THE UNIVERSITY OF NORTH CAROLINA
APPENDIX C: REQUEST FOR AUTHORIZATION TO ESTABLISH A NEW DEGREE PROGRAM

Date: March 7, 2012

Constituent Institution: East Carolina University
School/College: Harriot College of Arts and Sciences Department: Economics

Program Identification:
CIP Discipline Specialty Title: Economics, Other
CIP Discipline Specialty Code: 45.0699.404.000 Level (B, M, I, Prof, D): D
Exact Title of the Proposed Degree: Economics
Exact Degree Abbreviation (e.g., BA, BS, MA, MS, EdD, PhD): PhD

Does the proposed program constitute a substantive change as defined by SACS?	Yes	No x
a) Is it at a more advanced level than those previously authorized?	Yes	No x
b) Is the proposed program in a new discipline division?	Yes	No x

Proposed date to establish degree program (allow at least 3-6 months for proposal review): *August 2014*

Do you plan to offer the proposed program away from campus *during the first year of operation?* Yes ___ No *x*
If yes, complete the form to be used to request establishment of a distance education program and submit it along with this request.

I. DESCRIPTION OF THE PROGRAM

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

The goal of the program is to train research economists with a particular focus on developing and applying innovative theories of decision making under uncertainty, to selected areas that build upon and support current university strengths and strategic directions. Recent developments in the field of economics in the area of decision making under risk and uncertainty have included novel modeling techniques that incorporate mathematical properties of probability distributions that have "fat tails." These techniques are especially important when considering low-probability-high-consequence events such as natural disasters, pandemic disease outbreaks, and the recent financial system meltdown. Another recent development has been in the area of behavioral economics that incorporates behavioral biases within economic institutions. The scope of this program will underline ECU's commitment to produce and support leaders and decision makers in these aspects of the economy, environment, and public health. There will be four primary areas of focus related to those strengths and directions: environmental risk; at risk populations and public health; risk and decision making; and analytic and econometric tools of risk evaluation and response. These areas directly support ECU's strategic directions of training and preparing leaders to deal with environmental hazards, providing education at the highest level for the new century, supporting economic prosperity and development in the East, and contributing to the development of health care and the delivery of medical services. This program provides advanced training towards a research doctorate in economics. The proposed program will be an academic rather than a professional degree program, but we also will seek internships to strengthen the practical dimension of student training. Our intended audience will be individuals that want to develop a quantitative skill set that can be used to understand, devise, and implement solutions to 21st century challenges to social and economic well-being of the region and nation.

B. List the educational objectives of the program.

The proposed PhD in economics has been developed with specific program objectives in mind. The program will:

- Produce leaders with potent quantitative skills for the economic analysis of risk and decision making especially as it relates to public health, natural hazards, and natural resource management;
- Address real world issues of utmost importance to eastern North Carolina and the nation;
- Promote economic development of the region through creation of tomorrow's highly skilled workforce, leaders, and innovators with personal knowledge of the challenges and opportunities connected to North

Carolina's eastern region;

- Leverage existing and cultivate new collaborative partnerships with colleges and universities as well as federal, state and community agencies to develop effective solutions to the challenges that will test our ability to prosper in the 21st century.

Students that achieve a doctorate in this program will be highly capable and able to move into leadership positions in a wide range of venues. Graduates will be able to:

- Apply complex quantitative reasoning and economic analysis to identify, develop, and implement solutions that respond to state, regional and national needs;

- Integrate rigorous analysis that complements the skills of researchers and policy professionals within collaborative multidisciplinary teams to formulate policy responses to regional issues;

- Design and conduct high quality research to understand issues of regional importance, with emphasis on public health, economic development and the socioeconomic impacts of natural hazards;

- Create, manage, and evaluate programs and policies that address economic issues in the areas of environmental risk; at risk populations; risk and decision making; and analytic and econometric tools of risk evaluation for agencies of government, non-government organizations and private firms;

- Advance the state of economic knowledge and educate others in the importance and use of theoretical and analytic tools.

C. Describe the relationship of the program to other programs currently offered at the proposing institution, including the common use of: 1) courses, 2) faculty, 3) facilities, and 4) other resources.

The proposed PhD in economics, with a research focus on risk, is a natural extension of the economics department's current, small master of science in resource and applied economics. That program is successful in training economists for a variety of positions in commerce, industry, government, and nonprofit firms. It also produces a number of graduates who go on to PhD work in strong departments at other universities. Courses in that program can be used as preparation for the PhD program, the economics graduate faculty will be actively involved in both the existing MS and the proposed PhD program, and the programs will make common use of existing department facilities and resources. Some graduate student support will be shifted to the PhD program, which will also bring new graduate student space and technological capabilities to the Department.

The proposed program would not compete with any existing or proposed doctoral-level program at East Carolina University, but would be complementary to the existing *PhD in coastal resources management* (CRM), in which faculty of the economics department currently participate. That program has a strong emphasis in physical sciences, especially biology and geology, and maritime studies, whereas the proposed PhD in economics will have an analytic social science emphasis that will complement the existing social science and policy tracks available in the CRM program. It will hence substantially expand the range of opportunities for students by enriching and strengthening the social science focus in coastal resources management, and extend that of other graduate programs, such as the MS is sustainable tourism, in which economics faculty already cooperate. A letter of support from the current director of the CRM PhD program is included in Appendix A. In addition, the program has natural synergies with research activities in the Harriot College *Center for Natural Hazards Research (CNHR),* the *Institute for Coastal Science and Policy (ICSP),* the *Coastal Studies Institute* (CSI) in Manteo, in each of which current Economics faculty actively participate, for which it will also provide highly qualified research assistants. There is further collaboration possible with the newly established ECU Coastal Water Resources Center, where an economics faculty member is already collaborating. Finally, the Department of Economics is developing a working relationship with the public health program regarding health economics and risk issues, with the potential for collaboration in the existing master's programs and in PhD courses, once both economics and public health have such a program. A letter of support from the director of the public health program is included in Appendix A.

This program will make active use of courses in the Department of Mathematics. Analytic economics depends on advanced mathematical concepts and tools, hence the program will require that students master the material in four existing mathematics department courses. This economics program will also expand the statistics/econometrics course offerings available to graduate students in the Department of Mathematics, particularly those pursuing the mathematics MA in statistics. It will further complement the future PhD in statistics that the mathematics department is currently exploring. A letter of support from the current chair of mathematics is included in Appendix A.

East Carolina University also currently offers several degree programs at the master's level to which the proposed PhD in economics, with its risk focus, would be complementary. The Department of Geography offers an MA that applies geographic information science and remote sensing technologies to coastal environments, agriculture, and fisheries. Several of these courses may be of use to economics PhD students, and geography graduate students may also take advantage of some economics topics courses relevant to their research, such as spatial econometrics. A letter of support from the current chair of geography is included in Appendix A. Risk analysis applied to sustainable development also would provide a valuable complement to the master's in sustainable tourism. Another MS program that this PhD would complement and support is the RLS (College of Health and Human Performance) and Institute for Sustainable Tourism's MS in sustainable tourism. Economics PhD students may be involved in the research of such programs, and may audit courses to broaden their understanding of the ways economic analysis, including risk analysis, may be brought to bear.

