

[Link to Budget Material](#)

APPENDIX C

UNIVERSITY OF NORTH CAROLINA REQUEST FOR AUTHORIZATION TO ESTABLISH A NEW DEGREE PROGRAM

INSTRUCTIONS: Each proposal should include a 2-3 page executive summary. The signature of the Chancellor is required. Please submit one hard copy and an electronic copy of the proposal to the Office of the Senior Vice President of Academic Affairs at UNC General Administration.

Date: March 28, 2014

Constituent Institution: East Carolina University, Brody School of Medicine, Department of Public Health

CIP Discipline Specialty Title: _Epidemiology

CIP Discipline Specialty Number: _26.1309.404.000 Level: D

Exact Title of the Proposed Degree: Epidemiology

Exact Degree Abbreviation (e.g. B.S., B.A., M.A., M.S., Ed.D., Ph.D.): _PhD

Does the proposed program constitute a substantive change as defined by SACS? Yes No

The current SACS Substantive Change Policy Statement may be viewed at:
<http://www.sacscoc.org/pdf/081705/Substantive%20Change%20policy.pdf>

If yes, please briefly explain.

Proposed date to establish degree program: Month June Year 2015

Are there plans to offer all or a portion of this program to students off-campus or online? Yes No

If yes, complete the form to be used to request establishment of a distance education program and submit it along with this request.

Note: If a degree program has not been approved by the Board of Governors, its approval for alternative, online, or distance delivery must wait until BOG program approval is received. (400.1.1[R], page 3)

¹This Appendix C supersedes the preceding Appendix C entitled, "Request for Authorization to Establish a New Degree Program," adopted May 6, 2009.

EXECUTIVE SUMMARY

East Carolina University (ECU) is submitting a Request to Establish a Doctor of Philosophy (PhD) degree program in epidemiology. The definition of epidemiology is "the study of the distribution and determinants of health-related states in specified populations, and the application of this study to control health problems." The goal of the ECU PhD program is to train individuals who are seeking to become professionals in the discipline of epidemiology serving roles in academia, research, healthcare, and public service. The ECU PhD degree program in epidemiology is designed to address the distribution and determinants of health disparities in minority, underserved, and rural populations by collaborating in interdisciplinary teams to develop evidence-based solutions that translate into improved population health.

Initially, this program will be housed within the Department of Public Health (DPH), Brody School of Medicine (BSOM). Entry into the program will require at least a prior master's degree from an accredited school of public health or similarly accredited program demonstrating completion of master's level epidemiology coursework. The PhD program will require a minimum completion of 40 semester credit hours of coursework in the following categories: 15 epidemiology, 9 biostatistics, 9 electives, 4 teaching, and 3 seminar and at least 18 dissertation semester credit hours beyond the master's degree. Approximately, seven new courses are needed and several existing master's courses will be enhanced for doctoral content. At the fifth year of the program, 16 students will be enrolled, which is the maximum number of students planned to be in the program concurrently. Approximately, four students per year will be admitted, assuming the program is completed, on average, in four years. ECU is seeking to matriculate students in fall 2015.

Funding for the program to support stipends, tuition, and other costs will be provided by a mix of DPH extramural grant funding (\$638,970) and the ECU Office of the Vice-Chancellor, Division of Health Sciences (\$1,109,790) over the initial five years of the program. Six DPH faculty members will provide instruction in epidemiology curriculum. Two additional epidemiology faculty members are budgeted through 2020. Seven faculty members in the Department of Biostatistics, College of Allied Health Sciences offer biostatistics curriculum included in the program plan.

Epidemiology may be considered a methodology for studying population health. Thus, employment opportunities exist in many health-related sectors of the economy. Job growth from 2012-2022 is expected to increase at a rate of 10.2%, faster than the average for all occupations, based on estimates from the U.S. Bureau of Labor Statistics. Depending on expertise and interest, graduates may gain employment at hospitals, clinics, academic institutions, contract research organizations, in industry, or for state or federal government agencies. As the public health workforce retires, a greater workforce shortage will emerge than currently exists. A recent search using a popular public health employment website was conducted. Using the term "epidemiology and PhD", a search on "position description" yielded 117 jobs and a search on "classification" yielded 103 jobs listed on the day searched. Evidence exists indicating a high demand for training in epidemiology, based on website searches advertising epidemiology jobs.

At completion of the program, a PhD graduate will be able to: identify appropriate theoretical and logic models that inform public health research, critically read and interpret the scientific literature related to epidemiology and public health, design and develop epidemiologic studies to

fill a research gap, design a surveillance approach to monitor a public health problem, design procedures and data collection instruments, conduct population-health inquiry using analytical software, communicate epidemiologic and other scientific information to a broad range of audiences, orally and in writing, prepare and submit a peer-reviewed grant proposal, teach epidemiologic concepts and methods at the graduate level, maintain ethical standards and confidentiality, build teams and organizational structures to conduct research, including community stakeholders, prepare and manage budgets, and maintain cultural competency among diverse groups.

The curriculum is designed to leverage existing resources at ECU and other UNC system institutions. The program will build on the successes established through the ECU Master's of Public Health program. Collaborations are planned with the College of Allied Health Sciences Department of Biostatistics and School of Dental Medicine. Where ECU does not anticipate curriculum in specialty areas, ECU has been discussing student enrollment in coursework at the University of North Carolina at Chapel Hill Gillings School of Global Public Health (CH-SPH), which offers the only PhD epidemiology degree program in North Carolina. A Memorandum of Understanding (MOU) exists between CH-SPH and ECU for the MPH programs, which could be adapted for the doctoral programs. Support for the program extends beyond North Carolina. Fifteen Letters of Support are provided.

In conclusion, many societal and economic pressures are emerging that highlight the need for greater capacity to provide training in epidemiology at the doctoral level. ECU is aligning academic program planning with the future needs for training in epidemiology to provide service in core areas consistent with the ECU mission to improve health outcomes in rural and disadvantaged communities.

I. DESCRIPTION OF THE PROGRAM

A. Describe the proposed degree program (i.e., its nature, scope, and intended audience).

Nature: Residents of the 29-county area of eastern North Carolina (ENC) are not as healthy as the other 71 counties as a group, and North Carolina (NC) ranks 32nd out of 50 states in overall health rankings. Rates of childhood obesity, diabetes, hypertension, end-stage kidney disease, some infectious diseases, cancer, and heart disease are higher in ENC compared to the rest of the state. Population-level disparities indicated by these statistics relate to many known and unknown disease-related factors present in the population of eastern NC. To explore the underlying reasons for these rates at the population level, so that interventions may be proposed, tested, and implemented, an epidemiologist may likely be a first point of contact.

The definition of epidemiology is "the study of the distribution and determinants of health-related states in specified populations, and the application of this study to control health problems." (Last, 2000). Several distinct study design methodologies comprise the discipline: ecologic, cross-sectional, case-control, retrospective, prospective and randomized intervention trial designs. Each design may serve to answer a different question along a continuum of simple to complex population health questions. Thus, epidemiologic study designs may be thought of as a set of tools in a population health tool-kit. A well-trained epidemiologist knows which tool to choose depending on the population question at hand.

Epidemiology is the core discipline of public health, first emerging as a discipline in the mid-1850s through the study of mortality patterns due to communicable diseases. Over the past two decades, the discipline of epidemiology has witnessed tremendous expansion, in parallel with new technologies to identify and treat subtle changes in disease status and to manage complex biological information, among other advances. The focus of epidemiology has evolved from a description of disease rates and risk factors for disease, to include genes, molecular markers, environmental measures and social factors. Sub-specialties have emerged, such as pharmacoepidemiology, social epidemiology, genetic and molecular epidemiology, and disaster epidemiology, to name a few (Carter-Pokras et al., 2009). Each sub-specialty may have an outcome of interest such as an acute or chronic disease or condition (cancer, HIV, or obesity). Additionally, the study of drugs and therapies fall under experimental trials, another sub-specialty of epidemiology. Although epidemiologic methods have helped to discover the underlying causes of many human diseases, these methods may be even more crucial for providing the data for translating these discoveries into population health impact, the role of translation epidemiology (Khoury et al., 2010).

Scope: The East Carolina University (ECU) doctor of philosophy (PhD) degree program in epidemiology is designed to focus on the distribution and determinants of health disparities in minority, underserved, and rural populations, and to collaborate in interdisciplinary teams to develop evidence-based solutions that translate into improved population health. The scope of the program will include fundamental epidemiologic methods and applied epidemiology problem-solving centered around three focus areas, public health surveillance, clinic-based epidemiology, and community-based epidemiology. Initially, the program, requested to begin in June 2015, will be housed in the Department of Public Health (DPH), Brody School of Medicine (BSOM).

Intended audience: At BSOM, our daily mission ‘to serve the underserved’ is woven throughout the population health sciences curriculum. Our intended audience is first those who align with our mission. Secondly, individuals who seek a PhD experience that requires engaging with an underserved community will seek our degree program. Potential applicants to this academic research degree will include master’s of public health (MPH) or master’s degree graduates from ECU and other accredited universities in the region, health care professionals seeking to incorporate epidemiology competencies into a clinical setting (such as from Vidant Medical Center and ECU School of Dental Medicine), and public health practitioners seeking to expand applied population-health research skills. The proposed program is particularly interested in attracting epidemiology graduate students who have a vision for integrating public health knowledge by participating in multi-disciplinary research teams, including dental and healthcare providers, behavioral scientists, allied health professionals, occupational and environmental health scientists, economists, and other professionals, collaborating to solve complex public health problems facing our community.

B. List the educational objectives of the program.

Objectives of the PhD degree program in epidemiology are to:

- expand the epidemiology capacity of the public health workforce,
- produce leaders in population health and epidemiologic research,

- produce independent researchers with analytical skills to work collaboratively across disciplines and within diverse community settings, and
- advance the state of knowledge in the field of epidemiology to improve health.

A PhD graduate in epidemiology will be able to:

- identify appropriate theoretical and logic models that inform epidemiologic research,
- critically read and interpret the scientific literature related to epidemiology and public health,
- design and conduct epidemiologic studies to fill a research gap,
- design a surveillance approach to monitor a public health problem,
- design procedures and data collection instruments,
- conduct population-health inquiry using statistical software,
- communicate epidemiologic and other scientific information to a broad range of audiences, orally and in writing,
- prepare and submit a peer-reviewed grant proposal,
- teach epidemiologic concepts and methods at the graduate level,
- publish peer-reviewed research,
- maintain ethical standards and confidentiality,
- build teams and organizational structures to conduct research, including community stakeholders,
- prepare and manage budgets, and
- maintain cultural competency among diverse groups.

C. Describe the relationship of the program to other programs currently offered at the proposing institution, including the common use of: courses, faculty, facilities, and other resources.

