

CLEVELAND STATE UNIVERSITY
MAXINE GOODMAN LEVIN COLLEGE OF URBAN AFFAIRS

UST 486/586 GIS Methods	Tuesdays, 6PM - 9:50PM
Instructor: Thomas Hilde, PhD CRP, MS CRP, BS Architecture TA: Annie Roberto: a.roberto@vikes.csuohio.edu Tutor: Minkyu Yeom: m.yeom@vikes.csuohio.edu	Office Hours: Wednesdays 1 – 4 pm Lab Hours: Thursdays 5 - 7pm Mondays by appointment via email with Minkyu
Office Location: Levin College, Room 214	Office Phone: 216-687-5383
Class Room: UR Lab, Room 40	Email: t.hilde@csuohio.edu (you can use BlackBoard’s email function)
Prerequisite: UST 485/585 GIS FOUNDATIONS	

COURSE DESCRIPTION

The course focuses on methods to develop and implement intermediate Geographic Information Systems (GIS) modeling and analysis. Students will learn how to solve complex geospatial problems using GIS extensions such as network analysis, spatial statistical modeling, service area analysis, polygon overlay surface modeling, as well as creating and displaying results on a GIS web based site. Laboratory exercises incorporate the techniques of advanced GIS software tools to complete computer-based analytical exercises and how to implement and display results in workplace projects.

COURSE GOALS

This course will provide you with an understanding of the thought process behind a GIS. You should expect to demonstrate the following skills by the end of the course:

Critical Thinking:

- Exposure to the concepts behind *organizing and analyzing data* spatially using a GIS;
- Enhancing skills and techniques to develop descriptive and analytical maps that effectively communicate information;
- Interpreting GIS-generated maps and the results of GIS-derived spatial analysis;
- Connecting GIS with your chosen field of study.

Technical:

- Exploring, testing, troubleshooting, and using ESRI’s ArcGIS software
- Locating, understanding, organizing, and managing data
- Understanding the technical requirements of the hardware, software and web applications

Other Marketable Skills:

- Problem Solving: Strengthening capacity to identify, understand, and analyze spatial phenomenon;

- Project Management: Developing a plan of study using spatial analysis to address a problem from the field of urban and community planning;
- Communication: A coherent, thoughtful presentation of analysis in written, graphic, and verbal formats;
- Collaboration: Working together as a team to accomplish a shared goal.

WHAT TO EXPECT

Our class time is dedicated to everything GIS. A typical class consists of announcements/news, review of readings, discussion of a topic, introduction of new material, and expectations for next class. Some classes may have guest speakers, field work, activities, group work, independent work, videos, web-based activities, or demonstrations. It's also possible that other learning opportunities arise that we can benefit from. You should be prepared to do a lot of reading and writing! A 4 credit hour class requires up to 12 hours of work outside of class time.

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. I will respond to your emails within 24 hours. It is the student's responsibility to ensure that the technology you're using to complete the coursework is functional and available (device, internet access, software used to compose assignments).

Generally, the course follows this outline:

- Review of GIS Foundations topics & tools
- ESRI ArcGIS 10.3 Intensive Labs
- Exploration of other spatial analysis tools and topics
- Final Project

CLASSROOM ENVIRONMENT

This class encourages students to participate and work together. Using the software requires practice supplemented by theories behind its operation. The instructor provides in-class and outside-of-class time to help you understand and provide assistance with homework assignments, provide feedback, or other helpful insight.

TEXT BOOK & SUPPLIES

[Allen, David W. \(2016\). *GIS tutorial 2: Spatial Analysis Workbook for ArcGIS 10.3.x*. Redlands, CA: ESRI Press.](#)

Students will receive a free, one-year student copy of the ESRI ArcGIS 10.3 license for your personal workstation. ** For assistance or problems with the software installation, you must contact ESRI Customer Service.

It is recommended that you have at least 10GBs of space available for data storage via flash drive, portable hard drive, or cloud-based storage for GIS assignments and other relevant data.

