



# SYLLABUS

## GEOG 2200: Spatial Literacy: Visualizing our World through Mapping Space & Place

### COURSE OVERVIEW

Spring 2026 (CRN 26665)  
3 credit hours – lecture based  
11:30 -12:25 MWF, Derby 135

### Instructor and Teaching Assistant (TA)

Primary Instructor: Dr. Tammy E. Parece  
Office: 1189 Derby Hall  
Email: [parece.1@osu.edu](mailto:parece.1@osu.edu)  
Phone: 614-247-5994

Office hours: Monday and Wednesday 2 – 3 p.m.; Tuesday 1 – 2 p.m. in person. Please check the announcements for any changes.

Dr. Parece holds a BS in Interdisciplinary Studies, a Graduate Certificate in GIS, an MS in Geography, and a PhD in Geospatial and Environmental Analysis.

Teaching Assistant: Please see Carmen Canvas.

If you are ill or have symptoms, please do not visit us in our offices, please email us and we can set up a zoom link for your participation during our office hours. To request an appointment outside of the above times, please send both the instructor and the TA an email with your availability up to a week ahead.

### Prerequisites: None

### Course Description

This course introduces students to spatial representation and spatial literacy through the creation of thematic maps and analysis of descriptive statistics, probabilities, and hypothesis testing. Thematic maps provide a visual illustration of spatial patterns, patterns that are not normally apparent within other data representations. For example, corporations, governments, the media, and researchers use maps and geographic information technology to understand and visualize data, including natural resources, flows of trade, historical events, property management, and spatial behavior and spread of diseases, among other things. As such, students will utilize geographic information technology to create a variety of thematic maps which aid in critically evaluating issues present in our global society. Students will apply a variety of statistical metrics and analysis (including descriptive and inferential statistics) to spatial patterns seen within their created maps.

In this course, we explore the foundations and definitions of spatial data, how and why maps are such a powerful tool to understand an increasingly complex world, and how modern technology is currently

transforming the art and science of map-making. Using practical exercises and discussions, students will develop the knowledge, skills, and dispositions that constitute spatial literacy. The main goal is to give students a spatial literacy foundation (including spatial quantitative reasoning methodologies) so students can realize the value of geographic knowledge in today's world. Students will develop their critical thinking skills to analyze real-world, critical problems such as understanding demographic patterns, business locations, social and equity issues, transportation and infrastructure, natural disaster recovery and responses, and much more. At the conclusion of this course, students will be able to view and explain their environments and answer the who, what, when and why of space and place (the where).

## Course Learning Outcomes

Upon successful completion of this course, students should be able to:

1. employ basic methods of spatial data-gathering, presentation, and interpretation;
2. interpret map symbology in order to analyze and critically evaluate the spatial structure of and relationships among spatial phenomena;
3. interpret and use basic statistical concepts, including descriptive statistics (mean, mode, median, range, standard deviation and variance), inferential statistics (probability and hypothesis testing), and spatial statistics (spatial correlation, hot spots, and interpolation);
4. apply statistical methods to explain spatial patterns on maps; and
5. evaluate the impact of spatial data sampling, uncertainty and scale on map use.

## General education

This course provides 3-credits of the required 4-6 credits in the General Education Theme: Lived Environments. For those students who are following the New General Education curriculum, Geography 2200 is an approved course in the GEN Theme: Lived Environments category.

### GE Goals:

- **Goal 1:** Successful students will analyze an important topic or idea at a more advanced and in-depth level than the foundations. In this context, "advanced" refers to courses that are e.g., synthetic, rely on research or cutting-edge findings, or deeply engage with the subject matter, among other possibilities.
- **Goal 2:** Successful students will integrate approaches to the theme by making connections to out-of-classroom experiences with academic knowledge or across disciplines and/or to work they have done in previous classes and that they anticipate doing in future.
- **Goal 3:** Successful students will explore a range of perspectives on the interactions and impacts between humans and one or more types of environment (e.g. agricultural, built, cultural, economic, intellectual, natural) in which humans live.
- **Goal 4:** Successful students will analyze a variety of perceptions, representations and/or discourses about environments and humans within them.

### GE Expected Learning Outcomes:

- **ELO 1.1** Engage in critical and logical thinking.
- **ELO 1.2** Engage in an advanced, in-depth, scholarly exploration of the topic or ideas within this theme.
- **ELO 2.1** Identify, describe, and synthesize approaches or experiences.
- **ELO 2.2** Demonstrate a developing sense of self as a learner through reflection, self-assessment, and creative work, building on prior experiences to respond to new and challenging contexts.