The PhD in epidemiology program will not compete with any existing or proposed doctoral-level programs at ECU, but would be complementary to several existing doctoral programs across the health sciences and main campuses at ECU. No PhD program at ECU focuses on population health.

1. Courses

All core epidemiology courses required for the PhD program will be new courses. Some existing master's courses will be enhanced to meet doctoral competencies. Currently, the Department of Public Health, BSOM, offers a master's degree in public health (MPH) through the accredited MPH program. Some existing courses in the MPH program will be expanded to include more in-depth content at the doctoral level, such as survey research methods and program evaluation.

The Department of Biostatistics within the College of Allied Health Sciences offers existing biostatistics courses that will be required, such as multivariate regression, survival analysis, and principles of experimental design and analysis. The Department of Biostatistics is not a degree granting department. Seven faculty members serve to teach biostatistics to undergraduate and graduate students in the allied health professions. In addition, as the only designated statistics

department at ECU, the faculty support a robust consulting unit, that provides biostatistical support across all departments at ECU.

The Department of Psychology offers a doctoral degree in Health Psychology, with three concentrations. Two existing courses, Advanced Research Design (PSYC 7431) and Multivariate Statistical Analysis (PSYC 7433), are sequential courses that introduce multivariate inferential statistics and then computing and interpreting statistical output from multivariate models, respectively. These courses may be relevant for the particular research niche of an epidemiology student. Our faculty encourage cross-disciplinary interaction between graduate students to prepare for cross-disciplinary practice after graduation. We hope to create a learning environment that promotes synergistic research opportunity in disciplines that are complementary.

Besides Introduction to Epidemiology, MPH 6011, which is required of all MPH students, one other master's level epidemiology course exists in the ECU graduate curriculum, which is an online course in the master's in health education program offered through the College of Health and Human Performance (CHHP). The online master's level introductory epidemiology course for students in health education is not relevant for doctoral training, and MPH students take epidemiology offered in the Department of Public Health. The online course is mentioned here for completeness.

2. Faculty

Faculty from three departments will instruct the required epidemiology coursework including the Departments of Public Health and Biostatistics.

The biostatistics faculty members in the Department of Biostatistics are critical for offering coursework that provides grounding in analytic biostatistical methods for the PhD epidemiology program. Dr. Paul Vos, chair of Department of Biostatistics, has provided a letter of support (see Appendix). Dr. Samuel Sears, program director of health psychology, has agreed that epidemiology doctoral students may enroll in biostatistics courses taught in health psychology (see letter of support in Appendix).

Because the DPH is within BSOM, which is situated on the ECU health sciences campus, doctoral students will also have access to collaboration with faculty from the College of Allied Health Sciences, School of Dental Medicine, and College of Nursing. Faculty members that offer coursework in substantive areas of study or electives are affiliated with the School of Medicine, and numerous departments across the ECU campus. For example, Dr. Suzanne Lazorick, MD, professor of pediatrics, conducts research on pediatric obesity; she teaches maternal and child health (MPH 6670). Dr. Skip Cummings, professor in family medicine, conducts intervention research related to diabetes in African American women; he instructs Interdisciplinary Rural Health, MPH 6035. Bench scientists in the Department of Physiology who study metabolic disease may collaborate on studying a particular marker in humans. Clinical faculty in Leo Jenkins Cancer Center would welcome greater capacity to collaborate on intervention trials and studies to identify predictors for cancer treatment and prognosis (see letter of support from Dr. Zervos, MD). Dean Gregory Chadwick, Dean of the ECU School of Dental Medicine, looks to collaborate on training dentists with public health skills. The ECU Department of Economics anticipates establishing a PhD in economics with particular emphasis on health economics, a timely topic given increasing costs of medical insurance programs (see letter of support from Dr.

Richard Ericson). Doctoral students, responsible for identifying committee members from among the ECU faculty, will have access to numerous clinicians and scientists from which to form a dissertation committee.

3. Facilities

Students will have access to facilities in both BSOM and College of Allied Health Sciences. Most professors utilize the “smart” classrooms in the Allied Health Sciences building. A staff member in the Dean’s office of the College of Allied Health Sciences coordinates the room reservations for teaching. Since most of the doctoral courses will be held in the late afternoon or evening, there would be minimal competition for classroom space from instructors in the clinical disciplines, which meet mostly in the morning.

The Laupus Health Sciences Library (LHSL) has three computer and biostatistics computing classrooms for student instruction in data analysis, loaded with standard software (SAS). The LHSL has two large rooms on the main floor with computer workstations for student use. These computers, which have basic word processing, budgeting, and presentation development software, are mainly used for literature searches and accessing materials from the extensive electronic journal collection. Free printing (up to 50 pages per day) is included. LHSL has a variety of rooms to accommodate groups of all sizes and technology needs, from small (4-6) to large (10) study groups. All students in the health sciences share these facilities.

4. Other resources

Most resources needed by a doctoral student in epidemiology are available on campus by virtue of having doctoral programs elsewhere on campus.

Doctoral students will have access to the existing computing resources, such as analytic software (SAS, R, JMP, SPSS, Minitab, and EpiINFO), as well as, specialty software such as a dietary analysis program, Nutrition Data System Research (NDSR). Several gigabytes of secure data storage are available for each student on ECU servers. Cubicles and shared office space (2 students per office) are currently available. A doctoral student group exists in the basic sciences doctoral programs within BSOM; epidemiology students would participate in this graduate student group, creating opportunity for doctoral students to have leadership and mentorship roles for professional growth. Students may attend any of the continuing education seminars sponsored by clinical departments or institutes and workshops sponsored by the ECU Office for Faculty Excellence. For example, weekly seminars are held at the East Carolina Diabetes and Obesity Institute and monthly seminars are sponsored by the Center for Health Disparities Research.

D. Identify opportunities for collaboration with institutions offering related degrees and discuss what steps have or will be taken to actively pursue those opportunities where appropriate and advantageous.

Collaboration may be viewed to include collaborating with institutions or programs that offer master’s degrees to recruit future PhD epidemiology students, and collaborating with University of North Carolina at Chapel Hill (UNC-CH).

Existing Master’s Degree Programs. A master’s degree is required for admission into the PhD program. Thus, institutions that grant a master’s degree in epidemiology or public health sciences

would be potential collaborators. The PhD degree program would seek to recruit strong candidates from existing master's programs within NC, such as the UNC at Charlotte master's in public health sciences (MSPH), UNC at Greensboro master's in public health. We seek to develop a stronger relationship with the UNC at Wilmington (UNCW) through the College of Health and Human Services. Dean Charles Hardy visited ECU to discuss collaboration on teaching, research, and enhancing student access to the ECU MPH program. UNCW does not have master's degree program in public health. ECU faculty members have also visited UNCW to meet future colleagues. Strong relationships between faculty at ECU and UNCW are emerging with anticipation of a Memorandum of Understanding (MOU) in 2014 formalizing a pipeline for UNCW college graduates to enter the ECU MPH program.

ECU. At ECU, the PhD in epidemiology would be an important opportunity for ECU MPH graduates as well as graduates from other ECU master's and professional degree programs. Students who have completed a master's degree that included primary data collection on an original or innovative topic in population health would make attractive doctoral candidates. The epidemiology PhD degree program complements laboratory-based research programs in physiology, pharmacology, toxicology, and immunology, and human genetics, allowing multi-disciplinary and collaborative research teams to address health problems in the ENC, such as cancer, hypertension, obesity, diabetes, cardiovascular, and respiratory diseases. Individuals with a master's of science degree in a basic, applied or social science would find a complementary fit with a PhD degree in epidemiology.

UNC. University of North Carolina at Chapel Hill (UNC-CH) Gillings School of Global Public Health (CH-SPH) offers a PhD in epidemiology, which is the only PhD epidemiology program at any private or public institution in NC. The UNC-CH program description states: "The PhD in Epidemiology at UNC is the academic doctoral degree. It is a research degree, centered around a major research project within a broad public health orientation and seeking to integrate related disciplines."

The CH-SPH Department of Epidemiology was formed about 40 years ago. Approximately 61 epidemiology graduate faculty members represent a mixture of tenure-track, research track, and joint appointment with the UNC School of Medicine. About 34% of members are research track, based on the public website.

A MOU between ECU DPH and CH-SPH was developed in 2005 and updated in June 2013. The MOU is specific to the master's programs and encompasses the spirit of mutual benefit. This MOU could be expanded to include doctoral programs. BSOM Dean Paul Cunningham, ECU DPH Chair Lloyd Novick and Dean Barbara Rimer (CH-SPH) agreed to the objectives of the MOU between ECU and CH-SPH (attached), which are to: explore ways to offer CH-SPH courses to ECU master's students, explore ways to offer ECU courses to CH-SPH students, explore ways to extend research expertise of both institutions to address health problems in eastern NC, and explore ways to coordinate distance learning programs. ECU MPH students have attended the UNC Minority Health Day organized by UNC MPH students.

ECU began discussion with CH-SPH about a PhD degree program in epidemiology in 2008. Drs. Novick and Lea attended a meeting with Dr. Andrew Olshan, chair of the Department of Epidemiology, CH-SPH, on November 7, 2008. Dr. Geraldo Heiss, director of graduate studies for the Department of Epidemiology, and Nancy Colvin, assistant to chair of graduate studies,

also attended. The chair of epidemiology at CH-SPH agreed in concept that ECU PhD students could enroll in CH-SPH classes that are not offered at ECU. In addition, faculty present at the meeting offered to review curriculum developed in epidemiologic methods, so that there may be a baseline of training for ECU students that may enroll in courses at CH-SPH. Research collaboration was also discussed. A consensus emerged that the ECU PhD program would not compete with the UNC-CH program for students, and that greater epidemiologic capacity in eastern NC would be mutually beneficial. As a follow-up meeting, in May 2012, Drs. Lea and Novick attended another meeting with Dean Rimer, Dr. Andrew Olshan and other CH-SPH faculty to update them on ECU plans to establish a School of Public Health. After a description of the proposed ECU PhD epidemiology degree, Dean Rimer stated that the proposed program is complementary and neither duplicative nor inappropriately competitive. A letter of support from Epidemiology Chair Andrew Olshan, PhD, is attached.

ECU faculty members currently collaborate with CH-SPH (epidemiology and nutrition) faculty on several research projects. ECU looks forward to expanded collaboration.

