

Geography 225 - Introduction to Geographic Information Systems (FA 2022)

Faculty: Holly Barcus

Lecture: Carnegie 107
MWF 9:40am - 10:40am

Office: Carnegie 104
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Office Hours:
M/W 1:00pm-2:30pm [In-person only];
Tues 10:20am-11:20am [ZOOM ONLY];
<https://tinyurl.com/dp4wynha>
Or by appointment

Lab Instructor: Ashley Nepp

Lab: Carnegie 108
Wed 10:50am -12:20pm
Thurs 9:40am - 11:10am

Office: Carnegie 110
Office Phone: 651.696.6906

Email: anepp@macalester.edu

Office Hours: M 2:30-4:00pm; F 12:30-2:00pm
Drop-ins welcome!
See *google appointment calendar*
for most up-to-date office hours/availability:
<https://tinyurl.com/OfficeHoursNepp>

COURSE DESCRIPTION AND OBJECTIVES

The ability to create, visualize, and analyze spatial data is an increasingly important skill for assessing and understanding our rapidly changing global, regional, and local communities. Maps are the primary medium through which we communicate our knowledge of the spatial world, but are, by design, generalizations of more complex spatial data. In the first part of this course we will explore the principles of map production and geographic concepts that provide a foundation for spatial data analysis. During the second half of the course we will shift our focus to Geographic Information Systems and the development, display, and analysis of spatial data in a digital environment. We will approach each topic conceptually through our lecture sessions and then apply these principles during lab sessions. By the end of this course you should:

- Understand maps and their projections, scale, resolution and accuracy
- Be a more critical map user
- Acquire a basic GIS vocabulary
- Become familiar with the most used features of ArcGIS software
- Learn to solve common geographic problems using a GIS
- Be able to carry-out a GIS project from problem conceptualization to final analyses and interpretation

COURSE READINGS

Required Texts

- Monmonier, Mark. 1991. *How to Lie with Maps*. Chicago: University of Chicago Press

Additional Reading

- See attached reading list

COURSE RESOURCES, REQUIREMENTS & GRADING

Resources: For each class meeting, the lecture slides and assignments will be made available on Moodle immediately following our lecture time. Other resources such as additional readings, web and news links can be found here as well. Please use this site as a resource for studying and exploring varied and interesting dimensions of GIS.

Lecture Exercises and Final Project – Over the course of the semester we will have a series of applied exercises. These exercises will help you utilize the concepts that we are discussing in class in a more hands-on manner. Exercises are designed to allow you to experiment with different techniques and will be discussed during the class period in which it is due. These are graded on a “Check” / “No Check” basis meaning that you get credit for turning them in completed and on time (10 points) and no credit if you don’t turn them in completed and on time (0 points).

Towards the end of the semester, you will complete a final project. In brief, the project consists of four major components: a project proposal, GIS analysis, a story map, and an oral presentation. Details will be forthcoming.

Exams will consist of short answer, essay, and applied problem-solving questions. There are two exams; each exam is 100 points and will cover lecture and lab material.

Final Portfolio. As a culminating experience for your Introduction to GIS, you have a Final Portfolio. Details for this will be announced towards the end of the semester. This assignment is designed to help you reflect on your new GIS skills, your competencies, and your professional qualifications.

Incompletes – Incompletes will be given according to Macalester policy. That means it will be given only to students “who have encountered difficulties beyond their control that have hindered their academic progress.”

Make-up and Late Assignments

- **Exams** – Students are expected to take exams at the scheduled time. If extreme circumstances make it impossible to take an exam at the scheduled time, please notify us as far in advance as possible or as soon as possible after an unanticipated emergency.
- **Lecture assignments** – Late assignments will be accepted for partial credit only.
- **Lab assignments** – Late lab assignments are accepted up until the hard deadlines specified in the course schedule. Late lab assignments will not receive a grade or feedback until the end of term.

Feeling Ill? Need to miss class?

- Ashley and I are here to help you learn. If you're not feeling well, please send us an email and we will work with you to figure out how to keep up with the class. It is very important that we all stay healthy and we trust that if you're not feeling well, it's best to rest and communicate with us as soon as possible.

CLASSROOM POLICIES

Courtesy – The first and most important classroom policy is to *be courteous!* This includes:

- If you arrive late or need to leave early, do so with a minimum of disruption.
- Please turn-off all cell phones, etc. during class.
- Be polite when others are speaking, there is enough time to discuss all perspectives.

Course Information – A fair amount of course information will be disseminated via Moodle and email. Please be sure to check your Macalester email account and the course Moodle page regularly.

Lab Hours – Lab time will be used to demonstrate cartographic and GIS applications using ESRI's ArcGIS Pro 2.8 software as well as allow you time to begin your weekly assignment. Lab Assistants will be in the lab during certain hours to help you. The lab schedule will be posted on the Intro GIS Moodle page and outside the door of the lab.

