CLEVELAND STATE UNIVERSITY
MAXINE GOODMAN LEVIN SCHOOL OF URBAN AFFAIRS,
LEVIN COLLEGE OF PUBLIC AFFAIRS AND EDUCATION

UST 485/585: GIS PRINCIPLES

COURSE OUTLINE
FALL 2023

Class Meetings:	MW 4:00 pm - 5:50 pm	**Instructor:**	Dr. Valencia Prentice
Class Location:	UR 40	**Office Location:**	Urban Affairs, Room 315
Prerequisite:	UST 404/504	**Office Hours:**	W 1:30pm - 3:30pm or by appointment
		Email:	v.prentice@csuohio.edu

Course Description

This course focuses on the principles of Geographic Information Systems (GIS) as a tool to input, display, and analyze geospatial data to solve spatial problems. The basics of geospatial science, including theoretical concepts, data, models, and analytical techniques are covered. Students will learn the characteristics and structure of GIS data, critical components of cartography to design appropriate map output, mapping of spatial data, vector data operation, and methods in spatial analysis. Laboratory exercises incorporate the use of GIS software, with the goal of allowing students to apply the skills learned to different situations and datasets.

Course Objectives

This course integrates lectures, in-class discussions, oral presentations, labs, and other activities to help students achieve the course objectives.

Upon completing this course, students should be able to:

- Explain the history of maps & GIS
- Use maps as information tools
- Define geographic and cartographic concepts
- List basic cartographic principles
- Navigate Internet Mapping Technology (IMT)
- Describe a GIS, its components, and applications
- Demonstrate basic proficiency with QGIS, an open-source GIS platform

Textbook and Supplies

There is no required textbook for this class. Course materials (readings, videos, podcasts, and other media) are provided through Blackboard.

A 10GB flash drive is highly recommended for the software portion of the course. GIS data files are numerous with varying file sizes.

Course Requirements

Grades in this course will be awarded based on your performance during the semester. The grade is determined entirely by a student's scores on the in-class quizzes, exams, assignments, labs and the course project.

Course Grading Breakdown:

Item	**Undergraduate Students**	**Graduate Students**
In-class Quizzes	10%	10%
Midterm Exam	20%	15%
Assignments	10%	10%
Labs	40%	40%
Graduate Student Assignments		10%
Final Project	20%	15%
Total	**100%**	**100%**

In-class quizzes

There will be TEN (10) short in-class quizzes. The quizzes will cover the material presented in class during the previous week. These will be given at the beginning of the class, as indicated on the calendar below. There will be no make-up of missed quizzes except in serious and documented circumstances.

Midterm Exam

There will be ONE (1) exam for this course – i.e., the midterm exam. The exam will cover the reading materials and the classroom lectures presented during the first half of the course. The specific format for the exam will be communicated prior to the exam date.

Assignments and Labs

There will be FIVE (5) assignments and TEN (10) labs for this course. The form of the assignments varies and may include multiple choice questions, short responses, and essays. Lab time will be allotted following the lectures to work on lab assignments. However, labs and the final project may also require time outside of scheduled labs. So, plan ahead!

Graduate students will have two additional assignments to complete for this course. Students are required to read a GIS-focused academic article to understand real-world applications of GIS. Students will type a 2-page summary of the article highlighting the purpose of the article, the GIS methods employed, and the findings and conclusions. In addition, students are expected to present their review to the class as indicated on the schedule below.

Final Project

Students are required to complete a class project which is a real-world application of GIS to problem solving. Additional instructions will be provided later in the course.

Formatting requirements for written work:

- 12-point, legible font
- One-inch margins, double-spaced
- Microsoft Word or PDF file submission

- APA reference style

Final Grade Determination
Final grades for undergraduate students are assigned based on the following grade scale: 92.5 - 100 → A; 90 - 92.5 → A-; 87.5 - 90 → B+; 82.5 - 8 7.5 → B; 80 - 82.5 B-; 77.5 - 80 → C+; 70 - 77.5 → C; 60 - 70 → D; below 60 → F

Final grades for graduate students are assigned based upon the Graduate College grade scale: 92.5 - 100 → A; 90 - 92.5 → A-; 87.5 - 90 → B+; 82.5 - 87.5 → B; 80 - 82.5 B-; 60 - 80 → C; below 60 → F.

Incomplete Grade: A grade of incomplete is only granted to students who have legitimate excuses or crises, and who make requests prior to the end of the course.