II. JUSTIFICATION FOR THE PROGRAM - NARRATIVE STATEMENT

A. Describe the proposed program as it relates to:

1. Institutional mission

The proposed PhD program in epidemiology resonates well with the mission of ECU. In 1907, ECU was founded to alleviate the desperate shortage of teachers in the eastern part of the state. In 1975, the BSOM was founded to alleviate a shortage of primary care physicians in the eastern part of the state. In 2003, the ECU MPH program was established to expand a workforce that addresses contemporary public health challenges and teach prevention and population health, engage in community-based research with linkages throughout North Carolina. In 2011, 52 future dentists entered the ECU School of Dental Medicine, seeking to serve in rural areas of North Carolina from the coast to the mountains where extreme deficits of dentists exist. The PhD in epidemiology will align with the visions of ECU, the Schools of Medicine and Dental Medicine, and MPH program to train educators and practitioners to alleviate a shortage of public health researchers to participate in regional transformation by conducting multi-disciplinary investigations to find solutions to public health problems that challenge NC and other similar regions in the US and beyond.

The ECU Mission Statement (2014) speaks to health, wellness, and reduction of disparities:

“To be a national model for student success, public service and regional transformation, East Carolina University:

- *Uses innovative learning strategies and delivery methods to maximize access;*
- *Prepares students with the knowledge, skills and values to succeed in a global, multicultural society;*

- *Develops tomorrow's leaders to serve and inspire positive change;*
- *Discovers new knowledge and innovations to support a thriving future for eastern North Carolina and beyond;*
- *Transforms health care, promotes wellness, and reduces health disparities; and*
- *Improves quality of life through cultural enrichment, academics, and athletics.*

We accomplish our mission through education, research, creative activities, and service while being good stewards of the resources entrusted to us."

As ECU implements objectives to achieve university goals, the expansion and enhancement of public health and rural partnerships will strengthen the already strong rationale for a PhD degree program in epidemiology.

In February 2013, the UNC Board of Governors released the UNC system strategic directions to articulate an overall vision for the UNC system. The UNC Strategic Directions for 2013-2018 provides a framework for the UNC constituent institutions to respond to the significant economic, demographic, and technological challenges facing our state.

As stated in 2013 UNC Strategic Directions,

"Higher education is undergoing dramatic structural changes driven by economic and technological forces that extend beyond North Carolina. ... Today's mission — to discover, create, transmit, and apply knowledge to address the needs of individuals and society — remains true to the University's founding ideal of shared knowledge in a free society. That mission is still carried out through teaching, path-breaking research, and dedicated scholarship, all driven by the creativity and energy of students and faculty guided by an unwavering commitment to public service." (p.6)

A core component of ECU's mission is to serve. Serving our rural community includes elucidating the causes of disease through population research and translating findings into interventions that will make an impact to reduce disease burden. Doctoral training in epidemiology serves that mission utilizing the tools of population-based research.

2. Strategic plan

Efforts are actively underway to establish a School of Public Health at ECU. Both ECU Chancellor Steve Ballard and Vice Chancellor, Division of Health Sciences (DHS) Phyllis Horns have articulated a goal that will consolidate and expand departments and programs to frame the five core disciplines required to form an accredited School of Public Health by 2019. These five disciplines are epidemiology, health administration, biostatistics, environmental health, and behavioral health. Epidemiology is the core discipline providing a unifying methodological framework across disciplines. The request for a PhD in epidemiology has been selected as one of three doctoral programs required to establish an ECU School of Public Health accredited by the Council on Education in Public Health (CEPH) (see accreditation requirements in appendix).

Since 2008, at the request of Vice Chancellor Phyllis Horns, Chair Lloyd Novick has been incrementally aligning ECU programs that will form a School of Public Health. A plan and timeline have been outlined. Other UNC constituent institutions have been informed of the planning process. Epidemiology faculty members are being hired.

The need for a PhD degree in epidemiology is not diminished if lacking an ECU School of Public Health. The PhD in epidemiology program will complement existing and future clinical research and community-based research at ECU. The proposed program will continue to build departmental and programmatic relationships to foster synergy with BSOM and Vidant Medical Center. A letter of support is attached from Mr. Steve Lawler, President of Vidant Medical Center.

PhD epidemiology students will expand the research capacity in the clinical centers by selecting dissertation topics with a surveillance, diagnostic, treatment, or survival focus. Translation research utilizing findings from laboratory based research through the East Carolina Diabetes and Obesity Institute, ECHI, or Leo Jenkins Cancer Center will forge new collaborations and expand opportunities with Vidant Medical Center.

PhD epidemiology students will expand research capacity in substantive areas of disease prevention through collaboration with other ECU departments and centers. Faculty members currently collaborate with ECU's Center for Health Systems Research and Development, led by Dr. Chris Mansfield, the Center for Health Disparities Research, led by Dr. Hope Landrine, the North Carolina Agromedicine Institute, led by Robin Tutor, RN, MPH. Research in these areas aim to reduce disparities in health outcomes in vulnerable populations.

The PhD in epidemiology would be an important opportunity for MPH graduates as well as graduates from other master's and professional degree programs at ECU. The DPH has an MD/MPH program for medical students choosing to take 12 months off between the third and fourth years of medical school. Feasibility of an MD/PhD has not been explored at this time. University of Minnesota and University of Pittsburgh offer a dual PhD degree in epidemiology with medicine. Master's level graduate students in applied mathematics and biostatistics or biology and biochemistry may be attracted to a public health research degree (see Letter of Support from Dr. Hattingh).

3. Responsiveness to local, regional, or statewide needs

North Carolina is home to large academic medical centers, pharmaceutical companies, and contract research organizations that specialize in reducing disease occurrence or mortality and easing the complications of disease morbidity. Many epidemiologists are employed in each of these domains. In addition, many non-profit organizations employ PhD-level epidemiologists. The proposed new PhD degree in epidemiology will help fill the high demand for public health epidemiologists in the US and in NC. Question 5 provides information on the employment distribution of job opening for PhD epidemiologists in North Carolina in 2013.

The Council of State and Territorial Epidemiologists (CSTE), the professional association for state and territorial epidemiologists, addressed the demand for epidemiologists in two reports conducted in 2006 and 2009 (Boulton et. al., 2009; Beck et al., 2012).

From the 2006 survey, more than 30 percent of state health departments reported minimal to no capacity to conduct and evaluate research for five of nine epidemiology program areas, including environmental health, injury, occupational health, oral health, and substance abuse. CSTE estimated the gap of trained epidemiologists in state health departments alone at 1,200 nationwide.

In 2009, CSTE estimated that the level of doctoral-level epidemiologists needed is 47 percent higher than the current workforce based on 2006 results. All 50 states responded to the 2009, as did 1544 epidemiologists. Seventeen percent of epidemiologists reported intent to retire or change careers in the next 5 years (n=262).

In 2009, CSTE also assessed the competence of the workforce of epidemiologists and reported that current epidemiologists on staff were least competent in development of program logic models and theories of action, use of knowledge of environmental and behavioral sciences in epidemiology practice, organization and provision of appropriate data for community planning processes, evaluation of surveillance systems, and use of leadership and systems thinking in epidemiology planning and policy development. The proposed PhD degree will help fill the gap of doctoral-level epidemiologists by producing graduates who are trained in the applied epidemiology competencies put forth by the Center for Disease Control and Prevention (CDC) and CSTE. (CDC/CSTE, 2013) (See letter of support from Dr. Jeffrey Engel, Executive Director of CSTE.)

In NC, current data are limited on the number and need for epidemiologists. In 2004, the NC Institute for Public Health (NCIPH), the public health service arm of CH-SPH, conducted a web-based survey of county-level public health workers. Three percent (197 of 7,087) of county public health employees identified themselves as clinicians or epidemiologists (NCIPH, 2012). In public health, physicians whose roles may be as coordinators of surveillance programs are often called medical epidemiologists. Those physicians likely have an MD/MPH degree combination. Often the MPH degree for an existing MD is one year (12 months) of curriculum. The numbers of PhD level epidemiologists trained to conduct surveillance or analysis are presumably a lower percentage of the total workforce than the 3 percent reported. NCIPH also reported that approximately 27 percent of the 394 employees whose highest degree is a master's degree expressed a desire to pursue a doctoral degree.

Based on communication with senior managers at the State Division of Public Health, recruitment of PhD epidemiologists familiar with the tasks and activities of state and local public health who reside in NC has been difficult (See letter of support from Dr. Mina Shehee.) An updated 2011 workforce survey of NC local health departments found 12 epidemiologists or statisticians (occupational category) among 9,490 full time equivalents.

With the national movement toward public health accreditation of local health departments and adoption of quality improvement methods in public health (similar to healthcare), we envision even greater demand for doctoral-trained epidemiologists to serve in the public health workforce. Beginning in 2011, state and local health departments must meet national accreditation standards and competencies which creates greater demand for a credentialed workforce and more capacity for training. As public health data systems become more integrated and complex, advanced

training in methodologies and techniques to query these databases is becoming an essential skill (i.e., public health informatics).

4. Student demand. Discuss the extent to which students will be drawn from a pool of students not previously served by the institution.

According to the Association of Schools and Programs of Public Health (ASPPH), there will be a shortfall of 250,000 public health workers by 2020 and that before 2018, schools of public health would have to train three times the current number of graduates to meet projected needs (ASPH, 2008). ASPPH, the voice of CEPH-accredited public health education, estimates there are currently 31 CEPH accredited Schools of Public Health who confer PhDs in epidemiologic science. According to ASPPH (Exhibit 1), the overall growth rate in PhD epidemiology degrees was 35.4% (n=67) between 2010 and 2012. According to ASPPH, programs in epidemiology have expanded with workforce demand for training. CEPH does not accredit stand-alone PhD epidemiology degrees.

According to the National Science Foundation (NSF) (Exhibit 2), the number of PhD epidemiology graduates from 2002 to 2012 increased 84%. The Survey of Earned Doctorates (SED) is an annual census conducted since 1957 of all individuals receiving a research doctorate from an accredited U.S. institution in a given academic year (NSF,. The SED collects information on the doctoral recipient's educational history, demographic characteristics, and post-graduation plans. Recipients of professional doctorates are not included in the SED. Results are used to assess characteristics of the doctoral population and trends in doctoral education and degrees.

Currently, the National Board of Public Health Examiners (NBPHE) is the only group offering a Certified in Public Health (CPH) credential (voluntary at that) for public health professionals in which they collect the PhD degree obtained; however, they have no data as of yet. Unlike nursing and medicine where a license is required to practice and when re-licensing is required, a clinician is asked to complete a survey of education, practice, etc. is collected.

