[PMGT 5310] GIS FOR PLANNING AND DEVELOPMENT

SPRING 2025

INSTRUCTOR:	Morgan Lowder	**OFFICE HOURS:**	11:00 AM - 1:00 PM T/Th or by appointment
OFFICE:	Rogers Stout Hall, 301B		
CLASS TIME:	Asynchronous	**CLASS ROOM:**	Asynchronous
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COURSE DESCRIPTION

This course provides public administration and policy students with a comprehensive introduction to Geographic Information Systems (GIS) and their applications in public policy, urban planning, and community development. Students will learn the fundamental principles of GIS, including data collection, spatial analysis, and map creation. Emphasis will be placed on using GIS as a decision-making tool for addressing complex societal issues, such as resource allocation, environmental management, public health, and other topics related to planning and development.

Throughout the semester, students will engage in a hands-on project that involves real-world data, enabling them to visualize and analyze spatial information relevant to public administration, policy, and economic development. By the end of the semester, students will be equipped with the skills to leverage GIS technology in their future careers, enhance community engagement, and support evidence-based policy making.

EXPECTED LEARNING OUTCOMES

- ❏ exposure to GIS concepts
- ❏ introduction to data management in GIS
- ❏ experience with developing maps meant for public audiences
- ❏ establish a solid basis of understanding surrounding the role of GIS in public administration and policy development
- ❏ introduction to spatial analysis techniques

REQUIRED MATERIALS

There is one required text for this course: 2nd edition of Mastering ArcGIS Pro. All other readings will be posted online or hyperlinked in this syllabus.

NOTE: This course also includes PC hardware and software requirements.

Required Software: ArcGIS for Personal Use

Required Hardware: ArcGIS Pro requires a PC 64-bit multiprocessor machine with, at minimum, a dual core. It also requires a minimum of 8 GB of RAM and a graphics card with at least 2 GB of RAM and 24-bit display color depth. If you are unsure if your PC can run ArcGIS Pro, you can perform a systems check at this webpage.

Grading Scale and Breakdown

A: 92.5-100; **A-:** 89.5-92.4; **B+:** 87.5-89.4; **B:** 82.5-87.4; **B-:** 79.5-82.4; **C+:** 77.5-79.4; **C:** 72.5-77.4; **C-:** 69.5-72.4; **D+:** 67.5-69.4; **D:** 59.5-67.4; **F:** <= 59.4

Practice Exercises: Each week, starting in Week 2, you will be required to complete and submit practice exercises. These will be graded on the basis of accuracy and effort, and they can be located at the end of each Mastering ArcGIS Pro (2nd edition) chapter. There are a total of 11 practice exercises, but only your 10 highest scores will apply to your overall grade.

The grading scale for practice exercises is as follows:

0 Points: Nothing is turned in.

2 Points: There are significant inaccuracies with the completed practice exercise.

4 Points: There are some inaccuracies, but overall, you completed the practice exercise correctly.

6 Points: The completed practice exercise is fully accurate.

60 Points Total

Semester Project: Students will identify a policy issue, problem, or question facing a city, town, or region of their choosing. They will then attempt to answer or provide greater clarity regarding the nature and impacts of that problem using ArcGIS. This will be accomplished through independent data collection, mapping, and analysis. Additional instructions will be provided as the class progresses.

This project includes the following components and deadlines:

Topic Proposal: Due 2/10. Students will submit a several paragraph-long write up describing the policy issue, problem, or question they want to address, and the city, town, or region in which they want to analyze. The brief write up should also highlight why you have chosen that location to explore your policy topic (try to pick a location where your policy topic is relevant!). This is worth **5 points**.

Data Description: Due 3/10. Students will submit a several paragraph-long write up explaining the data they plan to use for their map and analysis. Explain where you can access your data and whether those data are typically considered vector or raster. This is worth **5 points**.

Map Update: Due 3/31. Students will load their data into ArcGIS, add any additional map features (polygons, lines, etc.), and submit shapefile of their map. **5 points**.

Analytical Approach: Due 4/30. Students will submit a several paragraph-long write up explaining the analytical approaches they plan to use for their project and the reason why they choose those approaches. You may focus on just one analytical approach if you want, or you can choose multiple. It's entirely up to you. This is worth **5 points**.

Completed Project: Due 5/8. Students will compile their previous work and perform their chosen analysis. Students will then provide a two double-spaced page description of the results and their implications. This is worth **20 points**.

