

<b>GEOG 1890 – Exploring Our World Through Geospatial Technology</b>			
<b>Student Learning Objective</b>	<b>GTCM (2014)</b>		<b>Comments</b>
	<b>Tier Number</b>	<b>Subdivision</b>	
<b>Unit 1: An Introduction to Geospatial Science and Mapping</b>			
Describe Characteristics and appropriate uses of common map projections	Tier 2, Tier 4	2.4: Geography, 4.1: Core geospatial abilities and knowledge (Earth Geometry and Geodesy)	
Describe the fundamental concepts and applications of geographic technologies and their use in collecting, analyzing and displaying geospatial data	Tier 4	4.1: Core Geospatial abilities and knowledge (Data quality, GIS)	
Demonstrate the use of web mapping tools to study and develop possible solutions to real world problems	Tier 1, Tier 3	1.4: Initiative, 3.4: Problem solving and decision making 3.5: Working with tools and technology	
Describe and explain the historical development of GIS&T and how GIS&T helps to solve problems within a spatial context	Tier 2, Tier 3	2.4: Geography (Geographic Perspectives) 2.7: Critical and Analytical thinking, 3.2: Creative Thinking	
Demonstrate basic proficiency in map reading, interpretation, and design principles, including map projections and the geographic grid	Tier 4, Tier 5	4.1: Core Geospatial abilities and knowledge (Earth Geometry and Geodesy, Cartography), 5.1: Positioning and Data Acquisition	
Describe, compare and contrast vector versus raster data models	Tier 4	4.1: Core Geospatial abilities and knowledge (GIS)	
Analyze the relationship between scale and the level of geographic detail in representation	Tier 2	2.4: Geography (Geographic Perspectives)	
Describe the scientific method, including the foundation of a problem, the collection of data through observation and experiment, and the formulation and testing of a hypothesis	Tier 2	2.5: Science and Engineering (Scientific Method)	
<b>Unit 2: Sources of Spatial Data, GPS, and Spatial Analysis</b>			
Describe the fundamental concepts and applications of remote sensing and global positioning systems	Tier 2, Tier 4	2.4: Geography (Geographic Skills), 4.1: Core Geospatial abilities and knowledge (Positioning systems, Remote sensing and photogrammetry)	
Describe and demonstrate how to access different sources of data, describe the process for creating data and discuss the fundamental concepts of data quality, topology and uncertainty	Tier 4, Tier 5	4.1: Core Geospatial abilities and knowledge (Data quality), 5.1: Positioning and Data Acquisition	
Identify, explain, and interpret spatial patterns and relationships, such as how places are similar and different, the nature of transitions between places, and how places are linked at local, regional and /or global scales	Tier 2	2.4: Geography (Geographic Perspectives)	
Describe the use of overlaying, buffering and basic spatial statistics to analyze the spatial relationships of geographic features.	Tier 5	5.2: Analysis and Modeling	
Explore the concept of augmented reality and its relationship to location-based services	Tier 5	5.2: Analysis and Modeling (Organizational and institutional aspects)	Seems difficult to implement, however would be interesting.
Explore the capabilities of mobile devices for map making geographic information systems.	Tier 5	5.2: Analysis and Modeling (Organizational and institutional aspects)	
Demonstrate the ability to use geographic technologies in collecting, analyzing and displaying geospatial data	Tier 5	5.1: Positioning and Data acquisition, 5.2: Analysis and Modeling	
<b>Unit 3: Remote Sensing and Image Analysis</b>			
Discuss and demonstrate different techniques of image processing image analysis and image interpretation	Tier 4	4.1: Core Geospatial abilities and knowledge (Remote Sensing and photogrammetry, Geospatial Data)	
Explain the difference between active and passive sensors, citing examples of each and how they are deployed	Tier 4	4.1: Core Geospatial abilities and knowledge (Remote Sensing and photogrammetry, Geospatial Data)	

Describe the fundamental concepts and applications of remote sensing and global positioning systems	Tier 4	4.1: Core Geospatial abilities and knowledge (Remote Sensing and photogrammetry, Geospatial Data)	
Discuss the techniques that support real time acquisition and distribution of geographic information.	Tier 5	5.1: Positioning and data acquisition (Critical work functions)	
<b>Unit 4: Principles of Cartography, visualization, and the future of geospatial technology</b>			
Describe and provide examples of how geospatial technologies are being applied in the areas of transportation, the environment, local government, disaster managements, business and other areas	Tier 4, Tier 5	4.1: Core Geospatial abilities and knowledge (Cartography visualization, GIS) 5.2: Analysis and Modeling (Critical work functions, Organizational and Institutional aspects)	
Demonstrate how the selection of data classification and/or symbolization techniques affects the message and visual meaning of thematic maps	Tier 4, Tier 5	4.1: Core Geospatial abilities and knowledge (Data Quality, Cartography, Geospatial data, Cartography and visualization) 5.1: Positioning and data acquisition (Critical work functions)	
Identify allied fields that rely on geospatial technology	Tier 4	4.1: Core Geospatial abilities and Knowledge (Professionalism)	
Explore the capabilities of mobile devices for map making and geographic information systems.	Tier 4, Tier 5	4.1: Core Geospatial abilities and Knowledge (Programming , application development, and geospatial information technology) 5.3: Software and application development (Critical work functions)	
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