Exhibit 1. Growth of PhD Epidemiologists from 2010 to 2012 (Source: ASPPH)

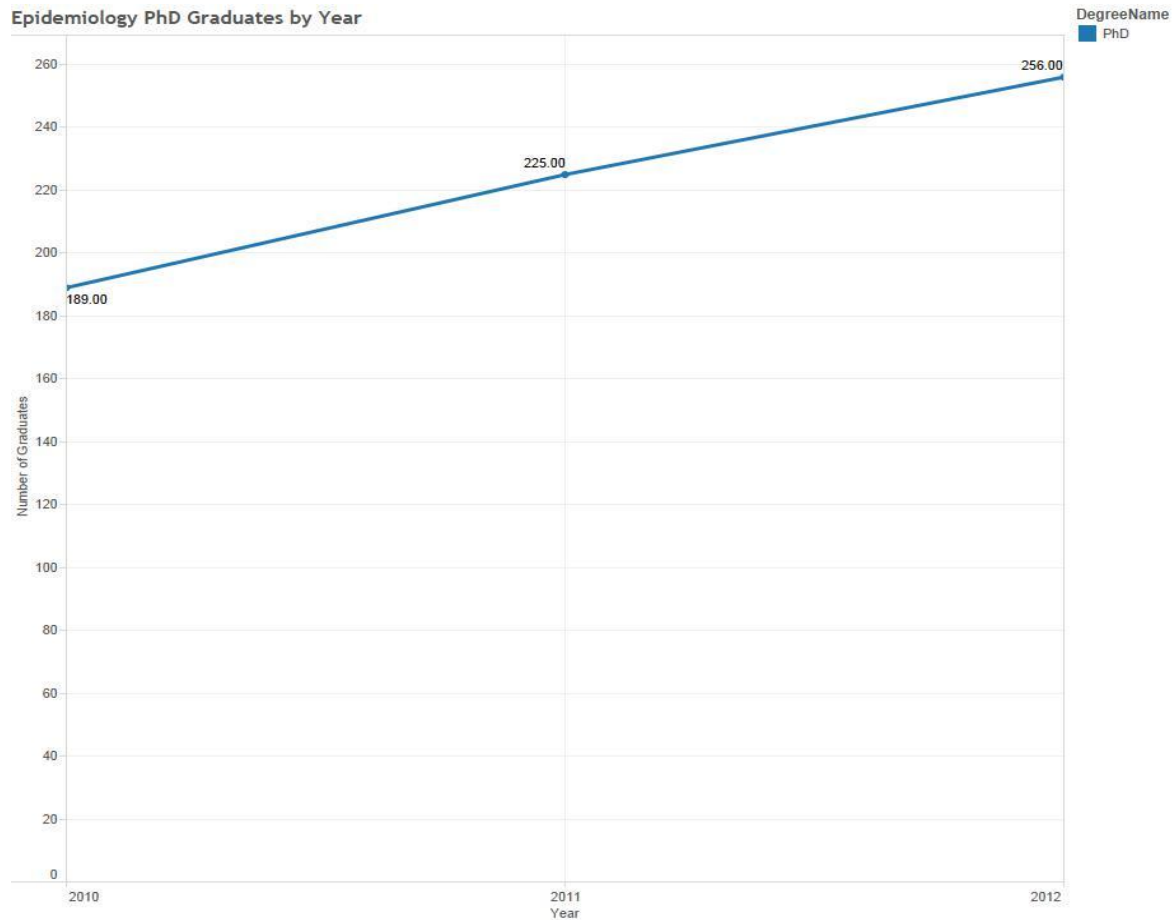


Exhibit 2. National Foundation Epidemiological Recipients in All Sciences*: 2002-2012²

Science	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Epid	198	231	217	229	229	293	305	273	324	314	365
HS	1656	1633	1718	1783	1906	2143	2091	2096	2112	2013	2349
% HS†	12.0	14.1	12.3	12.8	12.0	13.7	14.6	13.0	15.3	15.6	15.5
All	40033	40766	42126	43384	45624	48133	48778	49553	48032	48908	51008
% All*	.5	.6	.5	.5	.5	.6	.6	.6	.7	.6	.7

Abbreviations: Epid, epidemiological science; HS, Health sciences (classification in which epidemiology is classified).

*All fields of study include: life sciences, biological and biomedical sciences, health sciences, physical sciences, mathematics, ocean and marine sciences, physics, psychology and social sciences, engineering, education, education research, humanities, letters, other humanities, other (business management, communication, and other)

† Epidemiologic science is classified within health sciences. The percentages represent the percent of PhD epidemiologists among all life sciences. Health science includes the following: environmental science, environmental toxicology, epidemiology, gerontology, health policy analysis, health systems/services administration, kinesiology, medicinal/pharmaceutical, nursing, oral biology/pathology, public health, rehabilitation/therapeutic services/speech-language and audiology, veterinary science, general health science, and other health science.

5. Employment opportunities. Document need for proposed degree recipients in the region, the state, or nationally

Because training in epidemiology focuses on methodology tools to conduct human health research, employment opportunities include a wide range of disciplines and industries that connect to the health sector. Within the health sector, epidemiologists often develop expertise related to a disease outcome, such as childhood leukemias, or special populations, such as the elderly (gerontology). In addition, insurance companies, federal regulatory oversight, or veterinary medicine offer unique settings in which to utilize epidemiology training. Thus, many employment opportunities for a PhD epidemiologist exist, and many jobs may not appear under the “epidemiologist” job title.

According to the U.S. Bureau of Labor Statistics, Epidemiologists typically do the following:

- Plan and direct studies of public health problems to find ways to prevent and to treat the problems
- Collect and analyze data—including using observations, interviews, surveys, and samples of blood or other bodily fluids—to find the causes of diseases or other health problems
- Communicate their findings to health practitioners, policymakers, and the public
- Manage public health programs by planning programs, monitoring progress, analyzing data, and seeking ways to improve them, among other activities
- Supervise professional, technical, and clerical personnel

Epidemiologists typically work in applied public health or in research. Applied epidemiologists work for state and local governments, addressing public health problems directly. They are often involved with education outreach and survey efforts in communities. Research epidemiologists typically work for universities or in affiliation with federal agencies such as the [Centers for Disease Control and Prevention](#) (CDC) or the [National Institutes of Health](#) (NIH).

Epidemiologists who work in private industry commonly conduct research for health insurance companies or pharmaceutical companies. Those in nonprofit companies often do public health advocacy work. Epidemiologists involved in research are rarely advocates because scientific research is expected to be unbiased (U.S. Bureau of Labor Statistics, 2014).

Two primary sources exist to search for epidemiology jobs: the Rollins Employment Connection (offered through the Emory University School of Public Health) and the *Epidemiology Monitor*, a monthly newsletter of happenings in epidemiology. In a search of the Emory Employment Connection (conducted 2/3/14), 47 US-based job “titles” listed “Epidemiologist” and 95% of them indicated a PhD degree in description. Of 47 job titles, 14% were openings in North Carolina. Using the term “epidemiology and PhD”, a search on “position description” yielded 117 jobs and a search on “classification” yielded 103 jobs. A search of the *Epidemiology Monitor* identified 174 jobs in the U.S., of which 89 (51%) required a PhD in epidemiology. Of six jobs in NC listed in the *Epidemiology Monitor*, three required a PhD in epidemiology and two were senior epidemiology positions but the degree was not stated. A search of USAJOBS website on March 12, 2014 indicated 14 out of 67 jobs requiring a PhD when searching under the term “Health Scientist” or “Epidemiologist”.

Within North Carolina, other employment opportunities exist for PhD epidemiologists. A recent review of 167 job openings on the Research Triangle Park, NC website indicated 14 open positions that specified a PhD in epidemiology. The sector breakdown was: four biotechnology/pharmaceutical, seven federal government, and three healthcare. In a CH-SPH survey for 2011-2012, 24 out of 43 (56%) epidemiology graduates (master's and doctoral) responded to the survey. Among doctoral graduates, destinations included: 55% university staff, 18% university faculty, 9% pharmaceutical firms, and 18% federal government.

Between 1995 and 2006, there was a 37% increase in accredited schools of public health, with a 45 percent increase in PhD degrees awarded. Yet the number of PhD epidemiology degrees remained unchanged between 1995 and 2006 (29%) (Declercq et al., 2008). As academic programs expand in schools of public health, more PhD-level epidemiologists will be needed to teach in academic settings. An ECU PhD graduate will be qualified to seek a faculty position at a school of public health. As more stringent requirements are placed on local and state health departments to meet competencies and benchmarks for accreditation and as public health data become more integrated electronically, more highly skilled epidemiologists will be needed.

The proposed new PhD degree in epidemiology will help fill the high demand for industry and public health epidemiologists in the US. Our opportunity is to develop a program that will meet the demand for epidemiologists in NC and beyond.

According to the US Bureau of Labor and Statistics, job growth from 2012 - 2022 for epidemiologists is expected to increase at a rate of 10.2%, faster than the average for all occupations. Those with advanced degrees will have a wider choice of career paths with more research and teaching positions available to them. Exhibit 3 demonstrated the projected change in employment of epidemiologists over one decade by sector.

Exhibit 3. Projected Change in Employment of Epidemiologists,
2012-2022 by Sector

Sector	2012-2022 % Change
Manufacturing	4.1
Professional, Scientific	26.5
Educational Services	13.6
Healthcare	18.3
Other services	17.6
Government	3.2

(Source: U.S. Bureau of Labor Statistics, 2014)

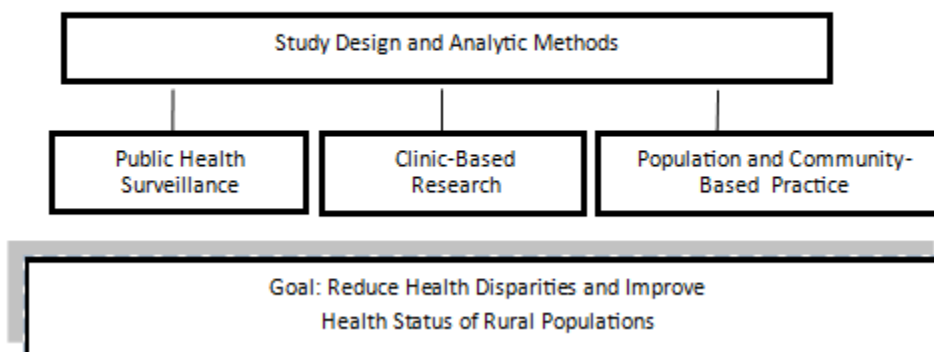
B. Discuss potential program duplication, program competitiveness, and opportunities for collaboration in the delivery of the program

1. Identify similar programs offered by public and private universities elsewhere in North Carolina. Indicate how the proposed new degree program differs from other programs like it within UNC.

