Term Information

Effective Term	Autumn 2025
Previous Value	*Autumn 2022*

Course Change Information

What change is being proposed? (If more than one, what changes are being proposed?)

NEW COURSE NUMBER (2200) PER CONTINGENT REVISION (11.21.2024)

New course title

New course description

Edited course goals and topics

Add course to GE as GEN Theme: Lived Environments

What is the rationale for the proposed change(s)?

The Department of Geography currently offers GEOG 2200.01 (Mapping our World), which is a GEL data course and introductory course in spatial data and analysis and geographic information sciences for the department. This course also serves as a Geography minor option. We seek to redesign the course to meet GE Theme: Lived Environments and still meet departmental needs. This course change proposal is for a 3-credit GEN Theme course. In this redesign, we have used backward learning design to provide a unique geographic perspective on building perspective on how spatial thinking, analysis, and geographic map interpretation links to understanding scale and space in measuring and identifying variables factors which present human-interactions with space and their impact on how we design and observe our communities and lived environments.

What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

We seek to maintain the 3-credit version of the course to minimize programmatic implications, in the new GE categorization. The Lived Environments theme aligns well with the geographic perspectives of the department in human geography and geographic information sciences. We seek to retain the GEL designation.

Is approval of the requrest contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

General Information

Course Bulletin Listing/Subject Area	Geography
Fiscal Unit/Academic Org	Geography - D0733
College/Academic Group	Arts and Sciences
Level/Career	Undergraduate
Course Number/Catalog	2200
Previous Value	*2200.01*
Course Title	How to Map Your World: Visualizing Space and Place
Previous Value	*Mapping Our World*
Transcript Abbreviation	How to Map World
Previous Value	*Mapping Our World*
Course Description	This course introduces students to the power of maps in spatial representation and spatial literacy through the creation of thematic maps and analysis of descriptive statistics, probabilities, and hypothesis testing. students will utilize geographic information technology to create a variety of thematic maps which aid in critically evaluating issues present in our global society.

Previous Value	*Introduction to the power of maps, covering spatial representation, visual literacy, and geographic information technology in a global society.*
Semester Credit Hours/Units	Fixed: 3

Offering Information

Length Of Course	14 Week, 12 Week, 8 Week, 7 Week, 6 Week
Flexibly Scheduled Course	Never
Does any section of this course have a distance education component?	No
Grading Basis	Letter Grade
Repeatable	No
Course Components	Lecture
Grade Roster Component	Lecture
Credit Available by Exam	No
Admission Condition Course	No
Off Campus	Never
Campus of Offering	Columbus, Lima, Mansfield, Marion, Newark, Wooster

Prerequisites and Exclusions

Prerequisites/Corequisites	None
Previous Value	
Exclusions	Not open to students with credit for 2200.02
Previous Value	Not open to students with credit for 2200.02 or 480.
Electronically Enforced	No

Cross-Listings

Cross-Listings	None
Previous Value	

Subject/CIP Code

Subject/CIP Code	45.0701
Subsidy Level	Baccalaureate Course
Intended Rank	Freshman, Sophomore, Junior, Senior

Requirement/Elective Designation

General Education course:

Data Analysis; Lived Environments

The course is an elective (for this or other units) or is a service course for other units

Previous Value

General Education course:

Data Analysis; Mathematical and Quantitative Reasoning (or Data Analysis)

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Students will employ basic methods of spatial data-gathering, presentation, and interpretation;
- Students will interpret map symbology in order to analyze and critically evaluate the spatial structure of and relationships among spatial phenomena
- Students 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
- Students will apply statistical ideas to seek explanations for unusual or interesting patterns on maps and understand their connection and impact on communities and lived environments
- Students will evaluate the impact of spatial data sampling and uncertainty on map use
- Successful students will use spatial data to explore a range of perspectives on the interactions and impacts between humans and one or more types of environment in which humans live and how we represent them in geographic perspectives and scale
- Successful use spatial analysis and maps to interpret a variety of perceptions, representations and/or discourses about environments and humans within them.