Finally, the PhD in Economics would provide a natural continuation for graduate training for students graduating with the College of Business, Department of Finance, BS in risk management. It will, however, have no ongoing pedagogic interaction with that program, although it may engage the research interests of the finance department faculty.

D. Describe any explorations of collaborative offering of this program and the results of those explorations.

The research institution physically closest to ECU is NCSU, which is 84 miles from ECU (over 90 by existing roads). Our chair visited each of the four state research universities in the UNC system (UNC-CH, NCSU, UNCG, UNCC) at an early stage of the development process, but after those discussions it became clear that distances were too great for effective pedagogic collaboration. Proper education and training at the PhD level requires close interaction and collaboration among graduate students and faculty, rendering DE courses ineffective. In addition, it is clear that this proposed program will be complementary to, and not in competition with, any of the fields offered at the three other institutions with PhD programs in economics. Hence we feel that this program will be a valuable addition to the portfolio of graduate training in economics offered to the students of the UNC system as a standalone program.

This program will utilize our existing relationship with faculty across the UNC system who have collaborated successfully with our faculty members in scholarly research, both with andwithout grant support. These include research associates of our Center for Natural Hazards Research at NCSU, ASU, UNCW, and UNCC. Our collaborators are already involved in ongoing research. In addition their undergraduate and masters level students are potential doctoral students in our program. Many fine researchers are at non-PhD granting economics programs within the UNC system. We look forward to including them on doctoral committees. They would provide additional expertise, as visiting scholars and lecturers, in areas where our small size prevents hiring additional faculty, thereby enriching and strengthening the program and its attractiveness to both future students and their potential employers. Possible collaboration with individual faculty at other UNC institutions whose research and teaching interests fit well with our proposed program in public health economics include the UNC-CH School of Public Health and the UNC-G Health Economics doctoral program. In addition, the agro-medicine program, ECU Center for Health Disparities, and the new ECU Center of Public Service and Community Relations are logical connections for collaboration.

RENCI@East Carolina University is a regional engagement center of the Renaissance Computing Institute that is dedicated to using state-of-the-art computing technology to improve the quality of life and economic well-

being of the citizens of North Carolina. It is part of a network of North Carolina Centers based at UNC-CH, NCSU, UNC-Charlotte and UNC-A. Although the funding stream has been wound down in recent years, the infrastructure and human network relationships still exist, and will be beneficial for the research of our PhD students.

Coastal Studies Institute, Director for Human Dimensions of Sustainability, Dr. Andrew Keeler, holds a joint appointment with the Department of Economics. With the completion of the new campus at Manteo in summer 2012, coursework, research and student support will be a joint initiative.

Professor Liu is an adjunct faculty member with ECU's Department of Public Health at the Brody School of Medicine. He serves as a guest instructor to the research methodology class for their graduate students of Public Health. The research collaboration with Department of Public Health has been focused on engaging in community-based research with linkages throughout North Carolina.

The Department of Economics is engaged in collaborative research with institutions across the country. Professor Kruse is a research associate of the **Wind Science and Engineering Research Center** (**WISE**) at Texas Tech University. **WISE** conducts research and outreach concerning severe wind events and their impacts on the built environment. **WISE** includes researchers from civil engineering, atmospheric science, economics, mathematics, and operations research.

The Department of Economics and **CNHR** have developed a Memorandum of Understanding with **Columbia Consortium for Risk Management (CCRM)**, including Columbia University and the University of Grenoble, in which the parties commit to develop opportunities for sharing information and research collaboration relating to the management of natural hazards risk and uncertainty, the exchange of research visits for collaboration, and joint grant submissions. A copy of the Memorandum of Understanding is included in Appendix A.

CNHR is a collaborator with University of South Carolina, University of Iowa and Princeton on a proposed **National Flood Center**, **NSF Science and Technology Center**. Kruse (economics), Montz and Gares (geography) are listed on the proposal. Total budget for these large integrative centers is $30 million for the first year with an initial commitment of five years under cooperative agreement.

We have also pursued partnerships within ECU. We are collaborating with the CRM PhD Program to produce an NSF IGERT proposal to fund graduate students in both this and the CRM program for 5 years. It will be submitted by summer 2012. Finally, we are exploring collaboration with the ECU public health program. They are developing a PhD proposal which would allow joint offering of field courses for our public health field and their program. We are also exploring sharing teaching of statistical methods courses required in both of our programs.

II. JUSTIFICATION FOR THE PROGRAM (Narrative Statement)

1. Institutional Mission and Strategic Plan and response to UNC Tomorrow

Our objective is creation of a PhD program in Economics with a research focus on public health, environmental and natural hazard risk analysis, on related policy analysis, and on the development of relevant economic-analytic tools. This initiative aligns with East Carolina's institutional mission, the strategic plans for the College of Arts & Sciences and Department of Economics and addresses priorities identified in UNC Tomorrow. With regard to *Economic Development*, the proposed program will train specialists to work with government and private sector organizations, with special emphasis on mitigating the risks attendant with natural hazards such as climate change (ECU Strategic Action Plan (SAP) Alignment 1.3.1-2; 1.3.4; 1.1.6; Harriot College of Arts and Sciences (HCAS) SAP alignment 4.3). With regard to *Partnerships & Engagement***,** the program will cooperate with public health, geography and mathematics departments to provide students with critical skills for managing issues critical to eastern NC. The program complements and adds strength to the existing interdisciplinary PhD program in coastal resources management.

Each of the four areas of program focus reflects East Carolina University's current strengths and supports its strategic directions in the areas of economic development and the improvement of human health through social science research, education, leadership, and partnership. They will also contribute to the emerging role of East Carolina University as a major doctoral-level institution.

i. Environmental Risk - Economists who study the environment must account for risk and uncertainty in their models and policy evaluations. Research based on survey techniques must incorporate probabilistic elements to accurately measure implicit prices. The design of environmental policy likewise must accommodate the risk and uncertainty that is embodied in any study of events which combine low probabilities with high expected losses, such as natural disasters. Research on these areas is essential to the development and implementation of policies for mitigating these risks; and mitigation will have a positive impact on the orderly economic development of the coastal region. This branch of the program will be consistent with the research and policy focus of the existing *Center for Natural Hazards Research* (CNHR) in the Thomas Harriot College of Arts and Sciences. This area of study also has a natural connection to the *Institute for Coastal Science and Policy* (ICSP) at East Carolina University.

ii. At Risk Populations - Current public policy concerns outside of the environmental area also will be addressed with the research techniques of the proposed program. Examples include public health risks (epidemics, obesity, AIDS, etc.), poverty risks (poor nutrition, inadequate shelter, etc.), and social exclusion risks (discrimination, unemployment, inequality of opportunities, etc.). The traditional benefit-cost evaluation of proposed changes in public policy is an area in which public policy design and implementation can be strengthened by incorporating insights from the economics of risk and uncertainty. The current faculty has the experience and skills both with econometric methods to test theoretical constructs and with the experimental economics methodologies for testing policy alternatives.

iii. Risk and Decision Making – The proposed program will educate economic analysts with the technical skills necessary to deal with the issues of risk and uncertainty in a broad variety of contexts. In a world of certainty and perfect knowledge, the appropriate course of action becomes determinant once the objective function is fully specified. In such a static context, decision making is simple. The need for sophisticated decision making, however, arises from recognition that most interesting problems at some level involve irreducible elements of uncertainty. Specification of the appropriate utility/payoff functions, their complementary loss functions, and appropriate analytic frameworks, including but not restricted to that of "expected utility" for optimal decision making, involve challenges to which this branch of the program would be responsive. Such specification also involves behavioral economic approaches, such as "rank-dependent expected utility," "disappointment aversion," "loss aversion," and "prospect theory," exploring alternative explanations for what might appear to be irrational, or to involve suboptimal decisions regarding risk.

iv. Analytic and Econometric Tools of Risk Evaluation and Response – The ability to manage risks in a changing world requires continual improvement of existing theories and techniques as well as the development of new tools to deal with new challenges. This means that our graduates need to be at the frontiers of knowledge in the areas of risk analysis, capable both of training others and advancing the scientific tools available for application. This focus of the proposed program supports and strengthens the East Carolina University and Harriot College goals of education and research that support economic development while advancing the frontiers of knowledge, and will strengthen East Carolina University as the center of learning for the issues related to our region and state.