Within NC, CH-SPH offers a PhD in epidemiology, which is the only PhD epidemiology program at any private or public institution in NC. The UNC-CH program description states: “The PhD in Epidemiology at UNC is the academic doctoral degree. It is a research degree, centered around a major research project within a broad public health orientation and seeking to integrate related disciplines.” The CH-SPH Department of Epidemiology was formed about 40 years ago with approximately 61 faculty members. The epidemiology department has had numerous internationally renowned faculty members contribute to the advancement of biomedical knowledge and public health. The CH-SPH is ranked as the number one state-supported school of public health in the country, and ranked second overall among 50 schools of public health according to rankings by the *U.S. News and World Report*, 2011 (<http://grad-schools.usnews.rankingsandreviews.com/best-graduate-schools/top-health-schools/public-health-rankings>).

The ECU PhD degree will be an academic doctoral degree that will not compete with CH-SPH. As the field of epidemiology is broadening in scope, we envision this new degree program to embrace innovative training that is required to practice epidemiology in a multidisciplinary framework. Figure 1 demonstrates the conceptual framework of the program.

Figure 1. Conceptual Framework of ECU PhD Epidemiology Program



The foundation of the program will be fundamental epidemiologic methods and biostatistics. Building on that training will be content that introduces the learner to an introduction to relational database design, ontologies, and principles of electronic health record technology to prepare the student for focus areas involving research in public health surveillance or clinic-based applied research. As a third option, students may be interested in pursuing population-based epidemiologic research.

While secondary data analysis of public health or clinical data may be utilized to answer dissertation research questions, the experience of primary data collection provides essential understanding related to biases that can be avoided or arise in data collection, how to recognize problems and how problems are addressed. An experience of design and collection of primary data will be included in the doctoral program. This experience may be as simple as the design and collection of pilot data to conceptualize the research question or could be as involved as primary data collection for the entire dissertation. The American College of Epidemiology recommends that primary data collection remain a skill in doctoral training (insert ref.)

Public Health Surveillance. The first focus area fills an employment gap in epidemiology training that exists now and is anticipated to become larger as federal, state, and local public health data systems become more integrated, requiring advanced skills. For example, population health data from public health processes, that are fundamentally clinical encounters, are largely scattered across public health service sectors. CDC has been at the forefront of health information technology since the late 1990s integrating messaging standards and the electronic capture of data through the Public Health Information Network (PHIN). An epidemiology PhD degree instead of a DrPH degree is suited for training to utilize complex data. Professionals in public health departments, and those engaged in analysis and interpretation community-based public health data, are engaging more as investigators and collaborators in population health research, particularly in pursuit of federal grants. Students will also be introduced to skills to facilitate interaction with other disciplines to translate analysis of public health data into interventions and public policy.

Clinical Health Data Systems. The second focus area is research involving clinical data systems. Hospital or clinic-based data systems may incorporate the use of electronic health records (EHR) for secondary data analysis of etiologic questions that have population health consequences, particularly where biological samples may be stored (for example, tumor blocks). In addition, students should have grounding in the design and conduct of clinical trials. Vidant Medical Center has potential for expanding their clinical trials portfolio and innovations in biomarker discovery. Epidemiology curriculum will offer the design and analysis of intervention studies. Another opportunity with clinical data relates to gathering information about the effectiveness of a new treatment, particularly under real world conditions (as present in the EHR) where the patient may not be compliant or have several co-morbid conditions. This program will offer training on how to investigate population health questions using clinical data.

Community and Population-based Studies. Students may be interested in investigations of disease etiology related to multi-level risk factors and disease predictors, including primary data collection, which is the foundation of academic epidemiology training. ECU has a strong history of community engagement with rural communities in eastern North Carolina. The unifying theme that future students in our program will be attracted to is the goal to translate knowledge into practice, making a public health impact on health disparities in rural populations.

If the program duplicates other UNC programs, explain:

a. Why the proposed program is necessary or justified, and

The ECU PhD program in epidemiology can be justified in several ways:

- reducing health disparities in eastern NC needs additional faculty with expertise in the area of epidemiology,
- community-based studies can be efficiently implemented from Greenville, from which ECU faculty can engage with regional community partners,
- resources, such as patient populations, biological samples, and collaborators, currently exist to enable research,
- a paucity of trained epidemiology professionals exists at ECU, in the region, statewide, and nationally,
- forming an SPH requires three doctoral programs, one of which will be epidemiology, and
- the training focus of the ECU program differs from CH-SPH, the only other PhD epidemiology degree in NC.

In summary, the primary differences between the CH-SPH and ECU degree will be:

- training designed for employment in state, federal, or not-for-profit public health agencies, and
- training designed for employment in a clinical research setting.

b. How all or portions of the curriculum might be offered collaboratively with another UNC institution?

As previously mentioned, Dean Rimer and Dr. Olshan at CH-SPH have expressed support of the PhD epidemiology degree. With a master's degree MOU already in place between CH-SPH and ECU, a template exists to establish a MOU for doctoral degrees. Further explorations related to the MOU and inter-institutional enrollment procedures will be conducted upon approval to establish the program. In addition, curriculum at NCSU may be relevant and further discussion with colleagues at NCSU will be pursued upon approval to establish the program.

Currently, an ECU student wishing to take an SPH-CH course must enroll as a UNC-CH non-degree student. This policy applies to all UNC system students except North Carolina State University (NCSU) students. Guidance has been sought from the ECU Graduate School about the impact that enrollment as a UNC-CH non-degree student may have related to transfer of credits to ECU or tuition costs for face-to-face or distance education courses. The implementation logistics of ECU students enrolling in CH-SPH doctoral coursework needs further elaboration.

Assuming ECU students may enroll in CH-SPH courses, which courses would be relevant? Electives courses that are part of the ECU degree requirement and consistent with a student's research topic that are unavailable at ECU would be relevant. For example, Table 1 lists Genetic Epidemiology: Methods and Applications, EPID 763, or Methods and Issues in Pharmacoepidemiology, EPID 765, as possible electives. ECU does not have faculty expertise in either of these sub-specialties at this time.

A process for enrollment between ECU and CH-SPH will be fully explored. An ECU student would be requested to contact the CH-SPH faculty member offering the course of interest to clarify whether the course objectives are relevant for the ECU student and seek permission to enroll. A discussion of pre-requisite coursework would be held at that time. ECU students will have completed PhD-level epidemiologic methods before embarking upon elective coursework. Faculty members at CH-SPH have offered to review course syllabi in epidemiologic methods, so ECU student will meet the pre-requisites or equivalent of a CH-SPH enrolled student. The demand to exercise CH-SPH enrollment is anticipated to be low, perhaps 1-2 students in 1-2

courses per academic year. It should be noted that ECU students may seek to enroll another UNC system school, such as NCSU, for face-to-face elective coursework, but this option has not been explored as part of the degree planning.

The ECU program is not planned to be offered fully as a distance education program. Strong academic performance is enhanced with face-to-face interaction and close faculty mentorship. Both UNC and ECU PhD epidemiology programs could be enhanced by sharing the strengths of each.

2. If the program is a graduate or first professional degree, compare it with other similar programs in public and private universities in North Carolina, in the region, and in the nation. Where appropriate, describe how all licensure or professional accreditation standards will be met, including required practica, internships, and supervised clinical experiences.

Fifty-eight PhD epidemiology degree programs exist in the US; 10 of them are specialized in an area of epidemiology, such as an epidemiology PhD in cancer epidemiology, gerontology epidemiology, or chronic disease. In the region outside NC, PhD degrees in epidemiology are offered by University of South Carolina Arnold School of Public Health (51 credit hours of coursework), Emory University Rollins School of Public Health (Emory University), Virginia Commonwealth University (VCU) (41 credit hours of coursework), and University of Georgia, College of Public Health (credit hours were not readily available). East Tennessee State University College of Public Health offers a DrPH in epidemiology. The PhD degree in epidemiology is not offered at Eastern Virginia Medical School, University of Virginia-Charlottesville, or Georgia Southern University.

Among ECU official peer-institutions, University of Louisville School of Public Health (established in 2007) and VCU have PhD programs in epidemiology. University of Louisville is an accredited school of public health, granting a PhD degree in public health sciences, with a concentration in epidemiology. The VCU PhD program embeds epidemiology training within the context of societal health and program evaluation.

CEPH is the organization that accredits the ECU MPH program and will accredit the PhD epidemiology program. CEPH is the only independent agency recognized to accredit schools of public health and graduate public health programs. CEPH assists schools and programs in evaluating the quality of their instructional, research and service efforts, and grants accreditation to those schools and programs that meet its published criteria. CEPH has an organized and systematic approach to accreditation of public health programs (see appendix for Accreditation Criteria: Public Health Programs, amended June 2011).

The missions and goals of public health schools and programs focus on preparing individuals who will serve as practitioners, researchers and instructors who are competent to carry out broad public health functions in local, state, national and international settings. CEPH outlines characteristics of a public health program to be eligible for accreditation, which the ECU MPH program has previously met on two occasions, in 2007 and 2012 for seven years (CEPH, 2011).

CEPH has accreditation criteria for both master's degrees and doctoral degrees (section 2.9 and 2.10). The PhD degree program would also need to meet basic program criteria. An epidemiology concentration will be formed within the MPH program during spring 2014. The

minimum number of epidemiology faculty for the epidemiology concentration is five primary faculty members in each concentration that includes both master's and doctoral degrees. Primary faculty members are defined as full time university employees that spend 50% or greater on activities associated with public health programs. Accreditation of the PhD program in epidemiology can be requested no earlier than three years after first enrollment.

The CEPH points out that advanced coursework must be established and must not rely extensively on master's curriculum. CEPH does not define a minimum number of post-master's credit hours for a PhD degree. The degree credit requirement varies from school to school, with a low of 41 to a high of 60, after completing the master's degree (not including the dissertation hours). However, it does require that the PhD degree program clearly explain and document the proportion of total doctoral credits required in post-master's degree didactic coursework and how many credits are allocated to exams and to the dissertation.

As stated earlier, an Accreditation Committee currently exists within the Department of Public Health for the MPH program. This same Accreditation Committee chair may appoint a sub-committee to address achieving accreditation for the PhD program.

- C. **Enrollment (baccalaureate programs should include only upper division majors, that is, juniors and seniors).**

Headcount enrollment

Show a four-year history of enrollments and degrees awarded in similar programs offered at other UNC institutions (using the format below for each institution with a similar program); indicate which of these institutions you consulted regarding their experience with student demand and job placement. Indicate how their experiences influenced your enrollment projections.

Institution: ___UNC Chapel Hill Gillings School of Global Public Health

Program Title: _PhD Epidemiology

	2012	2011	2010	2009
Enrollment	157	152	129	131
Degrees-awarded	20	18	24	25

Please indicate the anticipated first year and fourth year steady-state enrollment (head count) for the proposed program.