Previous Value

- *Students will employ basic methods of spatial data-gathering, presentation, and interpretation*
- *Students will interpret map symbology in order to analyze and critically evaluate the spatial structure of and relationships among spatial phenomena*
- *Students will demonstrate familiarity with some basic concepts of descriptive and inferential statistics and understand some unique properties of spatial statistics*
- *Students will apply statistical ideas to seek explanations for unusual or interesting patterns on maps*
- *Students will evaluate the impact of spatial data sampling and uncertainty on map use*

Content Topic List

- Introduction to geographic data
- Geovisual literacy
- The mapping process
- Methods of spatial data gathering, presentation, and interpretation
- Interpretation of map symbology
- Mapping with descriptive, inferential, and spatial statistics
- Application of statistical ideas for map analysis and evaluation
- Geographic perspectives and spatial data on lived environments and environment-human interactions

Previous Value

- *Introduction to geographic data*
- *Geovisual literacy*
- *The mapping process*
- *Methods of spatial data gathering, presentation, and interpretation*
- *Interpretation of map symbology*
- *Mapping with descriptive, inferential, and spatial statistics*
- *Application of statistical ideas for map analysis and evaluation*

Sought Concurrence

No

Previous Value

Attachments

- GEOG 2200.01_Course Change Cover Letter_April 2024.doc: GEOG 2200.01_Proposal Cover Letter

  (Cover Letter. Owner: Godfrey,Ryan B)
- GEOG 2200.01_GE Theme Proposal_April 2024.pdf: GEOG 2200.01_GE Theme Proposal

  (GEC Model Curriculum Compliance Stmt. Owner: Godfrey,Ryan B)
- GEOG_2200_10_New GE Proposed Syllabus_April 4 2024.pdf: GEOG 2200.01_Syllabus

  (Syllabus. Owner: Godfrey,Ryan B)
- GEOG 2200.01_ Lab Assignment 4 - Exploring eviction in Franklin County.pdf: GEOG 2200.01_Lab Assignment Example

  (Other Supporting Documentation. Owner: Godfrey,Ryan B)
- GEOG 200.01_Lab 4 - Franklin County Evictions - Student Work Example.pdf: GEOG 2200.01_Lab Assignment Student Work Example

  (Other Supporting Documentation. Owner: Godfrey,Ryan B)
- GEOG 2200.01_Final Paper Guidelines_April 2024.pdf: GEOG 2200.01_Final Paper Guidelines

  (Other Supporting Documentation. Owner: Godfrey,Ryan B)
- GEOG 2200 Revision Cover Letter 11.21.2024.pdf: GEOG 2200 Revision Cover Letter

  (Cover Letter. Owner: Godfrey,Ryan B)
- GEOG 2200_Revised Syllabus_11.21.2024 with Notation.pdf: GEOG 2200 Revised Syllabus with Notes

  (Syllabus. Owner: Godfrey,Ryan B)
- GEOG 2200_Revised GE ELOs_11.21.2024 with Notation.pdf: GEOG 2200 Revised GE Proposal with Notes

  (GEC Model Curriculum Compliance Stmt. Owner: Godfrey,Ryan B)
- GEOG_2200_Revised Syllabus_11.21.2024_Clean Version.pdf: GEOG 2200 Clean Revised Syllabus

  (Syllabus. Owner: Godfrey,Ryan B)
- GEOG_2200_Revised GE ELOs_11.21.2024_Clean Verison.pdf: GEOG 2200 Clean Revised GE Proposal

  (GEC Model Curriculum Compliance Stmt. Owner: Godfrey,Ryan B)

Comments

- Contingent Revisions completed for review. Revised syllabus and GE Proposals have been uploaded for review. Course number has been updated from GEOG 2200.01 to GEOG 2200 to reflect the contingent revision request from GE Theme Subcommittee. *(by Godfrey,Ryan B on 11/22/2024 02:36 PM)*
- Please see feedback email sent to department 05-24-2024 RLS *(by Steele,Rachel Lea on 05/24/2024 01:03 PM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Godfrey,Ryan B	04/20/2024 04:30 PM	Submitted for Approval
Approved	Houser,Jana Bryn	04/20/2024 05:27 PM	Unit Approval
Approved	Vankeerbergen,Bernadette Chantal	04/26/2024 10:50 AM	College Approval
Revision Requested	Steele,Rachel Lea	05/24/2024 01:03 PM	ASCCAO Approval
Submitted	Godfrey,Ryan B	11/22/2024 02:37 PM	Submitted for Approval
Approved	Coleman,Mathew Charles	11/22/2024 03:17 PM	Unit Approval
Approved	Vankeerbergen,Bernadette Chantal	11/22/2024 03:21 PM	College Approval
Pending Approval	Jenkins,Mary Ellen Bigler Hanlin,Deborah Kay Hilty,Michael Neff,Jennifer Vankeerbergen,Bernadette Chantal Steele,Rachel Lea	11/22/2024 03:21 PM	ASCCAO Approval

THE OHIO STATE UNIVERSITY

Department of Geography
College of Arts and Sciences

1036 Derby Hall
154 North Oval Mall
Columbus, Ohio 43210
www.geography.osu.edu

Themes I Subcommittee of the ASC Curriculum Committee
Theme Advisory Group for Lived Environments
College of Arts and Sciences

November 21, 2024

Dear colleagues—
Thank you for your May 24, 2024, feedback on our Lived Environments GE submission for GEOG 2200.01 (Mapping Our World).

