

GEO 1710/3710 - Introduction to GIS			
GTCM (2014)			
Student Learning Objective	Tier Number	Subdivision	Comments
<b>Unit 1: Introduction to Geospatial Technology</b>		1.positioning systems, Remote sensing and photogrammetry, and GIS	
Uses of Geospatial Technology and Overview of tools and Software	4		
	NA	NA	This is not really on the model any where. It doesn't seem important enough to get a whole section dedicated to it.
Brief History of Geospatial Technology and Career Resources and Pathways	NA	NA	Again- not on model.
<b>Unit 2: Understanding Spatial Data</b>			
Translating Reality into a Digital World		4 GIS, Data Modeling,	
Sources of Spatial Data: Location and Attribute Data		4 GIS	
Quality of Spatial Data		4 Data quality	This is emphasized most in Tier 5, under the critical work functions. I think that the GTCM model has more details, and is more specific with objectives. The model course descriptions seems to only cover the surface. This is an important to understand section.
<b>Unit 3: Raster and Vector Data Models</b>			GST 102: Unit 1
Students will learn to collect, create, process and analyze spatial data within a variety of environments.	Tier 2, Tier 4	2.4: Geography (Geographic skills) 4.1: Core Geospatial Abilities and Knowledge (GIS)	
Students will apply the appropriate data model to support data as fields or as crisp entities.	Tier 4, Tier 5	4.1: Core Geospatial Abilities and Knowledge (GIS, Data Modeling) 5.2: Analysis and Modeling (Data Modeling)	
Students will be able to select appropriate classification methods for data	Tier 4	4.1: Core Geospatial Abilities and Knowledge (Cartography, Cartography and Visualization)	
Describe and explain the similarities and differences between spatial data models, as well as how data is treated differently within each model to include the conversion of data between different models.	Tier 4	4.1: Core Geospatial Abilities and Knowledge (GIS)	I know that this is a section that I personally have a hard time understanding.
Students will correctly apply concepts of scale using each data model	Tier 2, Tier 4	2.4: Geography (Geographic perspective) 4.1: Core Geospatial Abilities and Knowledge (Cartography,GIS)	This goes with the one above it. Similar topics.
<b>Unit 4: Displaying Geospatial Data - Coordinate Systems</b>			GST 102: Unit 2 & GST 101: Unit 3...The GTCM model only slightly mentions this sections, without much detail. I like the model course covers a lot more in-depth. I think this is another important section pertaining to Remote Sensing that is a biases for understanding other important concepts. This is covered well in Weber's Remote Sensing 1 (GEO3200) course.
Geographic Coordinate Systems: Latitude and Longitude and Datums	4 & 5	Earth Geometry and Geodesy; Critical Work Functions	I think that this is an area where the GTCM model is lacking in. This is important and useful information. The model only really has one, very general section on Remote Sensing.
Map Projections and Datums	4 & 5.1	Earth Geometry and Geodesy; Critical Work Functions	