The total enrollment in the program will be 16 students at steady state (year 5). Assuming no attrition, the total number of students in the program per year is: year 1=3, year 2=7, year 3=11, year 4=15 (assume 3 graduate), and year 5=16. Three students will graduate in year four, assuming an average completion in four years. New students enrolled each year will be: 3, 4, 4, 4, 4. ECU enrollment was estimated based on a conservative estimation of student demand and available resources, including financial and space requirements.

Year 1: Full Time _3 Part-time _0 Total _3

Year 4: Full-time _15 Part-time _0 Total _15

III. **PROGRAM REQUIREMENTS AND CURRICULUM**

A. Program Planning

- 1. List the names of institutions with similar offerings regarded as high quality programs by the developers of the proposed program.**

The following institutions have high quality PhD in epidemiology degree programs within an accredited school of public health:

- University of North Carolina at Chapel Hill (ranked as #1 state-supported School of Public Health in the US)
- Harvard University (private)
- University of Michigan (public)
- Johns Hopkins University (private)
- Emory University (private)

- 1. List institutions visited or consulted in developing this proposal. Also discuss or append any consultants' reports or committee findings generated in planning the proposed program.**

- University of North Carolina at Chapel Hill Gillings School of Global Public Health
- State University of New York at Albany (SUNY, Albany)

Many websites were reviewed of accredited and non-accredited PhD programs in epidemiology. Admission requirements, course work credit hours, and teaching requirements were reviewed and summarized. In addition, course titles and descriptions of required and elective epidemiology and biostatistics curriculum were reviewed. Specific courses were compared for similarity and requirements of the degree programs. Drs. Novick and Lea have met with CH-SPH Dean Barbara Rimer and chair of epidemiology Dr. Andy Olshan on two separate occasions to present the concept of a formation of a degree program and also to describe ECU's degree program relative to the outstanding epidemiology program offered by CH-SPH.

B. Admission. List the following:

- 1. Admissions requirements for proposed program (indicate minimum requirements and general requirements).**

To gain admission, students must meet the requirements for admission into the ECU Graduate School. To qualify for admissions to an ECU graduate degree program, an applicant must hold a baccalaureate degree from an institution accredited by a regional accrediting body and show evidence of being able to succeed in graduate studies based on an evaluation of undergraduate and any prior graduate transcripts and admission test scores, such as the GRE or MCAT. An applicant completing a master's degree in a basic or social science (MS, MSW, MA, MAEd, for example), MPH or MSPH in a field other than epidemiology will be requested to

complete additional master's level epidemiology coursework if such coursework is not evident on the transcript at the time of matriculation. These courses include Introduction to Epidemiology, MPH 6011, Epidemiology Methods, MPH 6702, and BIOS 7022, Biostatistics for Health Professionals II. Students who completed a master's thesis and/or have practical experience working in the field of epidemiology are typically stronger doctoral candidates, so a preference for students who have practical experience and a compelling research topic consistent with the mission of the program will be preferred.

Admissions requirements of the PhD degree are:

- successful completion of a master's degree from a CEPH-accredited public health program, in an epidemiology concentration, which may typically consist of 42-45 semester credit hours (s.h.), or under certain circumstances, receive permission from the department chair to enter the program with similar credentials,
- master's degree grade point average of 3.0 or higher (4.0 scale),
- a 500 word or less statement articulating clear reasoning for wishing to pursue PhD research training, including mention of a dissertation topic consistent with the mission of the program that a student feels compelled to spend four or more years investigating, identification of a faculty mentor, and career goals,
- three letters of reference from a past employer or academic mentor that can speak to preparation for PhD level training and research,
- standardized test scores within the past five years, quantitative above 60th percentile, GRE or MCAT, for example, and
- curriculum vita or resume.

2. Documents to be submitted for admission (listing or attach sample).

Eligible candidates for admission will provide evidence of:

- transcripts from all prior academic institutions. If these are on record at ECU, the transcript will automatically be retrieved.
- standardized test scores taken within past five years,
- statement of goals consistent with mission with the Brody School of Medicine and ECU,
- grade point average of 3.0 or higher on a 4.0 scale,
- three references from a past employer or academic advisor,
- writing sample to evaluate past work in public health, and
- curriculum vita or resume.

C. Degree requirements. List the following:

- 1. Total hours required. State requirements for Major, Minor, General Education, etc.**

The PhD program requires completion of a minimum number of semester credit hours including 15 epidemiology, 9 biostatistics, 9 electives, 4 teaching, 3 seminar and at least 18 dissertation semester credit hours, as displayed in Table 1.

Exhibit 4. Summary of PhD Epidemiology Degree Components	
Curriculum Component	Credit hours
Epidemiology	15
Biostatistics	9
Electives	9
Teaching	4
Seminar	3
Subtotal	40
Dissertation	Minimum 18
Total	Minimum 58

At ECU graduate students must be enrolled in 9 credit hours per semester to be considered full-time, thus, each semester of dissertation is 9 credit hours. It is anticipated that course work with dissertation will be completed, on average, in four years.

2. Other requirements (e.g. residence, comprehensive exams, thesis, dissertation, clinical or field experience, "second major," etc.).

Other requirements include:

- 4 credits of teaching over two semesters. The advisor or dissertation chair will assist with determining appropriate courses to meet the teaching requirement, which may include courses outside of the Department of Public Health that have a population health focus;
- minimum of 18 credits of dissertation hours (9 credits per semester fall/spring semesters). The PhD dissertation will consist of innovative and original research that adds significantly to a body of knowledge.
- two examinations. A written competency exam to qualify to advance from student to PhD candidate. An oral examination will address the dissertation proposal;
- submission of at least 3 manuscripts from dissertation research to peer-reviewed journal;
- doctoral dissertation (which might include bound manuscripts as chapters, for example); and
- dissertation defense.

As a dissertation document, we envision a bound document that provides a cohesive explanation of the manuscripts presented and presents the rational, literature review and methods used in the doctoral research process.

For graduate programs only, please also list the following:

3. Proportion of courses open only to graduate students to be required in program

All ECU doctoral courses (8000 and above) are only open to doctoral students. Course numbers listed from 7000 to 7999 may include master's level students.

4. Grades required

A cumulative GPA of 3.0 or higher must be maintained in all coursework. This requirement meets ECU graduation requirements. The student must show evidence of making satisfactory progress over time in the program, including student skills in teaching and research. The student's mentor or dissertation chair is responsible for evaluating student progress.

5. Amount of transfer credit accepted

Transfer credits for a PhD program would not be expected, however, this request would be evaluated by the program and department chair. Students must petition transfer of credits, and up to 20% of credit hours in a program may be earned at another regionally accredited institution, as articulated in the ECU Graduate Catalog. Students that are enrolled in CH-SPH courses through the Friday Center for Continuing Education would petition to transfer credits to ECU.

6. Language and/or research requirements

All components of the program are administered in English, and homework and other materials turned in for credit will be in English. If a student's dissertation includes data collection in a foreign language (such as Spanish), the materials will first be in English and translated as appropriate.

7. Any time limits for completion

A doctoral degree program must be completed by the end of the 12th semester, as articulated in the ECU Graduate Catalog.

D. For all programs, list existing courses by title and number and indicate (*) those that are required. Include an explanation of numbering system. List (under a heading marked "new") and describe new courses proposed.

The number system includes 7000-level for master's and doctoral, while 8000 and 9000-level are doctoral only. Existing courses are displayed below. Courses numbered at 6000-level are master's courses that do not count toward doctoral credit, so these are not listed. For example, MPH 6022, Infectious Disease Epidemiology, addresses public health surveillance and communicable disease control and is not listed below, since it is a 6000-level course. ECU will invite discussion with CH-SPH about the specific courses mentioned below that could serve as electives. Exhibit 5 lists existing courses to be offered. The Department of Health Information

Management (HIMA), College of Allied Health Sciences offers coursework relevant to clinical data systems. HIMA Chair Xiaoming Zeng has agreed to explore existing courses to be offered at the 7000-level.

Exhibit 5. Example of Existing Courses		
Credit	Number	Existing Course Titles: Epidemiology and Biostatistics
4	MPH 7202	Public Health Data Analysis
3	MPH 7205	Nutritional Epidemiology
3	BIOS 7550	Applied Multivariate Analysis
3	BIOS 7501	Principles of Experimental Design
3	BIOS 7570	Introduction to Survival Analysis
		Existing Course Titles: Methods and Research Focus, Electives
3	**COHE 6430	Database Systems in Health Care
3	**COHE 6440	E-Health Care Information System
3	**COHE 6480	Health Data Structures
3		
		Existing Course Titles: Other Electives
1	MPH 7031	Topics in Public Health and Epidemiology
2	EPID 764	Hospital Epidemiology, CH-SPH
3	EPID 743	Genetic Epidemiology: Methods and Applications, CH-SPH
3	EPID 765	Methods and Issues in Pharmacoepidemiology, CH-SPH
2	HUMS 7004	Ethics and Research
*		Required
**		new doctoral level content at 7000-level to be developed.

Proposed new courses are displayed in Exhibit 6. Required courses are labeled. This list will expand with the new faculty being hired in the department. Public Health and epidemiology 7000-level courses will be available for any doctoral student. We encourage cross-disciplinary understanding and collaboration.

Exhibit 6. Proposed New Doctoral Courses			
Epidemiology-Related Courses			
Credit hour	Number	Title	Description and Instructor
3	Required	Quantitative Epidemiologic Methods	Exploration of epidemiologic methods related to concepts and causality, Dr. Efird / new hire.
3	Required	Advanced Quantitative Epidemiologic Methods	Advanced Theory, Methods, and Inference in Epidemiology, Dr. Efird / new hire
3	Required	Principles of Exposure Measurement in Epidemiology	Introduction to measuring and coding predictors and outcomes for research, Dr. Lea
3		Designing and Conducting Clinical Research	Design and implementation of human experimental studies. Drs. Kim and Grzybowski
3		Secondary Data Analysis	Issues of analysis using large datasets, Drs. Grzybowski and Efird
3		Concepts and Methods in Infectious Disease	Focus on measuring patterns of disease transmission and spread, Dr. Grzybowski

		Epidemiology	
1	Required	PhD Epidemiology Seminar (readings in epidemiology)	Must be repeated, maximum 3 s.h. Advanced readings and discussion in epidemiology and public health, Dr. Lea
1	Required	Research and Grant writing Skills in Epidemiology	Prepare a grant, instructor, various instructor
4	Required	Epidemiology Teaching Principles	Assist epidemiology Course Director, Dr. Lea
3	Required	Dissertation Research	May be repeated. Dissertation Research, 9 credits per semester, per advisor
	*COHE 7430	Database Systems in Health Care, COHE 6430	P/C: HIMA 6060 or consent of instructor. Relational database theory and applications in health care.
	*COHE 7440	E-Health Care Information System, COHE 6440	P/C: HIMA 6060 or consent of instructor. Systematic analysis of electronic technologies in health care.
	*COHE 7480	Health Data Structures, COHE 6480	P: HIMA 6060; or consent of instructor. Examination of the concept of a data set and use of a standard set of terminologies, vocabularies and classification systems for information management.
	*	Currently 6000-level, convert or segment to doctoral	

Fundamental epidemiologic methods courses will be developed and taught at ECU. Drs. Efirid and Grzybowski will develop and teach epidemiologic methods coursework. Dr. Lea will develop and teach principles of exposure measurement. A one hour lab in each quantitative methods course will be included. The teaching requirement, 4 credits, includes developing or updating course content and assisting with instruction in the classroom for a master's level course supervised by the Course Director. The PhD seminar series will cover topics in teaching pedagogy, community-based engagement, and recent developments in the discipline.