- **ELO 3.1** Engage with the complexity and uncertainty of human-environment interactions.
- **ELO 3.2** Describe examples of human interaction with and impact on environmental change and transformation over time and across space.
- **ELO 4.1** Analyze how humans' interactions with their environments shape or have shaped attitudes, beliefs, values and behaviors.
- **ELO 4.2** Describe how humans perceive and represent the environments with which they interact.
- **ELO 4.3** Analyze and critique conventions, theories, and ideologies that influence discourses around environments.

This course enables you (the student) an opportunity to explore the two-way interactions between humans and their different environments (built, cultural, economic, and natural). You will gather, present, and interpret data in the context of the space that humans occupy and use through mapping and statistical analyses.

### **Legacy General education: data analysis**

This course meets the requirements of the Legacy General Education category *Data Analysis*. The intent of the Data Analysis GE is to enable students to deal with problems of data gathering, presentation, and interpretation. Students should develop an understanding of problems of measurement, be able to deal critically with numerical and graphical arguments, gain an understanding of the impact of statistical ideas in daily life and specific areas of study, and recognize the uses and misuses of statistics and related quantitative arguments.

*GE Goals for Data Analysis:* Students develop skills in drawing conclusions and critically evaluating results based on data.

*Expected Learning Outcomes:* Students understand basic concepts of statistics and probability, comprehend methods needed to analyze and critically evaluate statistical arguments, and recognize the importance of statistical ideas.

This course meets these goals and objectives by exposing students to the problems of data gathering, presentation, and interpretation, in the context of spatial, statistical maps.

## **HOW THIS COURSE WORKS**

**Mode of delivery:** This class mode of delivery is in-person. All learning materials will be uploaded on Carmen Canvas. Additional components students will complete are:

- Readings
- General lectures
- Labs and exercises
- Quizzes and Exam

### **Credit hours and work expectations:**

This is a **3-credit-hour course**. According to Ohio State policy ([go.osu.edu/credithours](http://go.osu.edu/credithours)), an average student should expect around 3 hours per week of time spent on direct instruction (instructor content, group and Carmen activities, for example) in addition to 6 hours of homework (reading and assignment preparation, for example) to receive a grade of (C) average.

### **Communications with instructors:**

**Email us if you have questions related to class materials and assignments. Make sure you include a detailed description of the problem and attach a screenshot if applicable.**

Other questions can be directed to the instructors via Outlook email or Carmen email (always include both instructor and TA in your emails, in case one of us is unavailable). If using Outlook, make sure that you put "GEOG 2200" in the subject line. Students should use their name.# Ohio State email address.

## Course materials and technologies

### Textbooks

1. *Manson, Steven. Mapping, Society, and Technology. University of Minnesota Libraries Publishing.* This is an open access educational resource and there is a link in Carmen Canvas to the book.
2. *Famg, Y., V. Shandas & E.A. Cordero. Spatial Thinking in Planning Practice: An Introduction to GIS.* Available as an open-source book in Carmen Canvas.
3. *Watts, Valerie. Introduction to Statistics: An Excel-Based Approach.* Available as an open-source book in Carmen Canvas.

Other readings will be uploaded on Carmen Canvas.

### Technology skills needed for this course:

- Basic computer and web-browsing skills

### Required software:

- No Software purchase is required
- No previous experience is required for the following software. You will learn these in class.
  - QGIS (you can download to your personal computer at <https://qgis.org/download/>)
  - ArcGIS Online
  - Google Earth Pro
  - Microsoft Excel
- Word Processing Software
- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. You must complete your registration for this if you are using your personal computer. If you have a Mac, you must be sure this registration is complete as we will be using Excel in this class. Full instructions for downloading and installation can be found at [go.osu.edu/office365help](https://go.osu.edu/office365help).

### Required equipment:

- While in the classroom, you must use the classroom computer to work on assignments or exams (unless specific permission is granted by Dr. Parece).
- You may use your personal device for taking notes.
- Other: a mobile device (smartphone or tablet) to use for BuckeyePass authentication

## ASSIGNMENTS

### Attendance

Attendance is taken each day, except on exam/quiz days. Documented illnesses or time away for Military Service/Conferences are excused.