Students will apply geographic and projected coordinate systems properly	Tier 4, Tier 5	4.1: Core Geospatial Abilities and Knowledge (Earth Geometry and Geodesy, Geospatial Data) 5.1: Positioning and Data Acquisition (Critical Work Functions, Geospatial data)	This is not specifically addressed in the GTCM model. I think that is something good to included in the course.	
Students will be able to troubleshoot datasets for common coordinate system problems	Tier 3	3.5: Working With Tools and Technology (Troubleshooting and Maintenance)	This is another section that is not specifically addressed in the model. This section gets in depth with False color composites and specific band information. I like this section and it is good to have.	
Students will be able to select and defend the appropriate coordinate system for various mapping tasks	Tier 4, Tier 5	4.1: Core Geospatial Abilities and Knowledge (Earth Geometry and Geodesy, Geospatial data) 5.1: Positioning and Data Acquisition (Critical Work Functions, Geospatial Data)		
Demonstrate proficiency with coordinate system management	Tier 4, Tier 5	4.1: Core Geospatial Abilities and Knowledge (Earth Geometry and Geodesy, Geospatial Data) 5.1: Positioning and Data Acquisition (Critical Work Functions, Geospatial Data)	This is very similar to the GIS 2 (4210) final project. This type of project encompasses most aspects of the GTCM model. Identifying a problem, gathering data, and visually representing the information in GIS software. This will included setting up and creating a files. This type of project demonstrates an overall understanding of geospatial software and data.	
Cartography, Cartographic Design and Data Visualization	4 & 5	Cartography; Cartography and Visualization; 5: Cartography and Visualization		
<b>Unit 5: Creating Geospatial Data</b>			GST 101: Unit 4	
How geospatial data can be created from Geocoding	4 & 5.2	Programming, application development, and geospatial info technology; Analysis and Modeling/Critical work functions		
Global Navigation Satellite Systems (GNSS) and Global Positioning Systems (GPS)	4 & 5.1	Positioning Systems; geospatial data; Critical Work functions		
<b>Unit 6: Managing Geospatial Data</b>			GST 101: Unit 5	
Creating, query, and maintaining data and databases	4	GIS; Data Modeling		
<b>Unit 7: Geodatabases</b>			GST 102: Unit 4	
Students will collect, record, develop, and utilize spatial data and databases.	Tier 2, Tier 4, Tier 5	2.8: Basic Computer Skills (Databases) 4.1: Core Geospatial Abilities and Knowledge (GIS, Programming, Application Development, and geospatial Information Technology, Data Modeling) 5.2: Analysis and Modeling (Critical Work Functions)		
Students will employ advanced GDB features including domains and subtypes in developing schemas and organizing data.	Tier 2, Tier 4, Tier 5	2.8: Basic Computer Skills (Databases) 4.1: Core Geospatial Abilities and Knowledge (GIS, Programming Application Development, and Geospatial Information Technology, Data Modeling) 5.2: Analysis and Modeling (Critical Work Functions)		

Demonstrate an understanding of the fundamentals of topology as applied to spatial data.	Tier 4	4.1: Core Geospatial Abilities and Knowledge (GIS, Conceptual Foundations, Data Modeling)		
Students will demonstrate use of the topological editor in identifying and correcting errors in planar topology.	Tier 3, Tier 4	3.6: Checking, Examining, and Recording (Detecting Errors) 4.1: Core Geospatial Abilities and Knowledge (GIS, Conceptual Foundations, Data Modeling)		
<b>Unit 8: Editing Geospatial Data</b>			GST 102: Unit 5	
Students will demonstrate the ability to use editing tools to create, validate and modify geometry.	Tier 3, Tier 4	3.6: Checking, Examining, and Recording (Detecting errors) 4.1: Core Geospatial Abilities and Knowledge (Earth Geometry and Geodesy, GIS, Conceptual Foundations, Data Modeling)		
<b>Unit 9: Metadata</b>			GST 102: Unit 11	
Students will describe the varied aspects of data quality, and identify the principal metadata standards.	Tier 4	4.1: Core Geospatial Abilities and Knowledge (Data Quality, Geospatial Data)		
Students will be able to use editors, templates and other vehicles to develop and maintain metadata	Tier 4, Tier 5	4.1: Core Geospatial Abilities and Knowledge (Data Quality, Geospatial Data) 5.1: Positioning and Data Acquisition (Critical Work Functions, Geospatial Data)		
<b>Unit 10: Data Exploration</b>			GST 102: Unit 3	
Introduction to Queries	Tier 5	5.3: Software and Application Development (Critical Work Function, Analytical Methods)		
Introduction to Joins	Tier 4, Tier 5	4.1: Core Geospatial Abilities and Knowledge (Data Quality, GIS) 5.1: Positioning and Data Acquisition (Critical Work Functions) 5.2: Analysis and Modeling (Critical Work Function)		
<b>Unit 11: Geospatial Project: Acquiring, Mapping, &amp; Managing geospatial and Related Data</b>			GST 101: Unit 8	
Solving a spatial problem at the level of a Geospatial Technician	Multiple areas	multiple areas		
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