IV. FACULTY

- A. (For undergraduate and Master's programs) List the names, ranks and home department of faculty members who will be directly involved in the proposed program. The official roster forms approved by SACS may be submitted. For Master's programs, state or attach the criteria that faculty must meet in order to be eligible to teach graduate level courses at your institution.
- B. (For doctoral programs) List the names, ranks, and home department of each faculty member who will be directly involved in the proposed program. The official roster forms approved by SACS may be submitted. Provide complete information on each faculty member's education, teaching and research experience, research funding, publications, and experience directing student research including the number of theses and dissertations directed.**

In the interest of saving paper, the Curriculum Vitae for each core faculty member is provided on the ECU Department of Public Health website. <http://www.ecu.edu/dph> (click "About the Department/Faculty"). Exhibit 7 indicates the current faculty members teaching in the Department of Public Health.

Exhibit 7. Faculty Members in ECU Department of Public Health		
Name	Rank	Graduate Education
Epidemiology Core Faculty		
Jimmy Efird, PhD, MS	Assoc. Professor	Stanford University
Marysia Grzybowski, PhD, MPH	Asst. Professor	University of Michigan
Gregory Kearney, DrPH, MPH, RS	Asst. Professor	University of Alabama, Birmingham
Juhee Kim, ScD, MS	Assoc. Professor	Harvard University
C. Suzanne Lea, PhD, MPH	Assoc. Professor	University of California, Berkeley
Lloyd F. Novick, MD, MPH	Chair, Professor	New York University School of Medicine
Ann Rafferty, PhD, MS	Assoc. Professor	Cornell University
Biostatistics Faculty		
Paul Vos, PhD, MS	Chair, Professor	University of Chicago
Qiang Wu, PhD, MA	Asst. Professor	University of Pittsburgh
Andrada Ivanescu, PhD, MS	Asst. Professor	Florida State University
Suzanne Hudson, PhD, MS	Assoc. Professor	University of Oregon
Xiangming Fang, PhD, MS	Asst. Professor	University of Iowa
Jason Brinkley, PhD, MS	Asst. Professor	North Carolina State University
Kevin O'Brian, PhD	Asso. Professor	University of North Carolina at Chapel Hill
Other Involved DPH/BSOM Faculty		
Eric Bailey, PhD, MPH	Professor	Wayne State University
Doyle 'Skip' Cummings, PharmD	Professor	Philadelphia College of Pharmacy and Science
Suzanne Lazorick, MD, MPH	Assoc. Professor	University of North Carolina at Chapel Hill
Huabin Luo, PhD	Asst. Professor	University of Alabama, Birmingham
Stephanie Jilcott Pitts, PhD	Assoc. Professor	University of North Carolina at Chapel Hill
Chris Mansfield, PhD, MS	Professor	Florida State University
Kristina Simeonsson, MD, MSPH	Asst. Professor	University of North Carolina at Chapel Hill
Nancy Winterbauer, PhD, MA, MS	Asst. Professor	State University of New York, Binghamton
Other Involved ECU Faculty		
Timothy Kelley, PhD, MED	Professor	University of Georgia
Xiaoming Zeng, MD, PhD	Assoc. Professor	University of Pittsburgh
Annette Greer, RN, PhD, MSN	Asst. Professor	East Carolina University

While some epidemiology core faculty member are tenured (Drs. Lea, and Novick), it is acknowledged that several epidemiology faculty members are not tenured. Drs. Efird, Grzybowski and Kim are tenure-track faculty members. Dr. Rafferty is fixed-term faculty. In terms of prior supervision of dissertation work, Drs. Kim and Efird have this experience, but not for an Epidemiology degree. Dr. Kim chaired two dissertation committees in Nutrition Science, and served on three committees. Dr. Efird has served on one dissertation committee, a PhD degree in Clinical Research. We plan to address these limitations in future recruits. In addition, faculty will seek guidance from the ECU Office of Faculty Excellence, College of Education, School of Medicine, and Graduate School for mentoring related to chairing and serving on doctoral committees. All faculty members have served as preceptors for numerous ECU MPH Professional Papers.

C. Estimate the need for new faculty for the proposed program over the first four years. If the teaching responsibilities for the proposed program will be absorbed in part or in whole by the present faculty, explain how this will be done without weakening existing programs.

Two new PhD epidemiology faculty members will be hired prior to year four of the program. One faculty member was hired in summer 2013 and she will participate in PhD program curriculum development. The second person will be hired to assist with curriculum development and program implementation. The MPH teaching load includes a minimum of two courses per semester. A future course load may include Introduction to Epidemiology (MPH course), MPH-level Epidemiology Methods or Public Health Data Analysis, and one 7000 level substantive course (doctoral level). Each of the faculty members would be cross-trained (and are capable) to teach both Introduction to Epidemiology (master's) and Epidemiologic Methods or Public Health Data Analysis. In addition, all doctoral courses would not be offered each semester.

Existing faculty would continue to teach MPH epidemiology courses, including Drs. Kearney (Introduction to Epidemiology MPH 6011; Fundamentals in Environmental Health MPH 6010), Dr. Lea (Introduction to Epidemiology MPH 6011; Epidemiology of Cancer MPH 6023); Dr. Efird (Chronic Disease Epidemiology MPH 6021). Biostatistics faculty teach the required biostatistics course, BIOS 7021, which is open to any master's student in the health sciences. Biostatistics faculty members rotate teaching each 7000-level course offered. Expansion of biostatistics faculty in collaboration with the School of Medicine and Department of Public Health offers opportunity for coordinated planning of curriculum and research.

D. Explain how the program will affect faculty activity, including course load, public service activity, and scholarly research.

The addition of high quality doctoral research and teaching will enhance the portfolio of departmental activity, public service and scholarly productivity. The interaction of graduate students with faculty will create synergy to conceptualize and implement new research. Research will be consistent with the themes of community engagement and the reduction of health disparities. Doctoral students will acquire training to contribute to the faculty member's research productivity. Epidemiology graduate students will participate as teaching assistants in MPH epidemiology courses, which will positively impact the faculty member's course content load.

V. LIBRARY

A. Provide a statement as to the adequacy of present library holdings for the proposed program to support the instructional and research needs of this program.

Access to journals and textbooks is essential to design studies and conduct epidemiologic research. LHSL has current electronic journal holdings for the following important health-related and epidemiology journals: *American Journal of Public Health*, *Journal of the American Medical Association*, *New England Journal of Medicine*, *British Medical Journal*, *Epidemiology*, *Cancer Epidemiology, Biomarkers and Prevention*, *Annals of Epidemiology*, *Journal of Public Health Management and Practice*, and the *American Journal of Epidemiology*. Many other journals and textbooks are accessible via electronic subscriptions and inter-library loan. Specific requests for e-book access will be provided after the program is approved to be established.

B. State how the library will be improved to meet new program requirements for the next four years. The explanation should discuss the need for books, periodicals, reference material, primary source material, etc. What additional library support must be added to areas supporting the proposed program?

Some epidemiology textbooks may be requested for purchase for the library catalog. The LHSL has some, but not most, advanced epidemiology and biostatistics textbooks. This cost may be up to \$2,000-3,000 to populate the library with one or two copies of basic textbooks (or electronic access) for public health and epidemiology research

C. Discuss the use of other institutional libraries.

ECU Libraries have access to the other more extensive collections through inter-library sharing. Joyner Library has excellent resources for accessing map collections, rare books, and rare manuscripts that may inform population-based research, especially in eastern NC.

VI. FACILITIES AND EQUIPMENT

A. Describe facilities available for the proposed program.

The existing core faculty members involved in the proposed epidemiology PhD program currently have offices. Discussions between Chair Lloyd Novick and Bruce Flye, Building Space Planner for BSOM, have been ongoing. There are 30 offices, two conference rooms, and cubicles for graduate students. The DPH anticipates obtaining additional space in the coming years as a result of doctoral degree program planning discussions with Dean Cunningham and Vice Chancellor Horns. Planned construction to replace the aging Brody School of Medicine building allows incorporating future square footage for a School of Public Health.

A letter and email from Gary Vanderpool, ECU Division of Health Sciences Office of Administration and Finance, indicates support for office space related to doctoral program expansion.

B. Describe the effect of this new program on existing facilities and indicate whether they will be adequate, both at the commencement of the program and during the next decade.

Since the space to be allocated for PhD students will be newly assigned, there would be minimal impact on existing programs.

C. Describe information technology and services available for the proposed program.

Laptop computers with hard drive capacity for large national datasets will be needed for teaching. In addition, the proposed program will request additional university-designated network ('Pirate Drive') storage based on Institutional Review Board requirements to protect personal patient information contained within datasets being utilized for dissertation research. ECU's subscription to RefWorks is an excellent solution for managing bibliographies. Teaching classrooms contain sufficient computer capacity. Students will access ECU-licenses for SAS software on laptops. ITCS provides up to 50 gigabytes at no charge for each student and \$3.00 per student for each additional gigabyte.

Other hardware and software are currently available to support the PhD degree. Hardware that exists includes data storage servers such as the pirate-drive and servers that maintain file transfer

protocol addresses (FTP) used to transfer large datasets (encrypted or not). Students would be required to purchase hardware, such as a laptop, datastick, or external hard drive to back up files. Software licenses to commonly used statistical analysis software are available as ECU site licenses, except for 'Stata' software which has been included in the budget.

D. Describe the effect of this new program on existing information technology and services and indicate whether they will be adequate, both at the commencement of the program and during the next decade.

ECU technology resources are substantial. ECU is known for excellence in distance education, which reflects directly upon the leading-edge environment and state-of-the-art equipment operated by the Division of Information Technology and Computing Services. The Division provides a wide spectrum of services to faculty, medical clinics, and students. The Division supports operation and maintenance of information technology in the classrooms, distance education software (such as Blackboard, Saba, Tegrity, Yammer, Second Life), medical records in the clinics (Centricity/Healthspan/Epic), and electronic infrastructure for Internet. Mobile applications, email support, web publishing, statistical software, web-based survey tools, and other technologies are offered by the Division for faculty and students free of charge. This extensive and efficient infrastructure is expected to keep pace with overall university demand.

