training program in the state—the Arnold School of Public Health at the University of South Carolina. Per professional accreditation standards outlined by the Council on Education for Public Health (CEPH) for MPH programs, our MPH degree programs will duplicate, by necessity, some of the MPH programs offered at USC. The MPH in Biostatistics is one of the degrees that is also offered at USC.

Regarding the MPH Biostatistics degree, USC reports very low enrollment in their program, and thus, their concern that MUSC's program will be an unnecessary duplication is understandable. We posit that on balance, this risk is outweighed by factors that will likely make MUSC's MPH Biostatistics program particularly attractive. First, MUSC has substantial resources and infrastructure available to students interested in Biostatistics. Second, we have a very strong biomedical research enterprise (we are consistently in the top 20% of all universities in the nation and the top 25% among health science institutions in research expenditures and awards, respectively). Because of this, we are likely to attract MPH students especially interested in Biostatistics. Third, our location affords convenience for MUSC healthcare professionals and current MUSC students who would like to pursue training in public health and biostatistics.

There are additional reasons to offer a second MPH training site in the state:

1. Enhancing activity in public health sciences, including providing graduate degrees in public health, is critical to MUSC's mission and its future success
2. Workforce demand is increasing, nationally and in South Carolina, for professionals trained in public health sciences
3. Our neighbor states, Georgia and North Carolina, have multiple institutions accredited to offer MPH degrees (GA=8; NC=3; see <http://ceph.org/accredited/search/>)
4. The majority of MUSC's peer institutions and all of MUSC's aspirational peer institutions offer MPH degrees

The MPH in Biostatistics is a professional degree and prepares students to lead public health efforts, in addition to developing their expertise in biostatistics and research methods. In addition, an advantage of offering this uniquely professional degree in Biostatistics is that some of the required courses for MPH already are in place. Currently, no MPH degree programs exist at MUSC.

In addition to complementing other degree programs at the institution, the MPH in Biostatistics can leverage valuable resources at MUSC. For example, MUSC has one of only 60 national Clinical and Translational Science Awards (CTSA). The CTSA provides a platform for work in a wide range of disciplines and approaches that inform public health science research and practice, including bioinformatics, community engaged research, research integrity and ethics, basic and applied research, and translational research. In addition, MUSC's Hollings Cancer Center has a Biostatistics Shared Core (BSR), which provides statistical support to basic scientists, clinical investigators, behavioral scientists, and epidemiologists involved in cancer research. Members of the BSR meet with cancer researchers to discuss study planning and statistical analysis of

cancer treatment trials. Both the CTSA and the BSR provide rich experiential learning opportunities for MPH Biostatistics students.

The proposed MPH in Biostatistics is critical to the mission of MUSC, which is to preserve and optimize human life in South Carolina and beyond. The university provides an inter-professional environment for learning and discovery through education of healthcare professionals and biomedical scientists, research in the health sciences, and provision of comprehensive health care.

MUSC's standing as a top tier academic health science center will be threatened if it is unable to respond effectively to the challenges of a new era of healthcare and health education. Building a stronger presence in public health sciences—in clinical practice, research, and education—is, therefore, a high priority for the institution. Training the next generation of public health scientists in Biostatistics is an important part of this strategy.

Articulation

The DPHS currently has active and productive relationships with other institutions at international, national, state, and local levels. Faculty within our Department have working relationships (e.g. research, instruction, or intervention) with the University of South Carolina Arnold School of Public Health, The Health Services South Carolina Data Warehouse, SC Department of Health and Environmental Control, The Center for Disease Control and Prevention, Environmental Protection Agency, The University of Georgia, The University of North Carolina at Chapel Hill, The Citadel and the College of Charleston and other state and community Institutions. The Department of Public Health Sciences faculty are actively serving on state level initiatives in aging, physical activity, prevention, obesity prevention, cancer prevention and substance abuse prevention. Faculty also are serving professional organizations as editorial board members and reviewers for journals and federal organizations (e.g., CDC, NIH) as grant reviewers. These relationships will provide important opportunities for our students to engage in applied research and evaluation projects.

MUSC would seek to strengthen the current collaborative relationships with the College of Charleston, The Lowcountry Graduate Center, The Citadel, Clemson University, and USC's Arnold School of Public Health. Dr. Vena, DPHS Chair met with the Administrative Council of the USC Arnold School of Public Health and Dean Thomas Chandler on September 10, 2014 to discuss improving and expanding on collaborations in research, instruction and community engagement and service, including cooperation in course offerings, faculty visits, joint retreats, and serving as internship sites for each other's students. We will also reach out to USC-Beaufort to examine how graduates of its recently approved B.S. in Health Promotion may be served by our MPH programs. MUSC and USC will maintain their Memorandum of Understanding for a dual MD/MPH degree (established in 2004). Although this program has not been widely used by MUSC's MD students, primarily due to lack of interest in relocating in order to complete the MPH degree, it does offer the opportunity for interested medical students to complete an MPH degree at USC within one year (vs. two years as currently designed at MUSC), so this option will remain available. With the MPH degree, MUSC will be able to offer a dual degree on its own campus (e.g., MD/MPH, DMD/MPH; PharmD/MPH). Informal discussions with the College of Charleston and USC have identified several potential