An "I" grade can be assigned by the instructor when **all three** of the following conditions are met:

1. The student is regularly attending/participating in the class and has the potential to pass the course.
2. The student has not completed all assignments and has stopped attending/participating for reasons deemed justified by the instructor.
3. The student has made the request for an incomplete prior to the end of the course.

COURSE EXPECTATIONS

A typical class consists of announcements, review of previous class material, introduction of new material (lecture), activity, discussion, or lab time, and expectations for the next class.

Blackboard
Blackboard is a primary source of teaching/reading materials and means of communication between you and the instructor for this course. You will find the course syllabus, required readings, assignments, and lecture notes on the Blackboard site. You will submit your assignments, quizzes and exams to Blackboard. More importantly, students are expected to check Blackboard frequently for course announcements and materials.

Attendance and Participation
Students are expected to attend class and engage in meaningful discussions over the material assigned for the day. It is important that you communicate with the professor prior to being absent, so that you and the professor can discuss and mitigate the impact of the absence on your attainment of course learning goals. Please inform the professor if you are unable to attend class meetings because you are ill, in mindfulness of the health and safety of everyone in our community.

Late Homework and Extra Work
Late submission is strongly discouraged. Late homework will be penalized unless the student has a legitimate excuse or crisis causing the delay in completing work (i.e., illness, family death etc.)

You will lose 5% of your total score if you submit within 48 hours after the deadline. You will lose 10% of your total score if you submit beyond 48 hours after the deadline. Your assignment will not be accepted beyond 7 days of the deadline with no legitimate reasons or no communication with the instructor. Please email the instructor BEFORE the deadline to request any accommodation to waive the late policy.

In most cases, I do not allow students to do extra work (i.e., an additional paper) to improve their grade in the course. This is not fair to other students who are not given the same opportunity.

The Learning Environment

The instructor is strongly committed to maintaining a positive learning environment based on open communication, mutual respect, and non-discrimination. Please give the professor, classmates, and guests the same respect students have the right to expect. The instructor expects students to always be respectful of others in our space. Students do not necessarily have to agree, but students do have to respect the public space and its dialogue. The instructor will not tolerate abuse or insult of any individuals or groups. It is the instructor's right and responsibility to inform students when there is a violation of the rights of others to a respectful, focused, classroom environment.

Original Work and Plagiarism

This class encourages students to work together; therefore, working together where it is clearly indicated is entirely appropriate. However, if you are preparing a written product that will be submitted for evaluation, that product is expected to be the result of your work alone. Where questionable situations arise, always ask the instructor for clarification. The exams, assignments and labs should be the student's own work.

Submitting another person's assignment as your own is considered plagiarism and will be dealt with according to CSU's Academic Misconduct Policy. Also, students must cite their sources where relevant. Failure to use proper citation is also considered plagiarism.

As CSU's guidelines on academic honesty will be enforced in this course, you should familiarize yourself with the policy which can be found at the following website: (https://www.csuohio.edu/sites/default/files/3344-21-02.pdf).

Technical Assistance

For technical assistance with the online Blackboard system, contact CSU Technical Support. Please contact the professor for questions about the material, assignments, or any other concern pertaining to the course material. Email is the best way to reach me. I am always available for questions, suggestions, or other discussions related to GIS topics and/or your educational goals.

Using the software requires practice. You will make mistakes and there will be software glitches. However, as a team, we can provide a lot of help to each other.

ACADEMIC AND PERSONAL SUPPORT SERVICES AT CSU

CSU offers several free academic and personal support services. These services are helpful if

students encounter academic and personal challenges.

CSU Tutoring and Academic Success Center (TASC). TASC offers free academic support for all undergraduate students at CSU. TASC uses research-based strategies and approaches for learning to help students achieve their academic goals and ultimately to graduate. TASC does this in an informal, student-centered environment that assists students to not only achieve academically but to also socially integrate into college life.

The CSU Writing Center. Writing is an important skill for all students, teachers and professionals of every kind. As a student at Cleveland State University, you will find that classes in every discipline use writing to help students explore, create and communicate ideas. Student writing can take many forms, from lab reports to research papers, group projects to journal entries.

CSU Counseling and Academic Success Clinic (CASC). The Counseling & Academic Success Clinic is a free, confidential, supportive counseling and coaching center available to students of Cleveland State University. The clinic provides support and guidance in navigating the typical concerns of today's busy college student. CASC seeks to provide excellent care, guided by identifying the unique strengths of each student, while supporting the development and utilization of positive coping skills to enhance and promote both personal and academic success.

