GEO 1720/3720 - Geospatial Analysis

	GTCM (2014)		
Student Learning Objective	**Tier Number**	**Subdivision**	**Comments**
Unit 1: Queries and Joins			GST 102: Unit 3
Students will construct SQL and spatial queries to select features.	Tier 5	5.3: Software and Application Development (Critical Work Function, Analytical Methods)	
Students will apply Boolean operators appropriately.	Tier 5	5.3: Software and Application Development (Critical Work Function, Analytical Methods)	Boolean operators is not specifically mentioned in the GTCM
Students will employ queries to identify spatial patterns.	Tier 2, Tier 5	2.4: Geography (Geographic Skills, Geographic Perspective) 5.3: Software and Application Development (Critical Work Function, Analytical Methods)	
Students will successfully use attribute and spatial joins during analysis	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)	The GTCM does not specifically mention joins and relates.
Students will make use of data cardinality to deduce and employ the proper join/relate or spatial join.	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)	
Unit 2: Overlay analysis			GST 102: Unit 7
Students will employ extraction and combination tools among layers to answer geospatial questions.	Tier 4, Tier 5	4.1: Core Geospatial Abilities and Knowledge (Analytical Methods) 5.2: Analysis and Modeling (Critical Work Functions, Analytical Methods)	The model does not even talk about extractions or combinations.
Students will successfully differentiate between and employ union, intersection and erase supporting Boolean analysis and other outcomes.	Tier 4, Tier 5	4.1: Core Geospatial Abilities and Knowledge (Analytical Methods) 5.2: Analysis and Modeling (Critical Work Functions, Analytical Methods)	
Unit 3: Network Analysis			GST 102: Unit 6
Students will construct utility and transportation networks, and apply the appropriate analytical tools for each type of network.	Tier 2, Tier 4, Tier 5	2.4: Geography (Geographic Perspectives) 4.1: Core Geospatial Abilities and Knowledge (Data Modeling, Analytical Methods) 5.2: Analysis and Modeling (Critical Work Functions, Analytical Methods)	
Students will be able to correctly use network specific terminology.	Tier 2, Tier 4, Tier 5	2.4: Geography (Geographic Perspectives) 4.1: Core Geospatial Abilities and Knowledge (Data Modeling, Analytical Methods) 5.2: Analysis and Modeling (Critical Work Functions, Analytical Methods)	
Students will be able to use network analysis to determine service areas.	Tier 2, Tier 4, Tier 5	2.4: Geography (Geographic Perspectives) 4.1: Core Geospatial Abilities and Knowledge (Data Modeling, Analytical Methods) 5.2: Analysis and Modeling (Critical Work Functions, Analytical Methods)	
Unit 4: Map algebra			GST 102: Unit 8
Students will identify and use appropriate overlay tools for raster analysis	Tier 4, Tier 5	4.1: Core Geospatial Abilities and Knowledge (GIS) 5.2: Analysis and Modeling (Analytical Methods)	
Unit 5: Surface Interpolation			
Describe the different methods used to interpolate a surface from a limited number of sample locations.	Tier 5	5.2 (Analysis and Modeling)	
Demonstrate the ability to generate surfaces using different techniques (e.g., IDW, splines, kriging, etc.)	Tier 3, Tier 5	3.4: Problem Solving/Decision Making, 5.2 (Analysis and Modeling)	
Unit 6: Geoprocessing			GST 102: Unit 9
Students will use clip, buffer, dissolve, union, and other vector as well as raster tools in a sequence of operations as part of a GIS analysis	Tier 4, Tier 5	4.1: Core Geospatial Abilities and Knowledge (GIS) 5.2: Analysis and Modeling (Critical Work Functions, Analytical Methods)	
Unit 7: Geospatial Modeling			GST 102: Unit 10

Students will use graphical scripting tool (e.g., ModelBuilder) to build geoprocessing workflows and model analytical processes	Tier 4, Tier 5	4.1: Core Geospatial Abilities and Knowledge (Analytical Methods) 5.2: Analysis and Modeling(Critical Work Functions, Analytical Methods)	
Unit 8: Introduction to Remote Sensing			GST 101: Unit 7
Remote Sensing Imagery: Overview of Concepts	4 & 5.1	Remote Sensing and Photogrammetry; Geospatial Data; Critical Work functions;	
Accessing Landsat and basic concepts	Not in Model	NA	
Use of Landsat for Remote Sensing Visualization and Analysis	Not in Model	NA	
Unit 9: Final project			GST 102: Unit 12
Students will create their own data using electronic methods and solve a problem using geospatial technology from goals and data acquisition to analysis and processing to cartographic presentation and publishing.	Tier 4, Tier 5	4.1: Core Geospatial Abilities and Knowledge (Data Quality, GIS, Geospatial Data, Cartography) 5.1: Positioning and Data Acquisition (Critical Work Functions)	
Geospatial data acquisition course table that maps Student Learning Objectives to corresponding Geospatial Technology Competency Model - 2014 (GTCM) Tier 4/5 competencies and skills.			