The proposed program is directly responsive to the University's strategic directions to advance research and creative activity to enhance economic development of the region, and to take a leadership role in solving regional problems. To advance toward these goals, the program will train research economists who can use modern analytic tools to design, analyze, and implement policies for risk mitigation and managing uncertainties. The program will concentrate on risks concerning health of populations, natural hazards, and natural resource development. These areas are of global importance but of particular importance to eastern North Carolina. More specifically, the focus of the proposed program is consistent with many of the university's goals as specified in the *East Carolina University UNC Tomorrow Response Phase I Report* (May 1, 2008):

- The University has a commitment to "Expand and apply its expertise, research and outreach functions to address … the economy, environment, and energy and water, among others." (p. 4)
- The University plans to "Increase faculty and student knowledge … (for) research and development." (p. 4)
- The University desires to be a "birthplace and destination for innovation-driven industry-academic government collaborations." (p. 5)
- "ECU recognizes the strong link between graduate education, the production of knowledge, and economic and social prosperity." (p. 15)
- The vital role of understanding "Coastal Hazards and Economic Development" is stressed. (pp. 18-19)
- The University is vital to meet "the future public health needs of North Carolina." (pp. 22-23)
- A focus on "Inequality Research" is a "Visionary Idea" for the University. (p. 24)
- "Natural hazards research" is a priority for the University. (p. 25)

2. Student Demand.

The economics department's current master of science in applied and resource economics regularly attracts students with an interest in the natural hazards and environmental resource issues that the PhD program will focus on. That program has successfully trained several students who have continued their economics training in strong PhD departments at other universities; three to four such students would find the proposed program an attractive one. We repeatedly receive requests from prospective students wanting to know if there is a related (to our MS) PhD program. They would be natural candidates for the new program. We also expect that the uniqueness of the proposed PhD in Economics, with its special research focus on natural hazards and health and environmental risk, will attract highly qualified students from a national, and indeed international, pool. In particular, we anticipate attracting qualified students from economics masters programs at other UNC institutions, in particular UNCW and ASU where coastal and environmental studies lie at the heart of their programs, and where we also have extensive research collaboration (see above, Part 1.D). This specialized PhD would be a natural continuation of their studies. In addition, we expect highly qualified applicants from the ECU College of Business BS in Risk Management program. Specialized economics programs (e.g., Syracuse University and University of Wyoming) regularly attract entering cohorts of twelve to twenty qualified PhD students, and we anticipate selecting from such a pool. As our program will be small in size, at least at the beginning, we anticipate no problems filling a cohort of 6 to 7 entering students every other year.

As can be seen in Part C below (p. 9), other UNC PhD programs in economics have had success in attracting qualified students to their programs. Our program will initially be smaller than any of those, and hence should have no problem attracting sufficient applicants to create a strong entering cohort. Further, due to its particular focus, this program should not significantly compete with those programs for students.

3. Societal Need. (Note: For graduate, first-professional, and baccalaureate-professional programs, cite manpower needs in North Carolina and elsewhere.)

The U. S. Department of Labor projects steady growth in the job opportunities for economists in general at least through 2018.[i] These jobs are highly paid; BLS 2011 gives an average salary of $84,000 across all economists. New PhD economists in 2012 are starting at salaries between $80,000 and $120,000 for 9 months in academia, from $75,000 to $120,000 in government (GS 11 with PhD), and up to $179,700 in leadership positions in government, according to USAJOBS.GOV. For those with PhD training the best job opportunities are expected for those candidates with skills in quantitative techniques and their application to economic modeling and forecasting. These are precisely the types of skills that will be stressed in the proposed program in economics with a research focus on risk. Two federal agencies have recently issued a joint memorandum that stresses the need for precisely the type of risk analysis that is the central focus of the proposed degree.[ii] The chief administrator of the Office of Information and Regulatory Affairs of the Office of Management and Budget and the associate director of the Office of Science and Technology Policy on September 19, 2007, urged all heads of executive departments and agencies to integrate risk analysis into all of their regulatory activities: "Agencies should recognize that risk analysis is a tool…in the regulatory tool kit."[iii] The memorandum also stresses the need for trained professionals with the requisite skills for risk assessment: "Risk assessors and *economists* are

responsible for providing decision-makers with the best technical information available or reasonably attainable…"[iv]

The program responds specifically to the national need for PhD economists with analytic and econometric skills required for the analysis and management of risk and uncertainty for decision making in areas such as natural hazards, environmental assessment and mitigation, and public policy and regulation. The majority of new PhDs in economics typically enter the academic market. [v] The proposed program is instead primarily designed to train research economists who can apply modern skills to the design and implementation of policy, as well as teach such skills and evaluate their use by others. Federal agencies, such as the Environmental Protection Administration and the Federal Communications Commission, and state agencies, such as the North Carolina Department of Environment and Natural Resources and the Office of State Budget and Management, routinely recruit for professionals with these skill sets. Moreover, private research organizations, non-governmental organizations, and foundations are also potential employers for those who complete the program. The current and anticipated demand for all groups will be more than sufficient to secure placement of the number of PhDs projected.

Graduates of this program will find opportunities both within and outside of academics, although we expect most to accept non-academic positions. Outside of academics, firms and institutes that provide consulting services to the insurance industry will provide placement opportunities. We are in the process of notifying several of the organizations of the potential PhD program and soliciting their feedback. Reinsurance companies will also have opportunities for our graduates. Examples include:

ISO-Insurance Services Office
PERI-Property Entity Risk Institute
IBHS-Institute for Building and Home Safety
NAHB-National Association of Home Builders
RMS-Risk Management Solutions
ARA-Applied Research Associates
AIR Worldwide Corporation
SwissRE-a reinsurer
MunichRE-a reinsurer

The program emphasis on environmental risks, risk and regulation, and at-risk populations will provide essential skills for analysts in many government agencies. We are in the process of notifying several of the agencies of the potential PhD program and soliciting their feedback. A representative list is:

OMB-Office of Management and Budget
OSTP-Office of Science and Technology Policy
NOAA-National Oceanic and Atmospheric Administration
NIST-National Institute of Standards and Technology
EPA-Environmental Protection Administration
DOE-Department of Energy
DOD-Department of Defense
HHS-Department of Health and Human Services
FEMA-Federal Emergency Management Agency
FRB-Regional Federal Reserve Banks
DHS-Department of Homeland Security
FDIC-Federal Deposit Insurance Corporation
FDA-Food and Drug Administration

4. Impact on existing undergraduate and/or graduate academic programs at ECU. (e.g., Will the proposed program strengthen other programs? Will it stretch existing resources? How many of your programs at this level currently fail to meet Board of Governors' productivity criteria? Is there a danger of proliferation of low-productivity degree programs at the institution?)

