

I. Catalog Description and Credit Hours:

Introduction to concepts, terminology, methods of Geographic Information System (GIS) technology and mapping science. Three hours credit. Two seventy-five minute class meetings per week.

II. Pre-requisites: Junior standing and any BI or BS Living Systems course, CH 181 or 185, and MA 134 or permission of instructor.

III. Course Purpose and Objectives:

To gain a basic, practical understanding of GIS concepts, techniques and real world applications. Class discussions, reading assignments, and class lectures prepare students to develop a mapping project based on the assumptions and interpretations of data selected by the student.

Course Objectives:

At the completion of the course, students will:

- Have a basic, practical understanding of GIS concepts, techniques and real world applications.
- Have an understanding of the technical language of GIS.
- Know how GIS is utilized in the larger context of business needs and IT strategies.
- Understand the basic concepts of geography necessary to efficiently and accurately use GIS technology.
- Understand basic GIS data concepts.
- Have an ability to perform basic GIS analysis of concepts.
- Have demonstrated a practical application of GIS.
- Have practical experience using basic GIS tools.
- Have an understanding of GIS and its relationship to mapping software development.
- Have an appreciation of GIS career options and how to pursue them.

IV. Expectations of Students:

1. To attend and participate in each class. See statement in the Undergraduate Bulletin regarding attendance policies (http://www.semo.edu/bulletin/pdf/2011_Admissions.pdf).

2. To complete all assignments on the due date.
3. To complete a selected mapping project by the assigned due date.
4. To participate in a group mapping project and classroom presentation on the assigned due date.
5. To take three examinations throughout the course.

V. Course Content or Outline:

<u>Topic</u>	<u>Class Hours</u>
Introduction	1
Arc GIS Demonstration	2
Basic Terminology	2
Creating Maps	2
Working in Spatial Data Layers	2
Mapping Scales and Projections	3
Mapping Designs and Production	2
Attribute Data I	3
Attribute Data II	3
GIS Data Mining Techniques	3
Spatial Data Vectors	2
Spatial Data Raster	4
Creating Data	2
Georeferencing Raster Data	3
Spatial Analysis Data III	3
Map Publishing	2
Final Project Preparation and Presentation	3
Examinations	<u>3</u>
	45

VI. Textbook:

Mitchell, Andy (2001). ESRI Guide to GIS Analysis, Volume 1. Geographic Patterns & Relationships. ESRI Press.

VII. Basis for Student Evaluation:

Assignments	20%
Examinations	30%
Final Project and Presentation	<u>50%</u>
	100%