

# Bemidji State University

## GEOG 3231: Introduction to Geographic Information Systems

### A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: \*.\*

Lab Hours/Week: \*.\*

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course develops a proficiency in basic GIS skills for those new to GIS. Techniques for problem solving and cartographic mapping concepts are also introduced, as they are essential to quality cartographic representation and a marketable skill set. This course concentrates on learning to navigate the current version of ArcGIS software at a beginner's level and one developing and creating maps as communication tools.

**B. COURSE EFFECTIVE DATES:** 05/14/2014 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. Issues of Data Integrity
  - Projections and Coordinate systems (the basics)
  - Data Models: Vector and Raster Models
  - Spatial Analysis
  - Vector Overlays
  - Boolean Rasters
  - Digitizing
  
2. Basic Map Design
  - Best Practices in Cartographic Design
  - Demonstrate general knowledge and application of cartographic principles
  - Understand the fundamentals of GIS as a system, as software and as a science
  - GIS Data & Developing, Using and Incorporating Data
  - Understand how to acquire geographical data and utilize it within a GIS
  - GPS Data Downloads
  - Table and Spatial Joins
  - Introduction to and development of Geodatabases
  - Shapefiles to feature classes
  - Domains
  - Project management
  - File management
  - Project Organization
  - Use and Development of Metadata

#### **D. LEARNING OUTCOMES (General)**

1. 9. Students will be able to add cartographic elements to a finished map using best practices (following the rules).
10. Students will build a GIS vocabulary and use it effectively in future GIS courses and elsewhere.
2. 5. Students will learn how to acquire geographic data and utilize it within a GIS including digitizing.
6. Students will be able to import and display geographic data both raster and vector models.
7. Students will be able to determine basic information about imported data (projections and metadata).
8. Students will be able to prepare both simple and complex (bivariate) thematic maps.
9. Students will be able to add cartographic elements to a finished map using best practices (following the rules).
3. 1. Students will demonstrate a general knowledge and application of basic cartographic principles; prepare thematic maps that communicate data effectively.
2. Students will understand the fundamentals of GIS, as a system, as software and as science.
3. Students will demonstrate an understanding of GIS operation at a beginner's level as well as learn some intermediate level skills such as overlays, joins, and geodatabase management.
4. Students will develop a keen understanding of quality project management and organization and use this understanding every day

#### **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

None

#### **F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

#### **G. SPECIAL INFORMATION**

None noted