40 Points Total

Special Accommodations

If you are an individual that needs or may at some point need accommodations to participate fully in this course, please let me know as soon as possible. Additionally, please make arrangements with ETSU's Disability Services. For additional information, please refer to the following webpage: https://www.etsu.edu/students/ds/

Absences

As an online asynchronous course, there is no formal attendance policy for this class. However, you are expected to review and study each week's course material to perform effectively on the assigned practice questions and semester project.

Overview of Important University Policies

By enrolling in this course, you agree to abide by the University standards and policies listed below:

- Buccaneer Honor Code and Honor Pledge
- Information Technology Code of Ethics
- Academic and Classroom Misconduct
- Plagiarism Policy
- Student Bill of Rights

Academic Integrity

Academic integrity is paramount in this course, and no form of academic dishonesty will be tolerated. Specifically, plagiarism will not be tolerated. Any work that is plagiarized will receive a 0. Cheating, likewise, will not be tolerated.

For a detailed description of the University's policy on what kind of actions constitute a form of academic dishonesty and may be subject to sanction, please refer to the following webpage: https://www.etsu.edu/policies/documents/academic-integrity-and-misconduct.pdf

Course Schedule

Week 1 (1/20-1/26): Course Overview and Software Access Tutorial

Readings:
Syllabus

Assignments:
1) Review Syllabus

2) Submit beginning-of-semester survey

Week 2 (1/27-2/2): Important GIS Concepts

Readings:
Review/Explore/Skim ArcGIS Tutorial Site

Assignments:
1) Browse the ArcGIS online resources and familiarize yourself with the site. Pay special attention to the tutorials that are available.

2) Review Lecture Module on Key Concepts

3) **Make sure to gain access to ArcGIS**

Week 3 (2/3-2/9): What is GIS /Applications for GIS

Readings:
Mastering ArcGIS Pro Chapter 1

Assignments:
1) Complete Chapter 1 Practice Exercises

2) **Topic Proposal** Due (2/10)

Week 4 (2/10-2/16): Mapping Data in ArcGIS

Readings:
Mastering ArcGIS Pro Chapter 2

Assignments:
1) Complete Chapter 2 Practice Exercises

Week 5 (2/17-2/23): Presenting GIS Data

Readings:
Mastering ArcGIS Pro Chapter 3

Assignments:
1) Complete Chapter 3 Practice Exercises

Week 6 (2/24-3/2): Creating, Using, and Applying Map Coordinates

Readings:
Mastering ArcGIS Pro Chapter 4

Assignments:
1) Complete Chapter 4 Practice Exercises

Week 7 (3/3-3/9): Vector Data

Readings:
Mastering ArcGIS Pro Chapter 5

Assignments:
1) Complete Chapter 5 Practice Exercises

2) **Data Description Due** (3/10)

Week 8 (3/10-3/16): Raster Data

Readings:
Mastering ArcGIS Pro Chapter 6

Assignments:
1) Complete Chapter 6 Practice Exercises

Week 9 (3/17-3/23): Spring Break

Readings:
None!

Assignments:
1) None!

Week 10 (3/24-3/30): Tables and Attributes

Readings:
Mastering ArcGIS Pro Chapter 7

Assignments:
1) Complete Chapter 7 Practice Exercises

Week 11 (3/31-4/6): Making Edits and Correcting Topological Errors

Readings:
Mastering ArcGIS Pro Chapter 8

Assignments:
1) Complete Chapter 8 Practice Exercises

2) **Map Update** Due (4/7)

Week 12 (4/7-4/13): Queries

Readings:
Mastering ArcGIS Pro Chapter 9

Assignments:
1) Complete Chapter 9 Practice Exercises

Week 13 (4/14-4/20):Spatial Joins and Overlays

Readings:
Mastering ArcGIS Pro Chapter 10

Assignments:
1) Complete Chapter 10 Practice Exercises

Week 14-15 (4/21-4/30): Raster Analysis

Readings:
Mastering ArcGIS Pro Chapter 11

Assignments:
1) Complete Chapter 11 Practice Exercises

2) **Analytical Approach** Due (4/30)

4) Submit end-of-semester survey (info at end of lecture module)

Week 16 (5/1-5/8): Project Finalization Week

Readings:
Mastering ArcGIS Pro Chapter 12 **(recommended, not required)**
Assignments:
1) **Compile Project and Perform Analysis** (Due 5/8)

NOTE: The above actual dates may be modified due to the requirements of the class. Also, the indicated dates may be moved backward or forward depending on class progress. **Exact dates and instructions will be announced on course webpage**.