VII. ADMINISTRATION

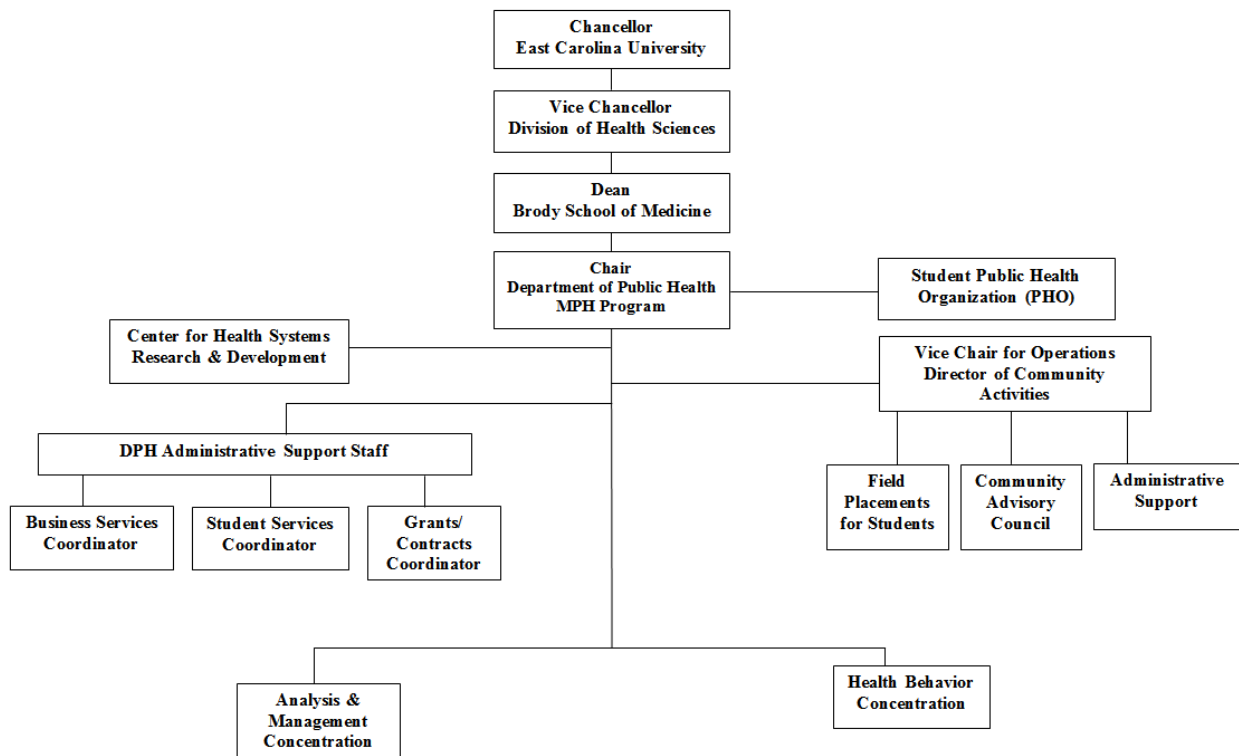
Describe how the proposed program will be administered, giving the responsibilities of each department, division, school, or college. Explain any inter-departmental or inter-unit administrative plans. Include an organizational chart showing the "location" of the proposed new program.

The PhD degree will be administered by the DPH. Enrollment and registration will be administered through the ECU Graduate Division. Applications will be submitted through the ECU Graduate Division (not through BSOM) and reviewed by DPH faculty for admission decisions. As with other non-clinical graduate education within the BSOM, the epidemiology PhD will be grouped with other PhD degree programs in the basic sciences, such as immunology and molecular biology. For example, graduate curriculum review is vetted through the Graduate Studies Committee of the BSOM, which is made up of representatives from the basic sciences.

As can be seen in the diagram below, Lloyd Novick, MD, Chair of the Department of Public Health, reports to Paul Cunningham, MD, Dean of BSOM, who reports to Phyllis Horns, RN, PhD, Vice Chancellor of Division of Health Sciences, who reports to Steve Ballard, PhD, ECU Chancellor.

Within the DPH, Dr. Novick will serve as PhD program chair. Suzanne Lea, PhD currently serves as coordinator of the doctoral degree planning committee. Dr. Lea also serves as curriculum committee chair for the MPH program, and will continue in that role with the PhD degree program.

Exhibit 1. Organizational chart of the ECU Department of Public Health



VIII. ACCREDITATION AND LICENSURE

A. Indicate the names of all accrediting agencies normally concerned with programs similar to the one proposed. Describe plans to request professional accreditation.

Council on Education for Public Health (CEPH) is the accrediting body. Should the timing work as anticipated, the PhD epidemiology degree will be included with two other doctoral degrees to petition to CEPH a request to be accredited as a school of public health. CEPH requires that new schools wishing to be accredited notify CEPH of this intention three years in advance. Proposed schools must meet certain benchmarks before CEPH will schedule a site visit. The request to form a school of public health is planned to be submitted to CEPH in 2017, with anticipated accreditation for 2020.

B. If the new degree program meets the SACS definition for a substantive change, what campus actions need to be completed by what date in order to ensure that the substantive change is reported to SACS on time?

The proposed new degree program does not constitute a substantive change.

C. If recipients of the proposed degree will require licensure to practice, explain how program curricula and title are aligned with requirements to “sit” for the licensure exam.

There is no requirement for licensure to practice.

IX. SUPPORTING FIELDS

Are other subject-matter fields at the proposing institution necessary or valuable in support of the proposed program? Is there needed improvement or expansion of these fields? To what extent will such improvement or expansion be necessary for the proposed program?

The Department of Biostatistics is a service department to the health sciences campus, including medical, dental, nursing, and allied health professions. Thus, faculty members participate in a wide array of clinical, laboratory, and medical device and image studies, as well as research in theoretical aspects of statistics. The department is at capacity in terms of mentoring methodological aspects of students' dissertations and theses, serving on committees on both the health sciences and main campuses. In addition faculty members hold 'walk-in hours' to provide broad support for graduate students and medical residents/fellows. Major challenges with BIOS faculty will emerge to additionally mentor individual theses students in the Epidemiology doctoral program with their current set of resources. Unlike the other above listed programs, a PhD in Epidemiology will likely require students to engage in advanced statistical methods not covered in our current courses such as spatial data analysis, analysis of complex survey data, infectious disease modeling, and hierarchical linear modeling. Within the biostatistics department, capacity could be improved and expanded for population health.

X. ADDITIONAL INFORMATION

Include any additional information deemed pertinent to the review of this new degree program proposal.

No additional information is submitted at this time.

XI. BUDGET

Based upon your responses in previous sections, provide estimates of the incremental continuing and one-time costs required to implement the proposed program.

A. Estimates should be provided for the first and fourth years of the program in the following broad categories and be inclusive of applicable employee fringe benefit costs:

1. New Faculty and Instructional Support Staff (including Library)

First Year: \$141,166 (1 faculty FTE, 1 non-faculty FTE)

Fourth Year: \$85,000 (1 faculty FTE)

2. New Non-Academic Administrative Support Positions

None is requested.

3. Recurring Operational Expenses (e.g., supplies, materials, telephone, travel, insurance, library or software subscriptions, equipment maintenance, etc.)

First Year: \$3,000 + 6,268 + \$350 (travel, equipment, supplies) = \$9,168

Fourth Year: \$3,000 + \$3,000 + \$350 (travel, equipment, supplies) = \$6,350

4. One-time expenses for facilities renovations or additions, equipment purchases, library materials, etc.

First Year: \$3,000 (books)

B. Based on the campus' estimate of available existing resources or expected non-state financial resources that will support the proposed program (e.g., federal support, private sources, tuition revenue, etc), will the campus:

- 1. Seek enrollment increase funds or other additional state appropriations (both one-time and recurring) to implement and sustain the proposed program? If so, please elaborate.**

For the 2012-2013 academic year, the state funding model generates between \$39,814 and \$88,476 during the first five years of the program. We request that a master's level biostatistician be allocated to the department of biostatistics to offset time that biostatistics faculty must spend on PhD epidemiology program committee work.

Funding for the program will be initially provided through extramural research funds generated by the DPH and ECU designated funds from the DHS and Division of Research and Graduate Studies, and student surcharge. Please see the budget and budget explanation in appendix.

2. Require differential tuition supplements or program-specific fees? If so, please elaborate.

- a. State the amount of tuition differential or program-specific fees that will be requested.**

No additional fees are requested for the PhD program.

- b. Describe specifically how the campus will spend the revenues generated.**

Not Applicable

- c. Does the campus request the tuition differential or program-specific fees be approved by the Board of Governors prior to the next Tuition and Fee cycle?**

No new fee will be requested prior to the next Tuition and Fee cycle.

C. If additional enrollment increase funding or other state appropriations elaborated above are not forthcoming, can the program still be implemented and sustained and, if so, how will that be accomplished? Please elaborate.

Not Applicable

XII. EVALUATION PLANS

All new degree program proposals must include an evaluation plan which includes:

A. Criteria to be used to evaluate the quality and effectiveness of the program, including academic program student learning outcomes.

CEPH assists schools in evaluating quality of their instructional efforts. For purposes of CEPH accreditation, quality is defined in terms of competence. CEPH requires that a program have explicit processes for monitoring and evaluating its mission, goals and objectives, for assessing the program's effectiveness, and for using evaluation results in ongoing planning and decision making. As part of the CEPH evaluation process, ECU must conduct an analytical self-study that analyzes performance against the accreditation criteria that are defined in their accreditation document, "Accreditation Criteria: Public Health Programs, amended June 2011" (see appendix). Section 2.9, Academic Degrees, explains criteria for PhD programs.

B. Measures (metrics) to be used to evaluate the program (include enrollments, number of graduates, and student success).

The CEPH accreditation document mentioned in "A" above lists numerous pieces of required documentation for academic programs in section 2.9, which can be found in section 2.9.

The plan and schedule to evaluate the proposed new degree program prior to the completion of its fourth year of operation.

CEPH accredits new programs and schools initially for a five year period and seven years thereafter. ECU Office of Academic Programs conducts unit-specific on-site program review approximately every seven years. In addition, an outcomes assessment of student learning is conducted on an ongoing basis.

XIII. REPORTING REQUIREMENTS

Institutions will be expected to report on new program productivity as a part of the biennial low productivity program review process.

This proposal to establish a new degree program has been reviewed and approved by the appropriate campus committees and authorities.

Chancellor: _____ **Date:** _____

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