GIS 463.001
GIS and Geospatial Analysis
Fall 2019

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Course Description:
GIS 463 GIS and Geospatial Analysis. 3 semester hours. Expanded examination of GIS theory, concepts, technology, and application with focus on geospatial analysis for real-world questions.

Course Objectives:
Geographic Information System (GIS) is a computer system for the management, analysis, and display of geographic information. GIS includes a set of comprehensive tools for working with geographic data. This advanced special problem course expands the tools to include model building and 3D animation. Students will complete a series of modules and work on a term project demonstrating the use of geospatial analysis in the real world.

Program Learning Outcomes:
GIS has become commonplace in a multitude of disciplines. This class applies geospatial technologies for solving real-world problems through model building and simulation.

The course is designed to address the Program Learning Outcomes in understanding the competency of ecology, biology, policy, economics, and administration of forestry and environmental science at intermediate level, as well as understanding the competency of resource measurement, management and oral and written communication skills at advanced level.

Student Learning Outcomes:
Students will demonstrate competency in the fundamentals of GIS in natural resource management. They will learn not only the most common GIS software but also the necessary background to understand how the software package works. As the semester develops, students will understand basic concepts and principles of GIS, apply spatial analytical tools to address questions and solve problems in natural resources. They will also understand professional ethics and demonstrate competency in oral and written communication skills through project preparation and presentation.

Textbook:
Recommended:


Software:
Esri ArcGIS Desktop, ArcGIS Pro, and ArcGIS Online.

Course Outlines:
- Course Overview
- Introduction to GIS
- ArcGIS Overview
- Map Projection and Coordinate System
- Data Display and Cartography
- Vector Data Model and Analysis
- Attribute Data Management
- Geodatabase
- Raster Data Model and Analysis
- Terrain Mapping and Analysis
- Spatial Interpolation
- GIS Modeling

Grading Policy:
- 50% Assignments
- 15% Project
- 15% Midterm Test
- 20% Final Exam

A 90+ %
B 80-89%
C 70-79%
D 60-69%
F < 60%