The proposed PhD in Economics will have a synergistic impact on other programs at ECU, without stretching any unit's resources. There are no low-productivity degree programs in the Department of Economics at ECU. The proposed PhD is a small program that is a natural extension of the economics department's current master of

science in resource and applied economics. That program will share resources, including faculty, with the PhD program, allowing fuller classes to be offered. Some graduate student support will be shifted to the PhD program, which will also bring new graduate student space and technological capabilities to the Department. Both programs will readily exceed UNCGA minimal productivity standards; after establishment of the PhD the MS program will produce 7-10 degrees per year, and the PhD program 2-4 per year (15 over any 5 year period, after year 6 of the program). The best students in the MS program will have a natural continuation of studies as Economics PhD students at ECU. Thus this program provides no danger of proliferation of low-productivity programs at ECU, and indeed will help boost productivity of other programs.

The proposed program would not compete with any existing or proposed doctoral-level program at East Carolina University, but would be complementary to the existing *PhD in coastal resources management* (CRM), in which faculty of the economics department currently participate. That program has a strong emphasis in physical sciences, especially biology and geology, and maritime studies, whereas the proposed PhD in economics will have an analytic social science emphasis that will complement the existing social science and policy tracks available in the CRM program. It will hence substantially expand the range of opportunities for students by enriching and strengthening the social science focus in coastal resources management, and extend that of other graduate programs, such as the MS is Sustainable Tourism, in which Economics faculty also already cooperate. This should increase the attractiveness of those programs to high quality students, increasing their productivity of graduates.

In addition, this new program has natural synergies with research activities in the Harriot College *Center for Natural Hazards Research (CNHR),* the *Institute for Coastal Science and Policy (ICSP),* the *Coastal Studies Institute* (CSI) in Manteo, in each of which current Economics faculty actively participate, for which it will also provide highly qualified research assistants. There is further collaboration possible with the newly established ECU Coastal Water Resources Center, where an economics faculty member is already collaborating. Finally, the Department of Economics is developing a working relationship with the public health program regarding health economics and risk issues, with the potential for collaboration in the existing masters programs and in PhD courses, once both economics and public health have such a program. We anticipate sharing advanced statistics/econometrics courses at both the masters and PhD levels with students in the public health Program, and out students will be able to benefit from Public Health course offerings in the proposed public health economics field of the economics PhD degree program.

This PhD program will make active use of courses in the Department of Mathematics. Analytic economics depends on advanced mathematical concepts and tools, hence the program will require that students master the material in four existing mathematics department courses. This will allow the mathematics department to offer these courses regularly, strengthening their MA program, by providing sufficient additional students to justify their offering. This economics program will also expand the statistics/econometrics course offerings available to graduate students in the Department of Mathematics, particularly those pursuing the mathematics MA in statistics. It will further complement the future PhD in statistics that the mathematics department is currently exploring.

East Carolina University also currently offers several degree programs at the master's level to which the proposed PhD in economics, with its risk focus, would be complementary. The Department of Geography offers an MA that applies geographic information science and remote sensing technologies to coastal environments, agriculture, and fisheries. Several of these courses may be of use to economics PhD students, and geography graduate students may also take advantage of some specialized economics courses relevant to their research, such as spatial econometrics. Again, existing courses with potentially low enrollments will be filled out by the addition of economics graduate students, strengthening both programs. Another MS program that this PhD would complement and support is the RLS (College of Health and Human Performance) and Institute for Sustainable Tourism's MS in Sustainable Tourism. Economics PhD students may be involved in the research of such programs, and may audit courses to broaden their understanding of the ways economic analysis, including risk analysis, may be brought to bear. Again, these courses typically have more than the 2-3 free seats that economics PhD students would fill.

Finally, the PhD in Economics would provide a natural continuation for graduate training of students completing the College of Business, Finance Department, BS in Risk Management. It will however place no ongoing pedagogic demands on that program, although it may engage the research interests of the Finance Department faculty.

B. Discuss potential program duplication and program competitiveness.
   1. Identify similar programs offered elsewhere in North Carolina. Indicate the location and distance from the proposing institution. Include a) public and b) private institutions of higher education.
   2. Indicate how the new proposed program differs from other programs like it in the University. If the program duplicates other UNC programs, explain a) why it is necessary or justified and b) why demand (if limited) might not be met through a collaborative arrangement (perhaps using distance education) with another UNC institution. If the program is a first professional or doctoral degree, compare it with other similar programs in public and private universities in North Carolina, in the region, and in the nation.

No other university economics department in North Carolina offers PhD training in economics with a specific emphasis on the economics of risk applied to natural hazards, environmental regulatory issues, and vulnerable ("at risk") populations. The only current program in the state which bears some resemblance to the proposed program is a track within the PhD of the decision sciences department in the Fuqua School of Business at Duke University. That program is not formally structured as one in the economics of risk, but it does permit students to design a program of study emphasizing risk management which, however, focuses primarily on financial risks. Duke University is the only private university in North Carolina that offers doctoral programs in economics which are comprehensive in scope, but does not concentrate on the risk and hazards focus of our proposed program. It is located in Durham, about 110 miles from ECU.

There are three other PhD programs in economics in the UNC System, none of which has a similar focus to the proposed program. The first is the new (since 2004) Bryant Business School Economics PhD at Greensboro (CIP: 52.0601) focusing on labor economics, public economics, and health economics. Our proposed "public health economics" field partially overlaps with their health economics field, but our focus on hazards and risk analysis differs substantially from their focus on business management aspects. This program is located 162 miles from ECU. The other two economics PhD programs are at NCSU and UNC Chapel Hill. They are longstanding programs providing the full range of standard fields in economics (CIP: 45.0601), neither, however, with the specific focus on hazard and risk analysis particularly relating to the impact of natural events, environmental hazards, and climate change, as does our program. In particular, the analytic depth we aim to provide relating to uncertainty and lack of knowledge and information around catastrophic events will be unique in the UNC system. NCSU is located 84 miles from ECU, and UNCCH is 113 miles. Doctoral programs in economics are not available in online or distance format from UNC institutions.

There are no programs at ECU which this program would duplicate. The existing CRM PhD program has a social science policy track, which does not include advanced economics training. The proposed program would expand opportunities for CRM students, without duplicating anything the CRM program currently does.

Nationally, there are several PhD programs which emphasize a focus on some aspect of risk, such as the Departments of Insurance in the business schools at Georgia State University, the University of Georgia, Florida State University, Temple University, the University of Pennsylvania, and the University of Wisconsin, and in the Department of Mathematical Sciences at Carnegie Mellon University. These programs focus almost exclusively on financial risk and its management through the use of sophisticated financial instruments in well-functioning markets. Although the basic mathematical tools behind the analyses are similar, the proposed program in economics differs from each of these in that it will apply modern statistical and analytical techniques of risk management to issues of regional concern such as hazard mitigation and environmental resource utilization. A unique aspect of the proposed program is the measurement and evaluation of non-market risks which arise in these areas. The program is further differentiated from those that concentrate on financial risks in that our foci frequently require the collection of primary data on non-market phenomenon, an activity in which the economics faculty has expertise and for which East Carolina University has a well-developed infrastructure that provides support. There are several other programs nationally which have an environmental/resource or regional focus, such as those at Middle Tennessee and Virginia Tech. However, these programs do not emphasize the analysis of risk and uncertainty or the development of the specialized tools for such analysis. The proposed program will

be a natural extension of the university's existing and continuing commitments in all these areas. Our goal is to develop a program that will achieve national visibility within ten years.