We have made the following changes:

- Contingency I—The final project has been adjusted to emphasize a time component. See page 8 of the ELO form and the revised description of the final project on page 8 of the syllabus.
- Contingency II—We have added additional columns to the course schedule which review clearly which ELOs are being met on a weekly basis. See pages 12-14 on the syllabus.
- Contingency III—We are withdrawing 2200.02, and changing the numbering for 2200.01 to 2200.
- Contingency IV—We have changed the lab assignment template to allow for student reflection on their work in the context of the ELOs. See syllabus pages 6-7. See also pages 6-7 on the ELO form.
- Contingency V—We have redesigned the final project as a directed exercise rather than a project chosen by the student. This allows us to direct the student to consider the Lived environment theme in their work. See syllabus page 8 and ELO form page 6.
- Contingency VI—We have added the designated phrasing to the syllabus, page 2.
- Contingency VII— We have added student-friendly phrasing on page 3 of the syllabus.
- Contingency VIII—We have added the revised religious accommodations language. See page 10 of the syllabus.
- Recommendation IX—We have amended the syllabus to signpost which work must be completed independently, and which work can be done in teams.

We are attaching a notated version of the syllabus and ELO form, prepared by the instructor, indicating where the above changes have been made. We are also including clean versions of both documents for readability.

Sincerely,

Mat Coleman

Professor and Chair, Department of Geography, College of Social and Behavioral Sciences
http://u.osu.edu/coleman.373/

THE OHIO STATE UNIVERSITY

College of Arts and Sciences
Department of Geography

SYLLABUS

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

Spring 2025
3 credit hours – lecture based
11:05 -12:00 MWF, Derby XXX

COURSE OVERVIEW

Instructor and Teaching Assistant (TA)

Primary Instructor: Dr. Tammy E. Parece
Office: 1168 Derby Hall
Email: parece.1@osu.edu
Phone: 614-247-5994
Office hours:

- In my office: Monday 9:30 – 10:30 a.m.; Friday 10 – 11 a.m.
- On Zoom: Wednesday 1 – 2 p.m. Zoom link can be found under office hours in Canvas.

Teaching Assistant: TBD

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 analysis.

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 will be 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 Exams

Credit hours and work expectations: This is a **3-credit-hour course**. According to Ohio State policy (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.* We encourage you to help your classmates out if you know the answers, but make sure you are not violating the code of student conduct (e.g., do not upload your assignment or show them the exact answer to complete their assignments).

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

Optional texts – available at the bookstore, as an ebook, or on Amazon:

1. *Tyner, Judith A. 2015. The World of Maps: Map Reading and Interpretation for the 21st Century. Guilford Publishing.*

Other readings will be uploaded on Carmen Canvas.

Technology skills needed for this course:

- ArcGIS Online (no previous experience is required)
- Microsoft Excel
- Basic computer and web-browsing skills

Required 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.

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

GRADING AND FACULTY RESPONSE

How your grade is calculated
All submissions are made via Carmen Canvas on the due date. Your 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 – see Late Submissions at the bottom of page 6).

CATEGORY	PERCENT OF FINAL GRADE	OCCURRENCE
Introductions Online	2%	Once
Quizzes	8%	8
Lab assignments	55%	6
Exam – Mapping	10%	1
Exam - Statistics	10%	1
Final paper	15%	1
Total	**100%**	

Grading scale

A	A-	B+	B	B-	C+	C	C-	D+	D	E
≥93%	90-92%	87-89%	83-86%	80-82%	77-79%	73-76%	70-72%	67-69%	60-66%	<60%

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**.

Attendance

Attendance will be taken each day.

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, labs, and the

final project. 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.

Self-Introduction (2%)

During the first two weeks of class, you will participate in an online discussion. You introduce yourself to the class (1%) and respond to other students' introductions (1%); this will help you find a partner for the story map lab assignment. These discussions posts must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor.

