

## **GEOGRAPHICAL INFORMATION SYSTEMS**

The Department of Physical and Earth Sciences offers core courses and an area of concentration in geographical information systems (GIS) within the MPA degree program and supporting courses for the MA with a major in liberal studies. Please refer to the Liberal Studies and Public Administration sections of this *Bulletin* for application materials required, admission requirements, and program requirements these programs.

A graduate certificate in geographical information systems is also available for non-degree students who wish to specialize in the area of geographical information systems. This certificate focuses on the systematic study of map-making and the application of mathematical, computer, and other techniques to the analysis of large amounts of geographic data and the science of mapping geographic information. Upon satisfactorily completing the requirements of a graduate certificate (comprehensive examination not required for graduate certificate), an entry will be made on the student's transcript. A student who completes the graduate certificate in geographical information systems may apply the 15 hours credit toward the MA with a major in liberal studies or the MPA with a concentration in geographical information systems. All course work for the MA and MPA degrees, including the geographical information systems course work, must be completed within six years.

### **APPLICATION MATERIALS REQUIRED FOR A GRADUATE CERTIFICATE IN GIS**

Applicants for the graduate certificate in geographical information systems may be permitted to enroll for one semester of graduate course work while completing all other general application procedure requirements.

Applicants for the graduate certificate in geographical information systems must submit all the following documentation to the College of Graduate Studies, Jacksonville State University, 700 Pelham Road North, Jacksonville, Alabama 36265-1602 to be considered for admission:

1. Completed JSU Graduate Application for Admission ([http://www.jsu.edu/graduate/grad\\_app..html](http://www.jsu.edu/graduate/grad_app..html))
2. Non-refundable \$30.00 application processing fee
3. Official transcripts from the postsecondary institutions awarding the bachelor's degree. (Students who have previously attended JSU do not need to request a transcript from the University.)
4. If English is not the applicant's native language, the applicant is required to submit an official TOEFL score report or an IELTS score report (please refer to page 22 of this *Bulletin*).

## REQUIRED GIS COURSES FOR A GRADUATE CERTIFICATE IN GIS

**NOTE:** Students who have not had undergraduate courses in GIS, or no prior experience in GIS using ESRI software, are required to complete GIS 510 as a prerequisite for the required courses.

**The student must complete the 15 semester hours of required GIS concentration courses listed below:**

- GY 455G Organization and Management of Spatial Systems (3)
- GY 456G Spatial Data Layout and Design (3)
- GY 459G Spatial Data Collection and Management (3)

**Two courses from the courses listed below:**

- GY 453G Analyzing Spatial Networks (3)
- GY 454G Site Location Analysis (3)
- GIS 570 Advanced Topics in Spatial Analysis (3)

### 15 Graduate Semester Hours Required for this Program

## GEOGRAPHICAL INFORMATION SYSTEMS COURSES PREFIX GIS

- 510. Introduction to Spatial Analysis (3).** An overview of geographic information systems and a foundation in map coordinate systems, map projections, and map scale.
- 570. Advanced Topics in Spatial Analysis (3)(3).** Advanced GIS instruction and work in a variety of topics such as imagery interpretation and classification, surface modeling, spatial manipulation languages, and statistical analysis of spatial data. Can be taken twice for credit.
- 580. Directed Research (3).** (Grade of Pass or Fail only.) Prerequisite: Permission of the instructor.

## GEOGRAPHY

The Department of Physical and Earth Sciences offers supporting courses for the MA with a major in liberal studies. For students majoring in secondary education with a teaching field in social science or general science, supporting courses are offered for the MS.Ed. and the Ed.S. degrees. A graduate degree program is not offered in geography. However, students interested in additional geography courses may enroll in environmental science management courses, and/or geographical information systems (GIS) courses.

### GEOGRAPHY COURSES

#### Prefix GY

- 403G. Independent Study (1)(1)(1).** (Grade of Pass or Fail only.) Permission of instructor required. This course gives the advanced student opportunity to pursue directed research. May be repeated for credit for a total of 3 semester hours.
- 422G. Geographic Views of History (3).** Use of the geographic perspective to examine facets of World, United States, and Alabama history.
- 431G. Topics in Physical Geography (3)(3)(3).** Advanced geographic study of various facets of the natural environment; topic selection varies; see instructor.
- 445G. Topics in Environmental Conservation (3)(3).** Prerequisite: ESC 500 or its equivalent. In-depth examination of various conservation issues. Topic selection varies, see instructor. Examples of the types of topics that could be covered in this course include energy resources, public land management, water or air quality and issues regarding food production. This course may be used to meet degree requirements in the MPA degree with an Environmental Science Management emphasis or in the MA degree with a major in Liberal Studies course work. May be duplicated for credit for a total of six semester hours.
- 453G. Analyzing Spatial Networks (3).** Introduction to topology theory and its employment in GIS network analysis. Emphasis on methods of determining efficient paths, modeling network flows, and creating efficient service areas for organizational entities.
- 454G. Site Location Analysis (3).** Emphasis on evaluating existing site location efficiencies, determining of appropriate point site and area site locations for organizational entities, and analyzing environmental impact analyses using GIS.
- 455G. Organization and Management of Spatial Systems (3).** Fundamental of GIS implementation and GIS management. Consideration in designing organization-wide GIS and the management of both special projects and organization-wide use of GIS.
- 456G. Spatial Data Layout and Display (3).** Fundamentals of map composition and layout, chart creation, data classification, and map design to produce meaningful maps and charts from the results of spatial analysis.
- 459G. Spatial Data Collection and Management (3).** Methods of capturing data, acquiring and importing existing spatial data into geographic information systems, deriving spatial information from remotely sensed data, and storing spatial data.
- 475G. Natural Hazards (3).** An introduction to natural hazards, their causes, distribution and impacts. Focus on human perception, vulnerability and risk analysis.
- 501. Concepts in Cultural Geography (3).** Application of geographical concepts and perspectives to the study of the world's culture regions. (May be used in the social science teaching field with a major in secondary education.)

- 510. Concepts in Earth Sciences (3)(3)(3).** Selected topics in earth science such as atmosphere systems and processes, climatology, landform development, soils and biogeography. See instructor for specific topic(s) each term. (May be used in the general science and social science teaching fields with a major in secondary education.)
- 580. Directed Studies (3)(3).** (Grade of Pass or Fail only.) Prerequisites: Permission of the instructor and approval of the department head.
- 590. Internship (3)(3).** (Grade of Pass or Fail only.) Supervised assignment in an area agency or firm for a minimum of 150 hours.