avenues for collaboration. For example, with the maturity of the MPH program, it may be possible for College of Charleston students to take courses during their undergraduate training so that they can complete the requirement of the MPH degree at an accelerated pace (thus reducing their cost). Dr. Vena and Dr. Ramakrishnan, DPHS Graduate Director met on September 12, 2014 with Dr. Lynne Ford and several representatives from College of Charleston to outline steps for expanding on collaborations in research, instruction and community engagement and service, including cooperation in faculty exchanges, and possible development of the BS/BA-MPH dual degree programs. Several faculty at the College of Charleston are poised to contribute elective courses in qualitative research methods, health communication (including communication campaigns, social media, international and intercultural communication), and social epidemiology.

Course Description for New Courses (cont)

BEHH 700 Social and Behavioral Health Sciences: Principles of Health Behavior and Health Promotion (3)

This course introduces MPH students to the principles and practices of the social and behavioral sciences in public health. The overall goal of the course is to provide a broad overview of social and behavioral science principles that can be used to guide the process of identifying, characterizing and resolving public health problems to improve the health of individuals and populations. Students will examine the role of behavioral and social factors as determinants of health outcomes and introduce key individual, organizational and community factors to consider when planning social and behavioral science interventions. This course provides a broad introduction to the basic theories, concepts and models from the social and behavioral sciences that are used in public health research and practice. Prerequisites: None.

BEHH 701 Introduction to Health Systems and Policy (3)

This course aims to identify the main components and issues of the organization, financing and delivery of health services within the various domains of public health in the US, describe the legal and ethical bases for public health and health services, identify the main components and issues of the organization, financing and delivery of health services and public health systems in the US, discuss the policy processes for improving the health of populations as well as how to evaluate and describe the performance of the U.S. health systems in terms of cost, quality, effectiveness, and access. The course includes evaluation of several case studies of public health policy decisions and their implications. Prerequisites: None.

BIOS 725 Statistical Computing I (1)

Students learn to use the primary statistical software packages for data manipulation and analysis corresponding to topics covered in Biostatistics Methods I (BIOS 700).

BIOS 726 Statistical Computing II (1)

Students learn to use the primary statistical software packages for data manipulation and analysis corresponding to topics covered in Biostatistics Methods II (BIOS 701).

BIOS 728 Introduction to Biomedical Informatics (3)

This course will expose students to high performance computing and communications, introduce them to the issues of copyright and database protection world-wide, the principles of database design, genetic databases and the associated information in the biomedical research literature, the Pubmed and other Clinical Information systems. Prerequisites: None.

BIOS 729 Design and Analysis of Survey Data (3)

Fundamental principles and methods of sampling populations, with primary attention given to simple random sampling, stratified sampling, and cluster sampling. Also, the calculation of sample weights, dealing with sources of non-sampling error, and analysis of data from complex sample designs are covered. Practical experience in sampling is provided by student participation in the design, execution, and analysis of a sampling project. Prerequisites: BIOS 700 and BIOS 701.

BIOS 789 Special Topics in categorical and correlated data analysis (3)

Special topics in categorical and correlated data analysis will include: a review of binary logistic and probit regression models; conditional and ordinal, multinomial response regression models. Basic longitudinal analysis will be reviewed and students will analyze two period and multi period examples with clinical trial and public health applications. Students will gain experience in model fitting using appropriate statistical software.

PHS 703 Field Placement in Public Health (6)

MPH students complete a field placement in an appropriate public health setting (6 credit hours of PHS 703), graded S/U. Sites include, but are not limited to, hospitals, not for profit organizations, governmental agencies, and worksite/for-profit companies. The site is chosen based on student interest and competencies that students need to achieve. Each site must have a mentor who is credentialed in biostatistics or who has experience in these areas. The site must have a major project that addresses the educational needs of the student, and the amount of work available for the student must fill at least 300 contact hours. Each site must have an affiliation agreement with the College of Medicine at MUSC before any field placement work is approved. After meeting with the academic advisor, Practice Coordinator, and site supervisor to discuss possible sites and availability of an affiliation agreement, students will submit the required paperwork for the field placement site and identify competencies and learning objectives to be achieved during the 300 hours. Students must have at least 18 credits of coursework in the MPH program before beginning the field placement; within those 18 credits must be the five MPH core courses. Students must have approval from the academic advisor to apply for the field placement.

PHS 704 Capstone Project (3)

All MPH students will participate in a culminating experience which is required for graduation from the program. It is completed in the final semester in the MPH program. The capstone project will reflect the student's assimilation of theories and skills from didactic and experiential learning courses. Examples of culminating experiences include research papers, publishable review articles, and service learning courses with required papers.