Syllabus
AGET 782

Course Title: ***GIS for Agricultural and Natural Resources Management***

Course Abbreviation: AGET 782

Course Credits: 3 hours

Instructor: Timothy N. Burcham, P.E., and Ph.D.

Course Description: **AGET 782 (3)** Principles and application of Geographic Information Systems (GIS) technologies with emphasis on the use of GIS for collecting, storing and analyzing spatial data associated with agricultural and natural resource-based enterprises. GIS software techniques are developed using an interactive/inductive learning process. Students will collect and analyze data to complete a research project using GIS to answer questions related to an agricultural or natural resources topic.

Required Text: Mastering ArcGIS, 4th Edition. Author: Maribeth Price. McGraw Hill Co. ISBN: 978-0-007-729332-1.

Grading

Weekly Quizzes	35%
Lit Review Reports	15%
GPS/GIS Term Project	20%
Mid-Term Exam	15%
Final Exam	15%

Grades	
90-100	A
80-89	B
70-79	C
65-69	D
<65	F

Punctuality: Each lecture module and associated assignments will have a definite completion date (as assigned by the instructor). Assignments, formal reports, quizzes, etc. turned in after the posted due date will receive a letter grade deduction per day late.

Term Project: A graduate level term project associated with the application of GIS principles to agricultural and natural resources based problems is required.

Topic Outline

Introduction

What is GIS?

- Concepts
  - What is GIS?
  - A history of GIS
  - What can a GIS do?
  - GIS project management
  - Project case study: A thorny issue
  - Types of GIS projects
  - Planning a GIS project

Example of a GIS proposal

Chapter 1. Introducing ArcGIS

Mastering the Concepts

- Concepts
  - ArcGIS overview
  - Intro to raster and vector data models
  - Data files in ArcGIS
  - Properties of spatial data files
  - Introduction to metadata
  - Overview of the ArcGIS Interface
  - Object properties
  - About ArcCatalog
  - About ArcToolbox
- Summary

Chapter 2. Working with ArcMap

Mastering the Concepts

- Concepts
  - Map documents
  - ArcMap windows and menus
  - The Help System
  - Data Frames
  - Data layer properties
  - Working with symbols and styles
  - Map scale concepts
  - Labeling concepts
- Summary

Chapter 10. Geocoding

Mastering the Concepts

- Concepts
  - What is geocoding?
  - How does geocoding work?
  - Available geocoding styles
  - The geocoding process
  - Setting up an address locator
  - The reference data
  - Adding x-y coordinates
- Summary

Chapter 11. Basic Editing in ArcMap

Mastering the Concepts

- Concepts
  - Editing overview
  - The Editor Toolbar
  - General information about editing
  - Snapping features
  - Creating adjacent polygons
  - Editing features
  - Editing attributes
  - Saving work
- Summary

Chapter 12. More Editing Techniques

Mastering the Concepts

- Concepts
  - Using different sketch tools
  - Changing existing features
  - Combining features
  - Buffering features
  - Topology and shared features
- Summary