Lab Rules – While working in the computer lab, please

1. do not to bring FOOD or BEVERAGES into the lab; beverages in containers must be kept closed while in the lab
2. work only on the C: drive; save frequently, and backup your work to the H: drive or other cloud storage so it is always accessible to you when you need it
3. preserve original data files (i.e. you will copy any GIS data into your personal workspace)
4. print only maps on the color printer (no written assignments or lecture exercises – these can be printed in the library)
5. obtain permission from Ashley before downloading files and/or programs to the computer

6. silence your cell phone while working in the lab

Office Hours – Office hours provide a great opportunity to discuss questions, issues, or concerns about the class or to just talk about GIS. Feel free to stop by during office hours or schedule a different time to meet, if your schedule conflicts with the posted office hours.

Attendance – Attendance plays an essential role in learning; you are warmly invited, encouraged, and expected to attend all class meetings (whether in-person or virtual). Attendance will be important not only for your learning, but also for our ability to build a community together and maintain a sense of connection and commitment to one another and foster understanding across a range of perspectives. Your presence in class matters.

We recognize that there are unavoidable circumstances that sometimes make it impossible for you to attend class. Although we hope it isn't the case, those unavoidable circumstances may be more common during this time given that we are in the midst of a pandemic. If you will not be in class for any reason, it is your responsibility to inform us in advance via email (please include both instructors on the email). It is also your responsibility to make up work you missed in your absence. If you have accommodations, please discuss these with us early in the course to work out a plan that aligns with maintaining course expectations and learning goals.

As instructors, we usually take attendance simply to keep track of who is regularly attending. Our experience is that students who attend regularly are better equipped to successfully wed the conceptual and theoretical components of GIS with the applied technical requirements.

The lab section of this course also meets regularly. Most of the material covered in lab is not easily made up if you are absent. If you miss a lab period you are required to meet with Ashley within a week of the absence. If you are absent from lecture or lab for any reason, please realize that it is your responsibility to obtain the information you missed.

Participation - Participation is distinct from attendance and is also an essential part of this course. In-class discussions (in-person or via Zoom), online discussion forums, responses to brief ungraded writing assignments, etc. will be factored into your participation grade. Engaging with the (real and virtual, synchronous and asynchronous) classroom space — including by helping to create an environment where all of us can learn and think well about one another — will also be factored into participation.

It is important to remember that we all have different styles of expression. If you have not been able to participate in a class discussion for any reason but want to demonstrate your active engagement, please send us an email after class with a comment or an idea you had that you would have liked to share, but were not able to during class.

This is an interactive course. Our days will be mostly oriented around in-class exercises and discussions. In this class we define participation as attending class regularly and on-time, asking questions, contributing to discussions, being prepared (this means doing the readings and exercises before coming to class) and generally being intellectually engaged in the material.

3 Questions: Asking questions following in-class presentations or guest lectures is an acquired skill. Such skills only improve with practice. 3 Questions challenges you to think about the questions you have about a presentation in this classroom. Questions can come in a variety of forms, for example, asking for clarification, or more information. Think critically, ask questions.

Students with any concerns, questions, or need for consideration for flexibility should connect with us as soon as possible to determine an appropriate plan.

Academic Integrity – Cheating and plagiarism are unacceptable and dishonest. In this class you are expected to complete and turn in your own work and to follow established academic practices regarding proper use and citation of materials and ideas that are not your own. Engaging in cheating or plagiarism will result in a failing grade in this class. More information is available about Macalester’s academic integrity policy in the Student Handbook (www.macalester.edu/academicprograms/academicpolicies/academicintegrity/).

Health and Well-Being

Here at Macalester, you are encouraged to make your well-being a priority throughout this semester and your career here. Investing time into taking care of yourself will help you engage more fully in your academic experience. Remember that beyond being a student, you are a human being carrying your own experiences, thoughts, emotions, and identities with you. It is important to acknowledge any stressors you may be facing, which can be mental, emotional, physical, financial, etc., and how they can have an academic impact. I encourage you to remember that sleeping, moving your body, and connecting with others can be strategies to help you be resilient at Macalester. If you are having difficulties maintaining your well-being, please reach out to us or to the many resources available to you at Macalester.

Please adhere to the [Mac Stays Safer Community Commitment](#), which outlines practices to maintain your own health and that of others around you: wear a mask, maintain a 6 foot distance from others, wash your hands frequently, use hand sanitizer when handwashing is not available.

Supporting Student Learning

In some circumstances, course design may pose barriers to a student’s ability to access or demonstrate mastery of course content. If you are encountering barriers to your learning that we can mitigate, please bring them to our attention. Reasonable accommodations are available for students with documented disabilities. Contact the Disability Services office by emailing disabilityservices@macalester.edu, or calling 651-696-6874 to schedule an appointment to discuss your individual needs. It is important to meet as early in the semester as possible; this will ensure that your accommodations can be implemented early on.

850 point grading scale

200 = Exams (2; 100 pts each)

100 = Final Portfolio

170 = Final project

220 = Lab Assignments

60 = Lecture exercises (6; 10 pts each)

100 = Participation and attendance (Lecture & Lab combined)

A = 94+	A- = 90.0 – 93.9%	
B+ = 87.0% - 89.9%;	B = 83.0 – 86.9%;	B- = 80.0 - 82.9%
C+ = 77.0% - 79.9%;	C = 73.0 – 76.9%;	C- = 70.0 – 72.9%
D+ = 67.0% - 69.9%;	D = 63.0 – 66.9%;	D- = 60.0 – 62.9%