C. Enrollment (baccalaureate programs should include only upper division program majors, juniors, and seniors):
Headcount Enrollment
Show a five-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 (in the case of professional programs) job placement. Indicate how their experiences influenced your enrollment projections.

Before developing our projections, we visited and consulted with the chairs of the economics departments at NCSU, UNCCH, UNCG, and UNCC. The first three have PhD programs in Economics (see above) and shared their experience, providing valuable advice. In particular they emphasized the need to maintain a critical mass of students and not allow too diverse a portfolio of fields so as to maintain course enrollments. The pros and cons of alternate year admissions were also discussed, and we decided to begin with alternate year admissions, requiring tht key courses be offered only every other year, due to current budgetary considerations.

Institution: UNC Greensboro
Program Title: Economics PhD

	2006-07	2007-08	2008-09	2009-10	2010-11
Enrollment	10	11	10	10	10
Degrees-Awarded	N/A	N/A	N/A	1	2

Institution: UNC Chapel Hill
Program Title: Economics PhD

	2006-07	2007-08	2008-09	2009-10	2010-11
Enrollment	94	89	85	84	75
Degrees-Awarded	8	17	13	14	9

Institution: NC State University
Program Title: Economics PhD

	2006-07	2007-08	2008-09	2009-10	2010-11
Enrollment	82	94	93	94	101
Degrees-Awarded	10	6	13	11	10

Institution: Duke University
Program Title: Economics PhD

	2006-07	2007-08	2008-09	2009-10	2010-11
Enrollment	80	81	89	96	N/A
Degrees-Awarded	12	11	11	14	N/A

Use the format in the chart below to project your enrollment in the proposed program for four years and explain the basis for the projections:

	2014-2015	2015-2016	2016-2017	2017-2018
Full-time	7	7	13	13
Part-time	0	0	0	0
TOTALS	7	7	13	13

Please indicate the anticipated steady-state headcount enrollment after four years:
Full-time 15 Part-time 0 Total 15

SCH production (upper-division program majors, juniors, and seniors only for baccalaureate programs)
Use the format in the chart below to project the SCH production for four years. Explain how SCH projections were derived from enrollment projections. (See UNC website for a list of the disciplines comprising each of the four categories.)

Year 1	Student Credit Hours		
Program Category	UG	Masters	Doctoral
Category I			252
Category II			
Category III			
Category IV			

Year 2	Student Credit Hours		
Program Category	UG	Masters	Doctoral
Category I			168
Category II			
Category III			
Category IV			

Year 3	Student Credit Hours		
Program Category	UG	Masters	Doctoral
Category I			396
Category II			
Category III			
Category IV			

Year 4	Student Credit Hours		
Program Category	UG	Masters	Doctoral
Category I			276
Category II			
Category III			
Category IV			

Note that the first 4 years of this program involves only 2 cohorts (a new cohort every other year). Six year enrollment, to the beginning of steady state, is broken down as follows:

Year 1 enrollment: 7 Entering; 0 Continuing; 7 Total; 252 SCH.
Year 2 enrollment: 0 Entering; 7 Continuing; 7 Total; 168 SCH.
Year 3 enrollment: 7 Entering; 6 Continuing; 13 Total; 396 SCH.
Year 4 enrollment: 0 Entering; 13 Continuing; 13 Total; 276 SCH. (3 PhD Degrees)
Year 5 enrollment: 7 Entering; 9 Continuing; 16 Total; 450 SCH. (2 PhD Degrees)
Year 6 enrollment: 0 Entering; 14 Continuing; 14 Total; 294 SCH. (4 PhD Degrees)

The program will admit up to seven students every alternate year; we do not intend to have any part-time students. Six of these will be financed initially by stipends and an additional student may be admitted if fully self-supporting through own or other external funds, not derived through the department or the university. Normal attrition is expected to eventually reduce the size of each entering cohort by about 14% with one student leaving the program in or after the second year. We will aim to admit, in each cohort, at least two in-state students and no more than two foreign students, due to funding considerations. On average, three students of the entering cohort are expected to complete the degree requirements before beginning their fifth year, with two other members of the full cohort completing the degree in the fifth year, and one in the sixth year. Once **steady state** conditions are reached in the **sixth-seventh years** of the program there will be an average of fifteen full-time students, and three graduates receiving the PhD degree per year. Ten required first year courses, 6 of 4 CH each, will generate 36 CH per student. In the second and third years, students each take 8 courses for 24 CH, and in the 4th and beyond, take 9-12 CH of dissertation research (9 used in calculations above).

[A flow chart illustrating annual changes over the first ten years of the program is included in Appendix B starting on appendix page 7.]

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 programs.

NCSU
University of Wyoming
Oregon State
University of Tennessee, Knoxville

2. List other institutions visited or consulted in developing this proposal. Also discuss or append any consultants' reports, committee findings, and simulations (cost, enrollment shift, induced course load matrix, etc.) generated in planning the proposed program.

Consulted: Dr. Donald Dutkowski – Syracuse University;
Dr. Kevin J. Boyle – Virginia Tech University;
Visited: UNC-CH, Dr. John Aiken, (then) Chair of Economics department;
NCSU, Dr. Douglas Pearce, Chair of Economics department;
Also spoke with Director of Graduate Studies, NCSU;
UNCG, Dr. Stuart Allen, Chair of Economics department;
Also spoke with Director of Graduate Studies, UNCG;
UNCC, Dr. Rick Zuber, (then) Chair of Economics department;

B. Admission. List the following:

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

Minimum requirements for ECU Graduate School must be met;
BA or BS degree in Economics or Mathematics is required;
GRE Quantitative score above the 60^{th} percentile;

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

Statement of Purpose;
3 Letters of Recommendation;
GRE Scores;
Official Transcripts from all colleges/universities attended;

C. Degree Requirements. List the following:

1. Total hours required.

82 CH.

2. Proportion of courses open only to graduate students to be required in program (graduate programs only).

94% of courses open only to graduate students; only 2 preparatory courses are open to advanced undergraduates.

3. Grades required.

Students must maintain a 3.0 GPA.

4. Amount of transfer credit accepted.

9 credit hours of the preparatory course work

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

All students must pass (comprehensive) qualifying exams in economic theory and econometrics; after passing qualifying exams, field exams are required in either the applied micro or applied macro fields, and in the risk analysis field. Students are advanced to candidacy upon successful completion of all field exams, a research paper, and successful defense of a dissertation proposal, after the second year. The PhD is granted upon successfully completing the required credit hours with a 3.0 or better GPA, successfully passing both qualifying exams, 2 field exams, and successfully defending a PhD dissertation based on substantial individual research.

