Draft

Request for Authorization to Establish a Master of Geospatial Information Science and Technology at North Carolina State University

North Carolina State University requests authorization to establish a Master of Geospatial Information Science and Technology degree program (CIP 30.0601).

Program Description

The proposed degree, a Professional Science Master of Geospatial Information Science and Technology (MGIST), will prepare professionals from various backgrounds to utilize advanced Geographic Information Systems (GIS) modeling techniques applied to the understanding and management of spatial phenomena (sustainable economic development, disease, emergency planning and response, environmental resources, etc.). The degree will build on NCSU's successful Graduate Certificate in GIS (which is supported by faculty/courses in 18 different departments and eight colleges) and Master of Natural Resources/Spatial Information Systems Option degree. The proposed program will focus on advanced skill development in computational modeling and decision support, as opposed to geography, and will address the growing need for GIS developers and analysts. The 30-hour degree program will emphasize both technical and management skills, and will be delivered in both on-campus and distance formats.

UNC Tomorrow Relevance

UNC Tomorrow Commission Final Report: 4.1.1. UNC should prepare its students for successful professional and personal lives in the 21st Century, equipping them with the tools they need to adapt to the ever-changing world. The use of GIS technology is expanding rapidly as the technique is being applied to an increasing array of issues and problems. The proposed program's curricula of advanced spatial analysis skills and management expertise will position graduates at the top of GIS professions. The program has the potential to develop an elite work force for public agencies and private sector firms as well as the capacity to launch GIS entrepreneurs.

Highlights from UNC-GA Data Template

No comparable master's degree programs are offered by public or private institutions of higher education in North Carolina. In the past three years, NCSU has discontinued one doctoral, one baccalaureate, and eight masters programs, and has established one doctoral, four masters, and five baccalaureate programs.

Outcome of Consultation with Disciplinary Panels

The panel included faculty members from ECU in addition to the NCSU faculty presenters. Overall comments and discussion were quite positive, with agreement on the need for this degree program. Panel members made thoughtful suggestions for ways to strengthen the program, and NCSU agreed to consider implementing these suggestions.

Student Demand

With little or no advertising NCSU's current master's degree program in Natural Resources/ Spatial Information Systems has graduated over 100 students. The Graduate Certificate Program has graduated over 150 students with 50 more in process. NCSU's introductory GIS course is fully enrolled with more than 100 students each semester. Faculty members receive multiple requests per week from students seeking information on this proposed program. GIS is one of the few areas that students are finding employment even in the current depressed economy.

Opportunities for Graduates of the Program

In the Spring of 2008, the Center for Urban Affairs and Community Services at NCSU conducted an environmental scan to assess the feasibility of developing the proposed program. The environmental scan included a review of the GIS job market and graduate-level and certificate programs in the U.S. Results of the scan document the very high demand for GIS professionals in a wide range of positions and the need for advanced educational programs in geospatial science and technology. The job market for individuals with GIS development and analytic skills is excellent and growing, as highlighted in recent national publications (Gewin, 2004). The U.S. Department of Labor currently identifies the Geospatial Technology sector as one of 14 high growth industries in dire need of new professionals; this sector has been targeted with special funding to develop the workforce.

Resource Implications

Resource needs: No new courses, faculty, facilities, or library resources are needed to implement this proposed degree program. It is anticipated that by its fourth year, the program will enroll 15 full-time and 45 part-time students. NCSU states that the program will be funded with existing resources and those generated through distance enrollments.

Resources allocated: Existing courses, faculty, facilities, and library resources will be utilized to implement the proposed degree program. The program is being planned and developed with funds from NCSU's DELTA (Distance Education and Learning Technology Applications) office. In addition, the large selection of NCSU-licensed GIS software is fully available within the Virtual Computing Lab allowing universal desktop access to advanced software and GIS data through standard Internet connections for all students.

Estimated cost to the State: By the fourth year of the program, 675 student credit hours (Master's, cost category level 3) could result in a state appropriations request of approximately $391,000.

Recommendation

It is recommended that the Board of Governors approve North Carolina State University's request to establish a Master of Geospatial Information Science and Technology degree program (CIP 30.0601), subject to the availability of funding.