## Graded Assignments

All assignments, listed below, are required to be your own independent work. Do not share your work with others in this class. Use of generative artificial intelligence (AI) (e.g., ChatGPT) is not permitted in this course, and use is subject to academic misconduct actions.

Failure to follow the instructions on any assignment could result in a grade reduction for that specific answer or it might result in an incorrect answer. Any assignment includes quizzes, exams, and labs. For example, if the directions state you need to round to 1 decimal place and you give no decimal points or provide 2 or more.

The schedule for this class is found at the end of this document.

### AI Assignment (5%)

You will have two assignments related to AI.

- Week 2 – Create your personal AI policy.
- Week 11 – reflect on your AI policy.

These two assignments address AI Fluency ELOs 1 and 6. <https://oaa.osu.edu/ai-fluency>

### Lab assignments (75%)

You will have 7 lab assignments, topics for each are identified on the schedule. 6 of these lab assignments consist of downloading data, conducting an analysis, mapping within GIS and for 4 of the assignments include completing a statistical analysis. You then submit a written report with jpegs of your map(s). A template with specific section headings is used to complete each lab report (with the exception of Lab 3). These 7 lab assignments must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor.

The lab report template is available in Carmen Canvas. Each assignment has a specific set of instructions for creating a map(s) for that analysis. Each assignment submission has an associate Rubric in Canvas. Turnitin and AI checks are enabled within Canvas for these submissions.

Lab #3 is a Story Map and involves collecting your data on campus, mapping the data and then completing an accompanying story about that data. This Story Map lab assignment may be completed in collaboration with one other student.

- Lab 1 is 5% of your final grade
- Lab 2 is 10% of your final grade
- Lab 3 is 10% of your final grade
- Lab 4 is 15% of your final grade
- Lab 5 is 15% of your final grade
- Lab 6 is 5% of your final grade
- Lab 7 is 15% of your final grade

### Quizzes (10%)

3 in-class statistics quizzes related to statistics, closed notes, closed book. See the schedule for weeks, topics and date. These quizzes must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor.

## One Mapping Exam (10%)

The exam contains multiple choice, true/false, short answer, essay and numerical answer questions. See the course schedule for the date of the exam. This exam must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor.

### Late submissions

Late submissions for any assignments are not accepted in this course and result in a zero for that assignment.

Accommodations for religious holidays will be considered in accordance with OSU policies – see more details below. Please provide information on the holiday and its date, the specific assignment, and the number of days requested in the extension. This must be requested in advance of the due date.

Accommodation will also be made for students with disability-related flex plans and in case of personal and family emergencies. Please notify us as soon as possible so that we can work out a submission timeline. Extensions are not granted after the fact, e.g., you can't ask for an extension on an assignment that was due two weeks before or wait until the end of the semester to submit assignments you missed. Please be specific on your request, name of course, which assignments, and the exact reason for the request.

## GRADING AND FACULTY RESPONSE

### How your grade is calculated

All submissions are made via Carmen Canvas by the due date. The due date is not an optional or suggested date; it is the last possible date you can submit an assignment and get a grade (with limited exceptions).

CATEGORY	PERCENT OF FINAL GRADE
Lab 1	5%
Lab 2	10%
Lab 3	10%
Lab 4	15%
Lab 5	15%
Lab 6	5%
Lab 7	15%
Total of All Lab Assignments	75%
AI Assignments	5%
Exam – Mapping	10%
Statistical Quizzes	10%
Total	<b>100%</b>

### Grading scale

92.5–100: A	80.0–82.49: B-	66.5 –69.99: D+
90.0–92.49: A-	76.5–79.99: C+	60.0 –66.49: D
86.5–89.99: B+	72.5–76.49: C	Below 59.99: E
82.5–86.49: B	70.0 –72.49: C-	

*Note: Grades are not subject to negotiation and are not eligible for rounding up; an 89.9% is not a 90%.*

## **Instructors' feedback and response time**

- **Grading and feedback:** For assignments, you can generally expect feedback within 1 week, unless emergencies occur to one of the instructors.
- **Email:** We will reply to emails within **48 hours on school days when class is in session at the university**.
- **Posting Comments on graded Assignments:** Please do not post any comments on graded assignments. Carmen does not notify us if you make a comment. If you have questions, please email the instructor.

## **OTHER COURSE AND UNIVERSITY POLICIES**

### **Academic Misconduct:**

Instructors shall report all instances of alleged academic misconduct to the committee ([Faculty Rule 3335-5-48.7 \(B\)](#)). For additional information, see the [Code of Student Conduct | Ohio State \(osu.edu\)](#).