6. Language and/or research requirements.

There is no foreign language requirement. All students must complete the Research Ethics course (GRAD 7004). Those whose research involves human subjects must undergo appropriate training and receive prior approval of the institutional review board.

7. Any time limits for completion.
   8 years to defense of the PhD dissertation.

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

Preparatory Courses – 30 s.h. Masters level. Required for students without MA/MS on entering program; may be waived by examination.
ECON 5360. Mathematical Economics (3)*
ECON 5501. Macroeconomic Theory (3)*
ECON 6301. Econometrics I (3)*
ECON 6302. Econometrics II (3)*
ECON 6401. Microeconomic Theory I (3)*
ECON 6402. Microeconomic Theory II (3)*
MATH 5801. Probability Theory (3)*
MATH 6001. Matrix Algebra (3)*
MATH 5101. Advanced Calculus I (3)*
MATH 5102. Advanced Calculus II (3)*

NEW
Economic Theory Core – 15 s.h.
ECON 8111. Economic Theory I (4)*
ECON 8112. Economic Theory II (4)*
ECON 8211. Macroeconomic Theory (4)*
ECON 8411. Risk Analysis I (3)*

Econometric Theory Core – 7 s.h.
MATH 6802. Statistical Inference (3)*
ECON 8310. Advanced Econometrics (4)*

Research – 8-13 s.h.
GRAD 7004. Research Ethics for a Complex World (2)*
ECON 8350. Applied Research Methods (3)*
ECON 8901. Research Workshop – (1-6)*

Risk Analysis Field (required) – 6 s.h.
ECON 8412. Risk Analysis II (3)*
ECON 8413. Risk Analysis III (3)*

Fields (Choose one area) – 6 s.h.
Applied Microeconomics Field
- ECON 8510. Applied Welfare Analysis (3)
- ECON 8540. Environmental and Resource Economics (3)
- ECON 8620. Labor Economics (3)
- ECON 8650. Health Economics (3)
- ECON 8720. Industrial Organization (3)

Public Health Economics Field
- ECON 8660. Public Health Economics I (3)
- ECON 8670. Public Health Economics II (3)

Applied Macroeconomics Field
- ECON 8212. Macroeconomic Theory II (3)

ECON 8241. Applied Macro I (3)
ECON 8242. Applied Macro II (3)

Seminars – 1-4 s.h.
ECON 8951. Doctoral Seminar (1)*

Dissertation Research – 9-18 s.h.
ECON 9000. Dissertation Research (3-9)*
ECON 9001. Dissertation: Summer Research (1)

Description of New Courses:

ECON 8111. Economic Theory I (4)
Fundamental models and methods of economic analysis: theory of choice; consumer and producer behavior; behavior under uncertainty; general competitive equilibrium, welfare, and efficiency; equilibrium with uncertainty.

ECON 8112. Economic Theory II (4**)**
P: ECON 8111. Further develops fundamental models and methods of economic analysis: elements of game theory; imperfect competition; analysis of market failure; problems of incomplete and asymmetric information; welfare economics, social choice and incentives, and mechanism design.

ECON 8211. Macroeconomic Theory I (4)
P: ECON 5501 or equivalent. Foundations of macroeconomic behavior and analysis: household's choice problem, growth models, and real business cycle models.

ECON 8212. Macroeconomic Theory II (3)
P: ECON 8211. Analysis of business cycles using canonic positive macroeconomic models; disequilibrium macroeconomic dynamics; normative analysis of monetary and fiscal policy using macroeconomic models.

ECON 8241. Applied Macro I (3)
P: ECON 8211. Development of the models and statistical techniques used to study time series data with a special emphasis to applications in macroeconomics.

ECON 8242. Applied Macro II (3)
P: ECON 8241. Development of the econometric tools necessary for advanced research in financial risk analysis.

ECON 8310. Advanced Econometrics (4)
P: ECON 6302; MATH 5102, 6802; or equivalent. Development of asymptotics and advanced estimation techniques.

ECON 8350. Applied Research Methods (3)
P: ECON 8310. Application of econometric techniques including limited dependent variable models, panel data estimators, instrumental variables estimators, and spatial econometric models.

ECON 8411. Risk Analysis I (3)
P: ECON 8011, 8012; MATH 5102, 5801. Foundations of risk analysis; modeling risk and uncertainty; choice in the face of risk – expected utility analysis; extensions of expected utility; models of choice under uncertainty, incomplete information/knowledge, and/or ambiguity; dynamic models of decision making and the resolution of uncertainty, ambiguity, and/or risk.

ECON 8412. Risk Analysis II (3)
P: ECON 8411. Analysis of models most relevant to natural hazards risks: non-expected utility, decision-making models; behavioral models of decision-making in the face of risk, ambiguity, true uncertainty; models of natural hazards and environmental risks and their applications.

ECON 8413. Risk Analysis III (3)
P: ECON 8412. Explores frontiers of theoretical and applied research particularly with regard to market and regulatory risk: models of financial risk and their applications; models of risk and uncertainty in a regulated domain; government intervention to manage financial and natural hazard risk; risk policy and regulation evaluated in short and very long time scales.

ECON 8510. Applied Welfare Analysis (3)
P: ECON 8112. Theory of normative models for applied welfare economics and their application to public

policy.

ECON 8540. Environmental and Resource Economics (3)
P: ECON 8112, 8310. Advanced economic theory of environmental management and policy, treatment of externalities, market and non-market approaches to environmental improvement, sustainable use of resources and non-renewable resources, and economics of climate change.

ECON 8620. Labor Economics (3)
P: ECON 8112, 8350. Modern economic theories and applied methodology on topics related to labor supply, human capital, distribution of earnings, policy, and program evaluation.

ECON 8650. Health Economics (3)
P: ECON 8112, 8350, 8411. Economic analysis of topics related to the production of health and the delivery of health care; analytic survey of important topics in health care, indicating gaps in research, and introducing successful research programs in the field.

ECON 8660. Public Health Economics I (3)
P: ECON 8112, 8350, 8411. Economic analysis of models of health production and the delivery of health care within a public health context.

ECON 8670. Public Health Economics II (3)
P: ECON 8660. Empirical analysis of public health policy issues pertaining to delivery and utilization of health care and their effects on population health and well-being.

ECON 8720. Industrial Organization (3)
P: ECON 8112. Combines the latest theories with empirical evidence about the organization of firms and industries.

ECON 8901. Research Workshop (1)
May be repeated for a maximum of 6 s.h. Equivalent of 1 classroom hour per week. P: Third or fourth year of PhD study; or consent of director of graduate studies. Weekly meetings with faculty mentors to present and discuss research methodologies, and new results in the literature.

ECON 8951. PhD Seminar (1)
May be repeated for a maximum of 4 s.h. Equivalent of 1 classroom hour per week. P: Third or fourth year of PhD study or consent of director of graduate studies. PhD students present work in progress to faculty and fellow students.

ECON 9000. Dissertation Research (3-9)
May be repeated for a maximum of 18 s.h. P: Third or fourth year of PhD study; approval of advisor and director of graduate studies.

ECON 9001. Dissertation: Summer Research (1)
May be repeated. No credit may count toward degree. Students conducting summer research may only register for this course during summer.

IV. FACULTY

A. List the names of persons now on the faculty who will be directly involved in the proposed program. Provide complete information on each faculty member's education, teaching experience, research experience, publications, and experience in directing student research, including the number of theses and dissertations directed for graduate programs. The official roster forms approved by SACS can be submitted rather than actual faculty vita.

