

FLORIDA STATE COLLEGE AT JACKSONVILLE

COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER: GIS 2040

COURSE TITLE: Fundamentals of *Geographic Information Systems*

PREREQUISITE(S): CGS 1570

COREQUISITE(S): CGS 2542

CREDIT HOURS: 3

CONTACT HOURS/WEEK: 4

CONTACT HOUR BREAKDOWN:

Lecture/Discussion: 3

Laboratory: 1

Other _____:

FACULTY WORKLOAD POINTS: 3.5

STANDARDIZED CLASS SIZE ALLOCATION: 24

CATALOG COURSE DESCRIPTION:

This course introduces the hardware and software components of a *Geographic Information System* and reviews GIS applications. Topics include data structures and basic functions, methods of data capture and sources of data, and the nature and characteristics of spatial data and objects. Upon completion, students should be able to identify GIS hardware components, typical operations, products/applications, and differences between database models and between raster and vector systems.

SUGGESTED TEXT(S): Chang, Kang-tsung. Introduction to Geographic Information Systems. New York, NY: McGraw-Hill 2006. 3rd Ed. ISBN 0-07-282682-7.

Price, Maribeth. Mastering ArcGIS. New York, NY: McGraw-Hill 2006. 2nd Ed. ISBN 0-07-298417-1.

IMPLEMENTATION DATE: Spring Term, 2007 (20072)

REVIEW OR MODIFICATION DATE:

COURSE TOPICS

Rationale: A Geographic Information System (GIS) is a computer-based data processing tool used to manage and analyze spatial information. There are many applications for GIS, including environmental assessment, analysis of natural hazards, site analysis for business and industry, criminal justice, real estate, location analysis, resource management, and land-use planning.

Intent: This course will analyze and develop the fundamental skills necessary for Entry-Level GIS Technicians. Graduates will be able to prepare basic maps with information from various sources.

CONTACT HOURS
PER TOPIC

I. Suggested Distribution:		
A. Introduction		9
1. GIS Applications and Components		
2. History of GIS		
3. Geographically Referenced Data		
4. GIS Operations		
B. Coordinate Systems		9
1. Geographic Coordinate Systems		
2. Map Projections		
3. Projected Coordinate systems		
C. Georelational Vector Data Model		9
1. Georelational Data Model		
2. Feature Representation		
3. Topology		
4. Non-topological Vector Data		
5. Composite Features		
D. Object-Based Vector Data Model		9
1. Object-Based Data Model		
2. Geodatabase Data Model		
3. Interface		
4. Topology Rules		
E. Raster Data Model		10
1. Elements		
2. Types		
3. Data Structure		
4. Data Compression, Structure, and Conversion		
5. Integration of Raster and Vector Data		
F. Data Input		10
1. Existing GIS Data		
2. Metadata		
Creating New Data and Conversion of Existing Data		
G. Exams, Reviews, Summaries		4

PROGRAM TITLE: GIS Technician
COURSE TITLE: Fundamentals of GIS
CIP NUMBER: 0615020200

PERFORMANCE STANDARDS ADDRESSED:

NUMBER(S): TITLES(S):

01.0 APPLY BASIC DRAFTING SKILLS - The student will be able to:

- 01.04 Prepare advanced civil drawings.
- 01.10 Prepare title blocks and other formats.
- 01.12 Compile a portfolio.

04.0 PREPARE CIVIL DRAFTING DRAWINGS - The student will be able to:

- 04.01 Demonstrate an understanding of civil drafting.
- 04.02 Demonstrate a knowledge of surveying fundamentals.
- 04.03 Demonstrate an understanding of mapping scales.
- 04.04 Demonstrate a knowledge of legal descriptions and plot plans.
- 04.05 Demonstrate an understanding of contour lines.
- 04.06 Demonstrate a knowledge of profiles.

06.0 DEMONSTRATE GIS - GEOGRAPHIC INFORMATION SYSTEM - The student will be able to:

- 06.01 Demonstrate a basic knowledge of GIS.
- 06.02 Demonstrate an understanding of Global Positioning Systems.
- 06.03 Demonstrate an understanding of Remote Sensing.



NOTE: Use either the Tab key or mouse click to move from field to field. The box will expand to accommodate your entry.

<i>Section 1</i>	
COURSE PREFIX AND NUMBER: <u>GIS 2040</u>	SEMESTER CREDIT HOURS: <u>3</u>
COURSE TITLE: <u>FUNDAMENTALS OF GEOGRAPHIC INFORMATION SYSTEMS</u>	

Section 2

TYPE OF COURSE: (Click on the box to check all that apply)

<input type="checkbox"/> AA Elective	<input type="checkbox"/> AS Required Professional Course	<input type="checkbox"/> College Prep
<input checked="" type="checkbox"/> AS Professional Elective	<input type="checkbox"/> AAS Required Professional Course	<input checked="" type="checkbox"/> Technical Certificate
<input type="checkbox"/> Other _____		
<input type="checkbox"/> General Education: (For General Education courses, you must also complete Section 3 and Section 7)		

Section 3 (If applicable)

INDICATE BELOW THE DISCIPLINE AREA FOR GENERAL EDUCATION COURSES:

<input type="checkbox"/> Communications	<input type="checkbox"/> Social & Behavioral Sciences	<input type="checkbox"/> Mathematics
<input type="checkbox"/> Natural Sciences	<input type="checkbox"/> Humanities	

Section 4

INTELLECTUAL COMPETENCIES:

<input checked="" type="checkbox"/> Reading	<input checked="" type="checkbox"/> Speaking	<input checked="" type="checkbox"/> Critical Analysis	<input checked="" type="checkbox"/> Quantitative Skills	<input checked="" type="checkbox"/> Scientific Method of Inquiry
<input checked="" type="checkbox"/> Writing	<input checked="" type="checkbox"/> Listening	<input checked="" type="checkbox"/> Information Literacy	<input type="checkbox"/> Ethical Judgment	<input checked="" type="checkbox"/> Working Collaboratively

<i>Section 5</i>	
LEARNING OUTCOMES	METHOD OF ASSESSMENT
• Describe history and importance of GIS.	Test and Writing assignment
• Understanding of various mapping coordinate systems.	Test and Writing assignment
• Using vector and raster data files in creation of maps representing information and its spatial location	Mapping Project
• Data input for various file types to be used in map creation and manipulation.	Mapping Project
• Use software applications to generate maps using different information sources.	Mapping Projects
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Section 6

Name of Person Completing This Form: Patrick Land Date: 10/01/2006