

**Course Title: Introduction to Geospatial Technology****Course Number** (If applicable): GST 101

**COURSE DESCRIPTION:** Introduction to the fundamentals of Geospatial Technology, including Geographic Information Systems (GIS), cartography, remote sensing, and spatial analysis through a series of lectures and hands-on computer-based exercises. This course is designed to be used as a stand-alone course to complement other disciplines or as an entry level course into a geospatial program. Course content is based upon the United States Department of Labor's Geospatial Technology Competency Model for entry level geospatial occupations including Geospatial or GIS Technicians and Technologists.

**PREREQUISITES:** Basic computer literacy required; college algebra recommended.

**REQUIRED MATERIALS:** ArcGIS Desktop 10.1, MultiSpec.

**ADDITIONAL RESOURCES** (if applicable):

Bolstad, Paul. "GIS Fundamentals: A First Text on Geographic Information Systems". 4<sup>th</sup> Edition. Eider Press.

**LEARNING OUTCOMES/COMPETENCIES:**

1. The student will describe the fundamental concepts of Geographic Information Science and Technology.
2. The student will demonstrate proficiency in the basic functions of geospatial software.
3. The student will demonstrate awareness of fundamental remote sensing and spatial analysis techniques.
4. The student will demonstrate basic proficiency in map creation and design principles, including thematic map display, employment of map projections, and cartographic design.
5. The student will demonstrate proficiency in the creation and acquisition of spatial data.

**COURSE ASSESSMENT:**

**Grading Scale**

<b>Category</b>	<b>Weight</b>
Laboratories	40%
Quizzes	10%
Application Papers	10%
Examinations	40%
<b>Final Grade</b>	<b>100%</b>

<b>Total Points</b>	<b>Percentage</b>	<b>Grade</b>
	90% – 100%	A
	80% - 89%	B
	70% – 79%	C
	65% - 69%	D
	0% - 64%	F

**COURSE SCHEDULE:**

**Note:** This partial example shows a course that combines lecture and lab components.

Module/ Lesson	Module/Lesson Title & description (if applicable)	Learning Objectives	Assignment (w/category & point value)
1.	What are Geographic Information Systems	<ul style="list-style-type: none"> <li>Discuss the geospatial technology industry and its sectors.</li> <li>Describe the major technological systems used within the geospatial industry.</li> </ul>	Application Papers – 10 pts.  Module 1 Quiz – 1.43 pts
2.	Spatial Data Models	<ul style="list-style-type: none"> <li>Identify different types of data and data models used to store and analyze information within a Geographic Information System.</li> <li>Use a GIS application to add and view data.</li> </ul>	Module 2 Lab – 6.67 pts.  Module 2 Quiz – 1.43 pts
3.	Understanding Coordinate Systems	<ul style="list-style-type: none"> <li>Select the appropriate coordinate system using provided metadata to determine spatial reference.</li> </ul>	Module 3 Lab – 6.67 pts.  Module 3 Quiz – 1.43 pts
4.	Displaying Geospatial Data	<ul style="list-style-type: none"> <li>Create cartographic products by applying cartographic principles.</li> </ul>	Module 4 Lab – 6.67 pts.  Module 4 Quiz – 1.43 pts  Exam 1 – 20%
5.	Creating Geospatial Data	<ul style="list-style-type: none"> <li>Create a new Geodatabase to store digitized features.</li> </ul>	Module 5 Lab – 6.67 pts.  Module 5 Quiz – 1.43 pts
6.	Understanding Remote Sensing and Aerial Photography	<ul style="list-style-type: none"> <li>Apply the basic concepts of remote sensing.</li> <li>Interpret true and false color aerial photography.</li> </ul>	Module 6 Lab – 6.67 pts.  Module 6 Quiz – 1.43 pts
7.	Basic Geospatial Analysis Techniques	<ul style="list-style-type: none"> <li>Identify the basic concepts of spatial analysis.</li> <li>Apply basic geospatial analysis techniques.</li> </ul>	Module 7 Lab – 6.67 pts.  Module 7 Quiz – 1.43 pts  Exam 2 – 20%