Summary information for the Core Faculty is in the table below. Information sheets for each faculty member are in Appendix C starting on appendix page 9.

Roster (Core Faculty)	Graduate Education	Number of Master's, Theses, and PhD Dissertations Directed		
Full Professors		PhD chair	PhD committee	Master's chair
Richard E. Ericson, Chair	PhD University of California-Berkeley, 1979	20	12	5
John Bishop	PhD University of Alabama, 1983		7	9
Andrew Keeler	PhD University of California-Berkeley, 1991	3	15	12
Jamie Kruse	PhD University of Arizona, 1988	14	18	4
Randall E. Parker	PhD University of Kentucky, 1986			
Phillip A. Rothman	PhD New York University, 1990		1	3
Lester A. Zeager	PhD University of Pittsburgh, 1987			1
Associate Professors				
Okmyung Bin	PhD Oregon State University, 2000		3	2
Andrzej Grodner	PhD Syracuse University, 2004			1
Craig Landry	PhD University of Maryland, 2004	2	5	
Haiyong Liu	PhD University of North Carolina-Chapel Hill, 2003	1		
Nicholas Rupp	PhD Texas A&M University-College Station, 2000			1
Assistant Professors				
Mohammad Jahan-Parvar	PhD University of North Carolina-Chapel Hill, 2007			2
Fan-chin Kung	PhD Washington University-St. Louis, 2002			
Xuan Liu	PhD Duke University 2007			

B. Estimate the need for new faculty for the proposed program for 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.

We estimate that three faculty positions are needed. All had been provided by the College prior to budget cuts. Core faculty teaching responsibilities will adjust to accommodate the PhD courses needed for the proposed program. Most faculty will be involved in both the undergraduate and graduate teaching with some of the time and effort shifting from master's level courses to PhD level courses. We expect that as the resource allocation is shifted from the MS to PhD program the student demand will also shift proportionately towards PhD level courses.

Some of the workload for undergraduate instruction will be absorbed by qualified graduate student assistants and new faculty hires. Graduate student assistants, under supervision by faculty, will provide additional support for

upper division undergraduate courses. TAs will assist in no more than 2 classes per semester. Upon entering their third year, doctoral students will have training equivalent or in excess of many part-time instructors. Under close supervision, advanced doctoral students will serve as instructors of record in no more than two, and typically in only one, limited-size principles courses per semester. Upon advancement to candidacy, doctoral students will be qualified to teach undergraduate courses, but still limited to no more than two courses per semester. Over time, as the PhD program develops and research productivity supports increases in externally funded research, supported course buy-outs will help fund additional instructors for principles courses.

C. If the employment of new faculty requires additional funds, please explain the source of funding.

Three additional Faculty at the tenure-track or tenured level, beyond replacing 2 positions lost over the past 3 years are required to complete the PhD faculty; both lost positions have already been reallocated to the Department of Economics by Academic Affairs and the Harriot College of Arts and Sciences, and the others will be supported by enrollment increase funds.

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

The addition of a high quality doctoral program will enhance and support the portfolio of departmental activity that includes teaching and course work, university and public service and scholarly research. The interaction of graduate students and graduate faculty creates a synergy that enhances departmental productivity. The term of the relationship between faculty and doctoral students is longer. Doctoral students have sufficient training to contribute materially to the faculty member's research program. As indicated in section B, although PhD students require attention and contact time with core faculty, they will also become qualified to shoulder some of the course load. The successful interaction becomes part of the student's education and hands-on training that makes her/him a more capable experienced scholar.

With the addition of the doctoral program we expect to sustain current public service activity plus increase engagement in new directions consistent with UNC Tomorrow and ECU's response. The focus of this doctoral program on public health, environmental risks and natural resource development provides a natural bridge to public service. Engagement with stakeholders motivated by challenging regional issues such as public health and hazards risk reduction policy is part of the students' training to identify broader impacts of responsive scholarly work.

V.LIBRARY

A. Provide a statement as to the adequacy of present library holdings for the proposed program.
B. State how the library will be improved to meet new program requirements for the next five years. The explanation should discuss the needs for books, periodicals, reference material, primary source material, etc. What additional library support must be added to areas supporting the proposed program?
C. Discuss the use of other institutional libraries.

Library holdings and access to electronic journals and basic data resources were adequate prior to recent cancellations of journal subscriptions and databases. Joyner Interlibrary loan is efficient and able to support specialized needs of the program over the first five years, but restored access to basic economic data, including IMF databases, will be required. Basic PhD-level texts and reference volumes and additional specialized datasets will also need to be acquired, but the cost should be less than $15,000. Once PhD students have reached their third year in the program, it will be highly desirable to subscribe to the Wharton Research Data Services (WRDS) interface to facilitate access to data for graduate student and faculty research; that will cost about $40,000 per year. Half of this will come from the UNC funding model library revenues (see accompanying budget template) and the other half from external grant funds, both IGERT and faculty research grants.

For the faculty actively involved in teaching and research that supports the public health economics field, the holdings of the Laupus Library provide an additional on-site resource.

VI.FACILITIES AND EQUIPMENT

A. Describe the facilities available for the proposed program.

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.
C. Indicate any information technology needed and/or available.
D. Indicate sources of financial support for any new facilities and equipment.

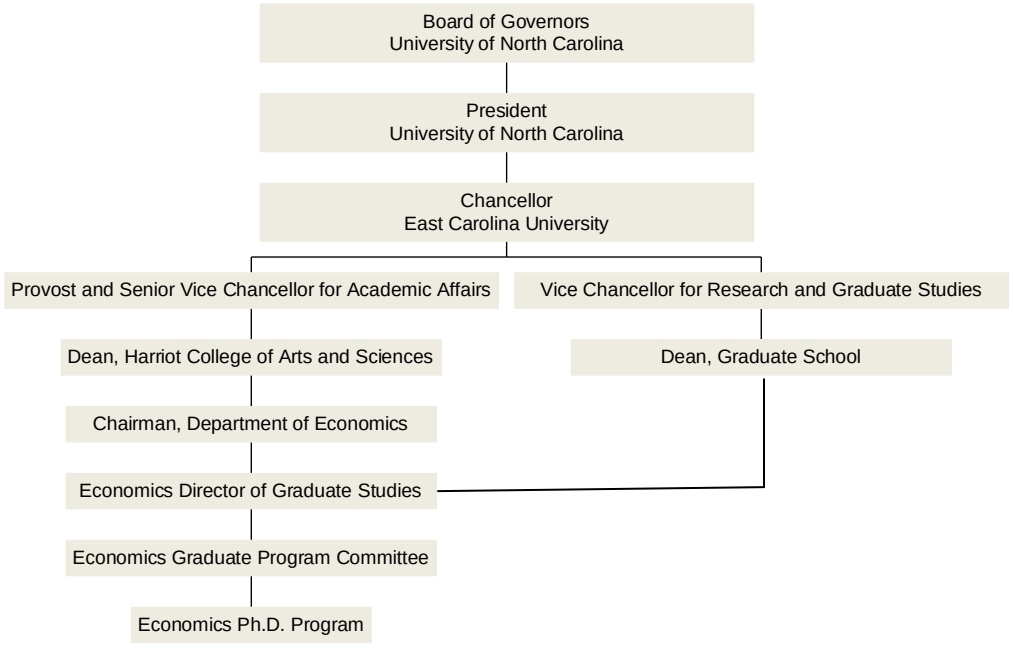
The Department currently utilizes a mobile instructional computer lab which is equipped and configured primarily for undergraduate teaching and market simulation experiments. Training PhD students will require equipment and software with greater capabilities. The room listed above for a PhD computer laboratory should be equipped with six top-line workstations with appropriate statistical software. Initial cost of the hardware and software will be $8,500 with continuing costs of $2-4,000 per year for software licenses and computers for entering cohorts. We do not anticipate the need for additional mainframe computer resources.