### **Disability Services:**

This course follows restrictions according to the University Disability Services policies. [Disability Services \(osu.edu\)](#).

### **Religious Accommodations:**

This course follows the University religious accommodations policy. See information under assignments and for more information on the University's policy, go to: [Religious Holidays, Holy Days and Observances | Office of Academic Affairs, The Ohio State University \(osu.edu\)](#).

### **Mental Health Statement:**

The Ohio State University offers services to assist you with addressing these and other concerns you may be experiencing. If you or someone you know are suffering from any of the aforementioned conditions, you can learn more about the broad range of confidential mental health services available on campus via the Office of Student Life's Counseling and Consultation Service (CCS) by visiting [ccs.osu.edu](http://ccs.osu.edu) or calling [614-292-5766](tel:614-292-5766). CCS is located on the 4th Floor of the Younkin Success Center and 10th Floor of Lincoln Tower. You can reach an on call counselor when CCS is closed at [614-292-5766](tel:614-292-5766) and 24 hour emergency help is also available 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

### **University Statement on Title IX:**

<http://titleix.osu.edu>

### **Inclement Weather:**

Should in-person classes be canceled by the University, we will be available during lab times via CarmenZoom Please be sure to check announcements in CarmenCanvas for updates.

## **COURSE SCHEDULE – ON THE FOLLOWING PAGES**

Disclaimer: This course syllabus provides a general plan for the course; deviations may be necessary. Such deviations may be made for individuals or for the entire class, as deemed appropriate by the instructor. Any changes that affect the entire class will be announced by the instructor with as much advance notice as possible.



Week & Dates	Topics and Assignments	General Education Theme Lived Environments Learning Objective & Goal Statement
Week 1 January 12 – 17, 2026	Monday: Introduction to Course and Geospatial technologies Wednesday: Introduction to Cartography Friday: Introduction to Lab 1 <b>Required Reading:</b> Household Food Security in the US, 2022 Manson, Chapter 1.	<b>ELO 1.1 Goal Statement:</b> Students will define GIS and Cartography. Students explain how these technologies assist in identifying, explaining, and analyzing the different environments that people live in and utilize.
Week 2 January 18 – 24, 2026	Monday: MLK Day, no class Wednesday: <b>AI Assignment – due 1/23</b> Friday: Lab time <b>Lab 1:</b> Detroit Schools due 1/26 <b>Required Reading:</b> Manson Chapters 2 & 3	<b>ELO 1.1 Goal Statement:</b> Students will explain the complexities involved when measuring the Earth and then mapping location and demonstrate how the decisions made when creating maps can alter mapping results.
Week 3 January 25 – 31, 2026	Monday: Scale & Coordinate Systems Wednesday: Projections Friday: Lab Time – Lab 2 <b>Lab 2:</b> Wind Farm Suitability Analysis due 2/8 <b>Required Reading:</b> Manson Chapters 1 - 3	<b>ELO 1.1, ELO 1.2, ELO 2.1, ELO 2.2, ELO 3.1</b> <b>Goal Statement:</b> Students demonstrate the ability to read thematic maps, identify missing elements, identify when a map is being misread, and critique how the theme of the map represents the environment for the people in that place.
Week 4 February 1 – 7, 2026	Monday: Thematic Map types, variables, and measurements Wednesday – Thematic Map exercise Friday – Lab Time <b>Lab 2:</b> Wind Farm Suitability Analysis due 2/8 Manson Chapters 4 through 7	<b>ELO 1.1</b> Engage in critical and logical thinking. <b>Goal Statement:</b> Students locate locations for a new wind farm, describe the environment for the location, and explain how it will support people living within this region.
Week 5 February 8 – 14, 2026	Monday: Lecture GPS, observational data. Wednesday Group Formation for <b>Lab 3</b> Friday – Data Collection Time for <b>Lab 3</b> – must check in to the classroom first. <b>Required Reading:</b> Manson: pages 28 – 39, Fang, et al. Chapter 4	

