

Prepared by the Department of Natural Sciences & Life Fitness
Date of Departmental Approval: 2/5/07
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Effective: Fall 2007

1. **Course Number:** ENV164
Course Title: Geographic Information Systems (GIS) II
2. **Description:** The fourth and final course in the GIS certificate is designed to build on the concepts developed in Geographic Information Systems I. This course will proceed through the concepts of GIS in the lecture. Students will choose a project and apply the concepts to the project as the course proceeds. Projects are chosen from many topics in GIS analysis: coastal zone management, hazardous materials management, environmental planning, urban planning, and site assessment.
3. **Student Learning Outcomes (instructional objectives; intellectual skills):**
Upon successful completion of this course, students are be able to do the following:
 - Explain the fundamental concepts of spatial analysis and image processing
 - Use both supervised and un-supervised classification systems to analyze images
 - Perform vector and raster spatial analysis operations in a GIS
 - Conduct georeferencing of image data
 - Use analytical, spatial, and statistical GIS tools
 - Create a simple suitability model using Model Builder
 - Present a final GIS project
4. **Credits:** 3 credits
5. **Satisfies General Education Requirement:** No
6. **Prerequisite(s):** ENV118, ENV160 and ENV163
7. **Semester(s) Offered:** Spring
8. **Suggested General Guidelines for Evaluation:** Exams, Projects
9. **General Topical Outline (Optional):**
 - I. Fundamental Data and Spatial Concepts
 - II. Data entry: Digitizing; Supervised Classification; and, Unsupervised Classification
 - III. Vector and Raster Data Handling
 - IV. Georeferencing
 - V. Analytical and Spatial GIS Tools
 - VI. Statistical GIS Tools
 - VII. GIS Modeling
 - VIII. Project Presentations