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 proposed PhD program policy will be set by the Economics Graduate Program Committee and implemented by the Department of Economics director of graduate studies under the direction of the chair of the Department of Economics. The program will adhere to the rules laid out by the Graduate School as administered by the dean of the Graduate School.

The following chart illustrates the administrative relationship of the Economics PhD program to the unit, college and Graduate School.



VIII. ACCREDITATION

Indicate the names of all accrediting agencies normally concerned with programs similar to the one proposed. Describe plans to request professional accreditation. If the proposed new degree program is at a more advanced level than those previously authorized or if it is a new discipline division, was SACS notified of a potential "substantive change" during the planning process? If so, describe the response from SACS and the steps that have been taken to date with reference to the applicable procedure.

The economics department is part of the Harriot College of Arts and Sciences. The program will be evaluated along with other East Carolina University graduate programs during the periodic review by the Southern Association of Colleges and Schools.

This proposal does not constitute a substantive change with SACS. No other accreditation applies.

X. ADDITIONAL INFORMATION

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

East Carolina University recently completed an exhaustive self study to support program prioritization. The *University Self-Study Program Prioritization and Recommendations*, released January 16, 2012, formalized a process that scored all departments on three dimensions: productivity, quality, and centrality. The Department of Economics was one of eight departments considered in the top tier. Overall it tied for fourth in the ranking system and within the Harriot College of Arts and Sciences, it ranked second behind the Department of Biology. These summary scores and rankings are indicative of the capacity of the department to support a high quality competitive doctoral program.

XI. BUDGET

Provide estimates (using the attached form) of the *additional costs* required to implement the program and identify the proposed sources of the additional funds required. Use SCH projections (section II.C) to estimate new state appropriations through enrollment increase funds. Prepare a budget schedule for each of the first four years of the program, indicating the account number and name for all additional amounts required. Identify EPA and SPA positions immediately below the account listing. New SPA positions should be listed at the first step in the salary range using the SPA classification rates currently in effect. Identify any larger or specialized equipment and any unusual supplies requirements.

For the purposes of the second and third year estimates, project faculty and SPA position rates and fringe benefits rates at first-year levels. Include the continuation of previous year(s) costs in second and third-year estimates.

Additional state-appropriated funds for new programs may be limited. Except in exceptional circumstances, institutions should request such funds for no more than three years (e.g., for start-up equipment, new faculty positions, etc.), at which time enrollment increase funds should be adequate to support the new program. Therefore, it will be assumed that requests (in the "new Allocations" column of the following worksheet) are for one, two, or three years unless the institution indicates a continuing need and attaches a compelling justification. However, funds for new programs are more likely to be allocated for limited periods of time if at all.

The budget is in Appendix D starting on page 62.

XII. EVALUATION PLANS

All new degree program proposals must include an evaluation plan which includes (a) the criteria to be used to evaluate the quality and effectiveness of the program, (b) measures to be used to evaluate the program, (c) expected levels of productivity of the proposed program for the first four years of the program operation (numbers of graduates), (d) the names, addresses, e-mail addresses, and telephone numbers of at least three persons (six reviewers are needed for graduate programs) qualified to review this proposal and to evaluate the program once operational, and (e) the plan and schedule to evaluate the proposed new degree program prior to the completion of its fifth year of operation once fully established.

Program Evaluation Format

A. Criteria to be used to evaluate the proposed program.
   Student progress toward completion of the degree, including timely completion of the requirements;
   Student learning in terms of their ability to use and extend the knowledge and tools they are acquiring;
   Quality and quantity of research output by students;
   Degrees granted;
   Quantity and quality of placement in jobs.

B. Measures to be used to evaluate the program.
Percentage of students achieving each benchmark toward completion of requirements;
Assessment of learning through qualifying and field examinations;
The number and quality of papers written by the students;
Number of degrees granted;
Number of graduates taking job or post-doc positions; number placed in private or government employment; the quality of academic placements.

C. Projected productivity level (number of graduates):
We anticipate the first graduates with PhD degrees at the end of the fourth year, as was the case with the new Economics PhD at UNCG.

Level	Year 1 2014-2015		Year 2 2015-2016		Year 3 2016-2017		Year 4 2017-2018		Totals
B									
M									
I/P									
D	0		0		0		3		3

(Key: B-Bachelor's, M-Master's, I/P-Intermediate or Professional, D-Doctoral)

D. Recommended consultants/reviewers: Names, titles, addresses, e-mail addresses, and telephone numbers. May not be employees of The University of North Carolina.

John C. Bergstrom
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James Shortle
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Director, Environmental and Natural Resources Institute
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University Park, PA
Phone: 814.865.7657
Email: jshortle@psu.edu

E. Plan for evaluation prior to the fifth operational year.

Prior to the fifth year, only two cohorts of students will have been admitted. Every two years, prior to admitting the next cohort, the graduate faculty will review progress of the prior cohort(s), evaluate the effectiveness of the instruction and the structure of the program in order to improve the experience of succeeding cohorts. In the summer following the fourth year we will review progress of all students in both cohorts carefully for normal progress toward the degree. The first cohort should all be actively involved in writing their dissertations during the fourth year, having successfully completed all examinations and course work, and a defense of a dissertation proposal. Students in the second year should be taking field exams at the end of year four. Evaluation will be based on the degree to which these standards are met, and on maintaining at least 85% of a cohort in good standing after two full years.

XIII. REPORTING REQUIREMENTS

Institutions will be expected to report on program productivity after one year and three years of operation. This information will be solicited as a part of the biennial long-range planning revision.

Proposed date of initiation of proposed degree program: **August 2014**

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

Chancellor: _____

Date: _____

[i] *Occupational Outlook Handbook* (OOH), 2010-11 Edition, http://www.bls.gov/oco/home.htm

[ii] U.S.Office of Management and Budget (OMB), MEMORNDUM M-07-24, "Updated Principles for Risk Analysis," September 19, 2007, http://www.whitehouse.gov/omb/memoranda/fy2007/m07-24.pdf

[iii] Op. cit., p. 3.

[iv] Op. cit., p. 5 (emphasis added).

[v] John J. Siegfried and Wendy A. Stock, "The Market for New PhD Economists in 2002," ***American Economic Review Papers and Proceedings***, May 2004, pp. 272-285. The most recent survey of the job market for new PhD economists reveals that 67% of new PhD economists took academic positions in fall 2006. See "Survey of The Labor Market for New PhD Hires In Economics 2006-2007," Center for Business and Economic Research, University of Arkansas, p. 32, http://www.nsf.gov/statistics/nsf00319/pdf/nsf00319.pdf.