Week 6 February 15 - 21, 2026	Monday: Modified Area Unit Problem Wednesday & Friday: <b>Lab 3</b> (due 2/22) Manson Pages 20 – 25, additional website readings are in Carmen Canvas.	<b>ELO 1.1 &amp; ELO 3.1 Goal Statement:</b> Students demonstrate the ability to work in a group and execute a group assignment within the confines of the university environment.
Week 7 February 22 – 28, 2026	Monday – Exam review <b>Mapping Exam</b> in-class on Wednesday February 25 <b>Lab 4</b> , Earthquake Probabilities due 3/13	<b>ELO 1.1 &amp; ELO 3.1 Goal Statement:</b> Students select, identify, and map related places on OSU Campus, compare the locations to each other, and defend their choices by explaining the value of the locations to other OSU students.
Week 8 March 1 – 7, 2026	Monday: Descriptive Statistics Wednesday: Descriptive Statistics Practice Problems Friday: <b>Quiz</b> on Descriptive Statistics & Introduction to Lab 4 – Earthquake Probabilities <b>Lab 4:</b> Earthquake Probabilities due 3/13 <b>Readings:</b> Watts, Sections 1.1 through 1.4 and Sections 2.1 through 2.4	<b>ELO 1.1, ELO 1.2, ELO 2.1, ELO 2.2, ELO 3.1</b> <b>Goal Statement:</b> Students will differentiate between different descriptive statistics, execute their use, and interpret the varying results when using different statistical measures.
Week 9 March 8 – 14, 2026	Monday: Probability, Distributions, Central Limit theorem Wednesday: Probability Practice Problems Friday: Finish <b>Lab 4</b> due 3/13 <b>Reading:</b> Watts Chapter 3	<b>ELO 1.1 &amp; ELO 2.1</b> <b>Goal Statement:</b> Students will discuss how statistical variables help identify different living conditions between types of environments
March 15 – 21, 2026 Spring Break		
Week 10 March 22 - 28	Monday: Hypothesis testing, gathering data, testing hypotheses <b>Wednesday: Quiz</b> on Probability, Z Table & Hypothesis Formation Wednesday: Hypothesis testing examples Friday: Lab time - <b>Lab 5:</b> Health Disparities in US Metropolitan Regions due 4/5 <b>Readings:</b> Watts Chapter 8, Sections 8.1 through 8.7	<b>ELO 1.1, ELO 1.2, ELO 2.1, ELO 3.1</b> <b>Goal Statement:</b> Students appraise how inferential statistics can predict/explain outcomes/impacts for different peoples. Students solve statistical equations to examine the impact of a natural disaster on people and the environments that they use.
Week 11 March 29 – April 4	Monday: Correlation, Spatial Autocorrelation, Outlier/cluster analysis <b>Wednesday: AI in-class assignment</b> Friday: Lab time ( <b>Lab 5</b> due 4/5) <b>Readings:</b> Watts, Chapter 12, Sections 12.1 through 12.4	<b>ELO 1.1 &amp; ELO 2.1</b> <b>Goal Statement:</b> Students compare and contrast different spatial correlation/autocorrelation methods and results. Students will distinguish how the methods provide information on the environment in which people live.

<p>Week 12 April 5 - 11</p>	<p>Monday: Final Lecture: Hotspot Analysis, Kernel Density, Interpolation  <b>Wednesday: Final Stats Quiz:</b> T table, Correlation, Density &amp; Interpolation  Friday Lab time  <b>Lab 6:</b> Analyzing Patterns of Traffic Crashes &amp; Volumes around Public Schools due 4/14</p>	<p><b>ELO 1.1, ELO 1.2, ELO 2.1, ELO 2.2. &amp; ELO 3.1</b>  <b>Goal Statement:</b> Students construct maps using statistical interpolation to explain traffic patterns in an urban environment and determine the relationship to vehicle/bicycle/pedestrian accidents in public school zones. Students investigate the patterns to recommend changes to local authorities to prevent future accidents in these locales.</p>
<p>Week 13 April 12 - 18</p>	<p>Monday: Lab time (Lab 6 due 4/14)  Wednesday &amp; Friday: Lab Time for <b>Lab 7:</b> A comparative analysis of eviction rates in Franklin County, Ohio, 2016 - present</p>	<p><b>All ELOs</b>  <b>Final Project Goal Statement:</b> Students will synthesize the knowledge gained over the semester through analyzing data over time. Students formulate a hypothesis and defend their hypothesis utilizing results from data analysis and ancillary information.</p>
<p>Weeks 14, 15 &amp; 16 April 19 – May 5</p>	<p>All class times – Lab 7 work time  Last Day of class: Monday, April 27  <b>Lab 7</b> due Wednesday, April 29</p>	