

## **Graduate Certificate in Geographic Information Sciences (GISci) in Environmental Life Sciences**

### **Part 1: Catalog:**

**Name of Department:** Biological Sciences

**Title of Certification Program:** Graduate Certificate in Geographic Information Sciences (GISci) in Environmental Life Sciences

#### **Certificate Program Mission:**

The professional workforce in the environmental sciences expects a certain amount of training in the geographic information sciences (GISci) to allow for the collection, processing and interpretation of spatial data. According to the U.S. Bureau of Labor Statistics (BLS), job placement in the environmental life sciences will be highest for those with graduate work and GIS training (U.S. Bureau of Labor Statistics *Occupational Outlook Handbook, 2010-11*, available at <http://www.bls.gov/oco/ocos311.htm>). Eastern Illinois University has been a leader in interdisciplinary GISci and has the expertise to provide this training. The mission of the GISci Certificate Program is to provide individuals who hold a Bachelors degree in the environmental life sciences with the requisite knowledge-base to be proficient in GISci. Specifically, the certificate will allow individuals to be competitive in both the job market as well as in admission to higher-level degree programs.

#### **Certificate Admission Requirements:**

To be eligible for admission to the GISci Certificate Program, applicants must meet all of the requirements for admission to the Graduate School (see "Admission to Graduate Degree and Certificate Programs") and the Department of Biological Sciences Graduate Program (<http://castle.eiu.edu/bioscigr/>).

#### **Degree Audit:**

A Bachelors degree in Biological Sciences or closely related field.

#### **\*Certificate Course/Curriculum Requirements:**

*A.) Students in the program must complete the following core courses. Credits: 6.*

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- GEG 5810 – Geographic Information Systems I. Credits: 3
  - GEG 5850 – GPS: Mapping the Modern Way. Credits 3

*B.) Students in the program must complete 12 hours in the following elective courses to fulfill credit requirements. Credits: 12. Up to 6 credits may come from GEG. Maximum of 6 at the 4750-4999 level will apply.*

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- BIO 4820 – Spatial Analysis for Environmental Sciences. Credits: 4

- BIO 4840 – Resource Management and Environmental Assessment. Credits: 3.
- BIO 5380 – Landscape Ecology. Credits: 3
- GEG 5820 – Remote Sensing I. Credits: 3
- GEG 5870 – Remote Sensing II. Credits: 3
- GEG 5830 – Building Geodatabases. Credits: 3
- GEG 5860 – Geographic Information Systems II. Credits 3

\* If students have equivalent courses from their undergraduate degree programs, alternative GISci courses may be taken instead upon approval of the Biological Sciences Graduate Coordinator.

### **Courses Applicable Toward a Specific Concurrent or Future Degree**

**Program:** Courses in this program may be counted toward an MS in Biological Sciences with permission of graduate students' committee.

## **Part II: Rationale:**

### **Program Rationale and Justification:**

In 2011, Provost Lord established the EIU Geographic Information Sciences (GISci) center which was approved by the University Board of Trustees in January 2012. The mission of the GISci center is to provide students with an opportunity to attain a level of proficiency in GISci and to effectively merge into the professional and academic GISci community through a comprehensive and dynamic understanding of the methods and procedures necessary to perform advanced thematic mapping and spatial analysis across disciplines. The GISci Center with facilities in both Geology/Geography and Biological Sciences, provides the necessary hardware, software, geographic data, and methodological framework for the campus community. We have used the GISci Center as a recruitment tool for the Graduate Program in Biological Sciences, and in fact, many students have taken all or a large majority of the courses outlined above in their graduate curriculum. Formalizing the GISci Graduate Certificate will benefit future students by recognizing their education and training in GISci and providing additional incentive for students to complete the sequence of courses making them more competitive in their future endeavors. This type of GISci Certificate is extremely desirable in the environmental workforce.

**Impact on Existing Programs:** The GISci Certificate Program will provide another means for the GISci center to quantify impact on the EIU campus community. The Department of Biological Sciences will benefit from the GISci Certificate by utilizing it as a tool to recruit students to the M.S. program.

**New Courses Required for the Certificate Program:** No new courses need to be introduced in support of the GISci Certificate Program. Both Geology/Geography and Biological Sciences have the faculty to support the GISci Certificate Program.

**Number of Students Expected to Enroll Each Year:** Since Geology/Geography does not have a graduate program, enrollments listed below represent almost exclusively students from the graduate program in Biological Sciences. Recently, (AY 11/12) the Professional Science Master's (PSM) in GISci has been established through the MSNS program and has approximately 4 students. PSM students will add to enrollment over time, but are not represented in the numbers presented below. It is expected that these enrollments will slowly increase over time with the programs discussed above and as a recruitment tool for graduate study in the Department of Biological Sciences. Both Geology/Geography and Biological Sciences have the faculty to support this effort.

Course #	Course Name	AY 03-04	AY 04-05	AY 05-06	AY 06-07	AY 07-08	AY 08-09	AY 09-10	AY 10-11	AY 11-12
GEG 5810	Geographic Information Systems I						10	7	10	13
GEG 5820	Remote Sensing I						2		1	3
GEG 5860	Geographic Information Systems II						3	2	2	8
GEG 5870	Remote Sensing II								1	2
BIO 4820	Spatial Analysis			17			9			12
BIO 4840	Resource Management				6	13		22		
BIO 5380	Landscape Ecology	12		11		10		7		

**Department Contact:** Drs. Karen Gaines (Chair) and Jeffrey Laursen (Graduate Coordinator)

### **Part III: Approvals:**

**Geology-Geography Department: March 7, 2012**

**Biological Sciences Department: April 4, 2012**

**College of Sciences Curriculum Committee: April 20, 2012**

**Council on Graduate Studies:**