General Information Template for Academic Program Review

Degree Area and Level:

Master of Geospatial Information Science and Technology (CIP 30.0601) at NCSU

Addressing UNC Tomorrow:

This proposed program would address several Recommendations within the UNC Tomorrow Report including the components to enhance our Global Readiness (Recommendation 4.1), Our Health (Recommendation 4.5), and Our Environment (Recommendation 4.6).

Role of Program in Relation to State and Regional Needs:

The 2006 National Research Council report stated, "Geographic information systems (GIS), the global Positioning System (GPS), remote sensing, and other information technologies have all changed the nature of work in the mapping sciences and in the professions, industries, and institutions that depend on them for basic research and education. Today, geographic information systems have become central to the ways thousands of government agencies, private companies, and not-for-profit organizations do business. However, the supply of GIS/GIScience professionals has not kept pace with the demand generated by growing needs for more and improved geographic information systems and for more robust geographic data.

US Labor Department Analysis:

- *Summary* – No summary is provided for this CIP cluster.

Availability of Program Statewide (Enrollment and Degrees Awarded in Last 3 Years):

- *Public universities* – Not available.
- *Private universities* – Not available.

Available or not from Academic Common Market:

Not available.

NCSU Campus enrollment and degrees awarded in similar programs at the Masters level:
(Based on two CIP digits – 30 CIP is the summary group for Multi/Interdisciplinary Studies under which Geospatial Information Science and Technology is a program)

Enrollment			Academic Year						
			Fall 06	Spr 07	Fall 07	Spr 08	Fall 08	Spr 09	Fall 09
NCSU	Nutrition Sciences	M	N/A	N/A	N/A	N/A	N/A	N/A	6
		MS	10	10	9	9	10	5	1
	Multi-/Interdisciplinary Studies, Other	MS	21	21	33	30	37	34	37

Number of Degrees Awarded			Academic Year		
			2006-2007	2007-2008	2008-2009
NCSU	Nutrition Sciences	M	3	3	2
		MS	1	2	5
	Multi-/Interdisciplinary Studies, Other	MS	9	11	17

Campus Average of enrollment and degrees awarded in this degree area at the Masters level:
(Based on two CIP digits – 30 CIP is the summary group for Multi/Interdisciplinary Studies under which Geospatial Information Science and Technology is a program - over the last 3 Academic Years, Fall 2006-Fall 2009)

Campus Average			
	Number of Active Programs	Enrollment per Semester	Degrees Awarded per Year
ASU	1	10	5
ECU	1	32	7
NCSU	2	20	9
UNCC	2	47	13
UNC-CH	2	30	13
UNCG	2	20	8
UNCW	1	9	1
WCU	1	1	N/A
Campus Average:		21	8

NCSU Campus Degree Programs added in the past three years:
- *Bachelor*
  - BS Agricultural Science (06/08/2007)
  - BA German Studies (06/08/2007)
  - BA Leadership in the Public Sector (08/11/2006)
  - BS Bioprocessing Science (10/13/2006)
  - BA Design Studies (03/16/2007)
- *Master*
  - MS Analytics (02/09/2007)
  - MAT - Master of Arts in Teaching (10/17/2008)
  - MA Anthropology (08/11/2006)
  - MGIM - Master of Global Innovation Management (01/11/2008)
- *Doctoral*
  - PhD Fisheries and Wildlife Sciences (01/12/2007)

NCSU Campus Degree Programs discontinued in past three years:
- *Bachelor*
  - BS Health Occupations Education (03/20/2009)
- *Master*
  - MS Agricultural and Resource Economics (03/20/2009)
  - MEd in Special Education, Behavior Disorders (03/20/2009)
  - MS Behaviorally/Emotionally Handicapped (03/20/2009)
  - MEd Mentally Handicapped (03/20/2009)
  - MS Mentally Handicapped (03/20/2009)
  - MEd Specific Learning Disabilities (03/20/2009)
  - MS Specific Learning Disabilities (03/20/2009)
  - MS School Psychologist (05/11/2007)
- *Doctoral*
  - PhD School Psychologist (05/11/2007)