Lift Up Vikes! Resource Center and Food Pantry. Lift Up Vikes! offers a convenient, dignified, and compassionate process through which CSU students are connected to resources that supplement nutrition and other basic human needs as they strive to earn a college degree.

The CSU Community Assessment Response and Evaluation (CARE) Team. The goal of the CARE Team is to work collaboratively to support the wellbeing and safety of students, faculty, and staff, and to promote a culture on campus that encourages reporting of concerns. Care Management may be useful if:

- You want to know more about support services offered at the university.
- You would like information on how to connect with medical and mental healthcare providers.
- You would like to withdraw from your classes for personal or medical reasons and want more information on your options.
- You are feeling stressed about school and finding it difficult to cope.
- Your life outside of the classroom has become more difficult to manage.
- You are feeling overwhelmed and want to find help, but you're not sure where to start.

Students with Academic Accommodations

Educational access is the provision of classroom accommodations, auxiliary aids and services to ensure equal educational opportunities for all students regardless of their disability. Any student who feels he or she may need an accommodation based on the impact of a disability should contact the Office of Disability Services (ODS) at (216) 687-2015. The Office is located in MC 147. Accommodations need to be requested ***in advance*** and will not be granted retroactively. If you have an Accommodation Memo from ODS or would like to discuss another special circumstance, please make an appointment with me to discuss your situation.

Statement from the CSU Office of Institutional Equity

Federal law, including *Title IX*, and University policy require that CSU address discrimination, harassment and sexual violence, and enable students affected by these issues to have the same opportunity to succeed as other students. To do this, the CSU Office for Institutional Equity (OIE) provides information, identifies resources (counseling, medical, advocacy, safety planning), issues academic accommodations (excused absences, extended deadlines, late withdrawals, alternative assignments) and other accommodations (No Contact Directives, changing living arrangements). Any student affected by discrimination, harassment and/or sexual violence and seeking assistance, should contact the Office for Institutional Equity by calling 216-687-2223, sending an email to OIE@csuohio.edu or visiting the CSU Administration Center, 2300 Euclid Ave., Room 236.

Syllabus Change Policy

The instructor reserves the right to make changes to the syllabus as needed.

COURSE SCHEDULE

The instructor reserves the right to make changes to the course schedule as needed.

Week	Date	Topic	Assessment Assigned	Assessment Due
1	August 28	Course Introduction		
1	August 30	GIS Fundamentals	Assignment 1	
2	September 4	Labor Day – No Class		
2	September 6	Geographic Concepts	Assignment 2	Quiz 1 Assignment 1
3	September 11	The History of Cartography	Assignment 3	Quiz 2
3	September 13	Cartographic Design		Assignment 2
4	September 18	Internet Mapping Technologies I	Assignment 4	Quiz 3
4	September 20	Internet Mapping Technologies II		Assignment 3
5	September 25	Spatial Data Models	Lab 1 - Introduction to GIS Software	Quiz 4
5	September 27	Cartographic Principles using GIS - Color and Symbology	Lab 2 - Symbology	Assignment 4

Week	Date	Topic	Assessment Assigned	Assessment Due
6	October 2	Cartographic Principles using GIS - Point, Linear and Area Data	Lab 3 - Symbol Layer Types	Quiz 5 Graduate Student Assignment 1
6	October 4	Classifying Vector Data	Lab 4 - Classification	Lab 1 & 2
7	October 9	Labeling features	Lab 5 - Labels	Quiz 6
7	October 11	Laying out Maps	Lab 6 - Laying out Maps	Lab 3 & 4
8	October 16	Midterm Exam Review		Lab 5
8	October 18	**Midterm Exam**		
9	October 23	GIS for Equity and Social Justice		
9	October 25	GIS for Planning		Lab 6
10	October 30	Exploratory Spatial Data Analysis I		Quiz 7
10	November 1	Exploratory Spatial Data Analysis II	Lab 7 – ESDA	
11	November 6	Databases and Attribute Data Structure	Lab 8 - Table Queries and Joins	Quiz 8
11	November 8	Spatial Queries and Spatial Joins	Lab 9 - Spatial Queries and Joins	Lab 7
12	November 13	Geographic data acquisition		Quiz 9
12	November 15	Geographic data acquisition	Lab 10 - Digitization	Lab 8 & 9
13	November 20	Coordinate Systems and Map Projections		Graduate Student Assignment 2
13	November 22	Project Workday	Assignment 5	Lab 10
14	November 27	Basic Vector Analysis		Quiz 10
14	November 29	Misrepresentation of Spatial Data		Assignment 5
15	December 4	Ethics of Map Making		
15	December 6	Project Workday		Final Project