GRADING CRITERIA

Your grade will be based on the accumulated points you have earned by the end of the quarter. You are graded on your attendance, timely submission of homework, accuracy of technical assignments, and presentation of a final GIS project.

These course requirements comprise your grade:

- 1) Attendance – Full attendance is expected and taken during lab.
- 2) Reading & Discussion – Additional, non-textbook readings will be provided by the instructor via BlackBoard. Readings assigned should be completed prior to the following class. Participation in class discussions or providing assistance to classmates factors into your grade in cases of borderline grades.
- 3) Homework Assignments – Assignments are provided on BlackBoard and discussed in class. Homework assignments are to be submitted via BlackBoard as PDFs. Points are deducted for submitting homework late at a rate of 1 point per day, beginning at the start of class.
- 4) Final GIS Project – You will choose a topic of interest to you that can be better understood using GIS. Thus, the topic should have a spatial question that you can investigate with your new skills!

Final grades determined with the following weighting:

Attendance: 10%

Readings, Discussion, Participation: 10%

Tutorials & Homework Assignments: 40%

Final Project: 40%

The CSU grading scale is used:

A	92.51 to 100
A-	89.51 to 92.50
B+	87.51 to 89.50
B	82.51 to 87.50
B-	79.51 to 82.50
C+	77.51 to 79.50
C	69.51 to 77.50
D	60 to 69.50
F	< 60

Incomplete Grade: The "I" grade is given when the work in a course has been generally passing, but when some specifically required task has not been completed through no fault of the student.

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

1. Student is regularly attending/participating in the class and has the potential to pass the course;
2. Student has not completed all assignments and has stopped attending/participating for reasons deemed justified by the instructor;
3. The student has notified the instructor prior to the end of the grading period.

SCHEDULE

The following schedule is a guide to what we will cover during the semester. It's possible that other learning opportunities arise that we can benefit from and will be incorporated at the discretion of the instructor. *The schedule is subject to change at any time.*

Week One: Tuesday, 8/29

- Welcome & Course Expectations
- *For next week: Read GIS Article*
- *For next week: Review Chapter 1*

Week Two: Tuesday, 9/5

- Chapter 1: Mapping where things are
- Tutorials 1-1, 1-2, 1-3
- Assignment 1: Exercise 1-3 p. 41
- *For next week: Read GIS Article*
- *For next week: Review Chapter 2*

Week Three: Tuesday, 9/12

- *Assignment 1 Due*
- Chapter 2: Mapping the most and least
- Tutorials 2-1, 2-2, 2-3, 2-4
- Assignment 2: Exercise 2-2 p. 81
- *For next week: Read GIS Article*
- *For next week: Review Chapter 3*

Week Four: Tuesday, 9/19

- *Assignment 2 Due*
- Chapter 3: Mapping density
- Tutorials 3-1, 3-2, 3-3
- Assignment 3: Exercise 3-3 p. 132
- *For next week: Read GIS Article*
- *For next week: Review Chapter 4*

Week Five: Tuesday, 9/26

- *Assignment 3 Due*
- Chapter 4: Finding what's inside
- Tutorials 4-1, 4-2

- Assignment 4: Exercise 4-2 p. 160
- *For next week: Read GIS Article*
- *For next week: Review Chapter 5*

Week Six: Tuesday, 10/3

- *Assignment 4 Due*
- Chapter 5: Finding what's nearby (Part I)
- Tutorials 5-1 through 5-9
- Assignment 5: Exercise 5-5 and 5-8 combo
- *For next week: Read GIS Article*
- *For next week: Review Chapter 6*

Week Seven: Tuesday, 10/10 COLUMBUS DAY - NO CLASS!

- *Final Project Proposal Due*

Week Eight: Tuesday, 10/17

- *Assignment 5 Due*
- Chapter 6: Mapping Change
- Tutorials 6-1, 6-2, 6-3
- Assignment 6: Exercise 6-3 p. 294
- *For next week: Read GIS Article*
- *For next week: Review Chapter 7*

Week Nine: Tuesday, 10/24

- *Assignment 6 Due*
- Chapter 7: Measuring Geographic Distribution
- Tutorials 7-1, 7-2, 7-3, 7-4, 7-5
- Assignment 7: Exercise 7-5 p. 333
- *For next week: Read GIS Article*
- *For next week: Review Chapter 8*

Week Ten: Tuesday, 10/31 (Spooky!)

- *Assignment 7 Due*
- *Final Project Data Log Due*
- Chapter 8: Analyzing Patterns
- Tutorials 8-1, 8-2, 8-3, 8-4
- Assignment 8: Exercise 8-4 p. 379
- *For next week: Read GIS Article*
- *For next week: Review Chapter 9*

Week Eleven: Tuesday, 11/7

- *Assignment 8 Due*

- Chapter 9: Identifying clusters
- Tutorials 9-1, 9-2
- Assignment 9: Exercise 9-2 p. 397

Week Twelve: Tuesday, 11/14

- *Assignment 9 Due*
- *Final Project Draft Maps Due*

Week Thirteen: Tuesday, 11/21

- FINAL PROJECT LAB WORK TIME

Week Fourteen: Tuesday, 11/28

- FINAL PROJECT LAB WORK TIME

Week Fifteen: Tuesday, 12/5

- FINAL PRESENTATIONS

FINAL EXAM WEEK

- *Final papers will not be accepted later than Thursday, December 14, 8 p.m.*

STUDENTS WITH SPECIAL NEEDS

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 at (216)687-2015. The Office is located in MC 147. Accommodations need to be requested *in advance* and will not be granted retroactively.

WRITING ASSISTANCE

Students are encouraged to visit CSUs Writing Center for writing assistance. Call (216) 687-6981 for appointments (Rhodes Tower 124). The Writing Center also provides on-line help; see <http://www.csuohio.edu/academic/writingcenter/index.html> for more information and guidelines.

PLAGIARISM

The CSU Student Handbook describes plagiarism as stealing and/or using the ideas or writings of another in a paper or report and claiming them as your own. This includes but is not limited to the use, by paraphrase or direct quotation, of the work of another person without full and clear acknowledgment.

Minor infractions comprise those instances of cheating, plagiarism, and/or tampering which affect the grade of an individual class assignment or project of lesser (<25% of grade) importance. Multiple instances of minor infractions within a course or across courses constitute a major infraction.

Major infractions comprise those instances of cheating, plagiarism, and/or tampering which affect the overall course grade, such as a major/comprehensive exam, term paper or project, final grade evaluation, or academic standing and status. Major infractions automatically result in an entry on the student's permanent record that the student has engaged in academic misconduct.

Procedures of reporting plagiarism are described on page 18 of the [Student Handbook](#).

RIGHTS & RESPONSIBILITIES

Just like the American democratic process, students and instructors have the right to criticize and question what is being read or heard, without fear of ridicule or threat of retribution. Students and instructors have the right to be treated equally and with respect. Students have the right to be fully informed of course requirements, grading procedures and to receive prompt and helpful feedback on assignments.

Students' first responsibility is to give the instructor, classmates, guests, and communities the same respect students have the right to expect. The instructor expects students to be respectful of others at all times. 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. Students are expected to show up for class regularly, on time, and prepared and focused on the issues of the classroom. Students may be asked to leave a class if their actions or behaviors are distracting other students or the instructor.

It is the instructor's obligation to respect student rights and act in accordance with them. The instructor will treat criticisms and questions with the full respect they deserve, apply rules equally, return graded work promptly, and provide a quality course experience. 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.

The [CSU Code of Conduct](#) is your guide to acceptable and unacceptable behaviors on and off of campus.

SAFETY ON CAMPUS

Students are highly encouraged to utilize CSU's [Safety Services](#), especially when walking on campus after class. The CSU Police Department's Campus Escort Service is free and available by request to escort students to and from their vehicles 24/7 by calling 216.687.2020.