Quizzes (8%)

Quizzes assist you in studying for the exams. Quizzes are 5 questions, online, untimed and open note/open book. See the attached schedule for weeks, topics and due date. These quizzes must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor.

Lab assignments (55%)

You will have 6 lab assignments throughout the semester. The topics for each lab are identified on the schedule at the end of this syllabus.

5 of these lab assignments consist of downloading data, conducting an analysis, mapping within GIS and for 3 of the assignments, completing a statistical analysis. You then submitting 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 the Story Map lab). These five lab assignments must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor.

The template for 5 of the lab assignments is as follows. The template uses the first lab assignment as an example:

> **Name:**
> **Course: GEOG 2200 Mapping our World**
> **Date:**
> **Assignment Title:** You Choose the Appropriate Title for your Report.
>
> **Introduction**
> What is the problem? State a hypothesis as to what you think you may find. In many instances the beginning of the lab tells you what you are evaluating. If you need help with your introduction, go back and read the introduction to the specific lab assignment.
>
> **Data**:
> What data did you use to investigate? Where did you get it?
> For Example: *I obtained data for the public high schools in Detroit Michigan from the National Center for Education Statistics' Education Demographics and Geographic Estimates Program. This data includes each public school, the school's name, address and telephone number, total number of students, the number of students using the free and reduced price lunch program, and numbers of students by race/ethnicity.* You will identify the complete citation in your reference list.

Do not state that the data was provided to you in ArcGIS or that it was provided by the instructor or TA. Do not tell us what you did with the data, that goes in the next section.

Methods:
What did you do in GIS? What tools did you use and how did you analyze the data. Be very detailed about what you did. Did you do anything with the data in Excel? Do not discuss results or findings – that goes in the next section.

Results:
What are the results? What do the results mean? Why is it the case? What is the story you want to tell the audience from the results? Embed your maps here to demonstrate your point. When embedding maps, you also explain what the map is showing. If you are completing any statistical analysis, those results will also be presented here. Hold opinions and reflections for the next section.

Conclusions and recommendations:
What can you conclude from the analysis (reflect on the results shown in the prior section)? What does the analysis of these specific variables tell you about the environment in which these students live? Is there a problem that needs to be addressed/mitigated/solved? If so, what policy/strategies that should be implemented to solve the problem? Does the analysis seem incomplete without looking at additional variables (for example access to health and nutritious foods)? If so, what variables would you like to explore? Does your analysis promote additional questions that you would like to answer?

References:
You must cite your sources, including your data sources. Reading the assignment instructions gives you information on where the data was obtained. For example, data reference format:
National Center for Education Statistics' (NCES) Education Demographic and Geographic Estimates (EDGE) Program. 2024. Accessed through ArcGIS Online: Public School Characteristics - Current - Overview (arcgis.com)

You can download the actual template from Carmen Canvas. Each assignment has a specific step-by-step instruction on creating a map(s) for that analysis, 3 of the lab assignments involve a mapping assignment and a related statistical analysis. Each assignment submission has an associate Rubric in Canvas for the points division. 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.

Two exams

The exams contain multiple choice, true/false, short answer, essay and numerical answer questions. See the course schedule for the dates and times of the exams. These are held during class periods. These exams must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor.

- Map exam is closed-book, closed-note, and timed. (10% of grade)

- Statistics exam – timed and you are allowed a cheat sheet one page in length during the exam. You are allowed to use a calculator. (10% of grade)

Final paper (15% of total grade)

The final paper is 100 points but worth 15% of your final grade. The topic of your paper is: A comparative analysis of evictions in Franklin County, Ohio, 2016 to present. The final project involves mapping data and statistical analysis. This assignment requires students to demonstrate their understanding of humans' interaction with their environment(s) over a transformative time period. The final paper must be at least 1500 words, not including figures, figure captions and citations, using the same template as the labs. More detailed instructions for the paper are posted on Carmen Canvas. Turnitin and AI checks are enabled within Canvas for these submissions. This final project 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.

You do have **1** opportunity to extend your deadline **for 1 calendar day** during the semester, applied to a lab assignment of your choice. No permission is required, use this opportunity wisely, it can only be used once.

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 and the number of days requested in the extension.

Additionally, in case of personal and family emergencies, please notify us as soon as possible so that we can work out a submission timeline. Such extensions may or may not be granted, it is decided on a case-by-case basis at instructor discretion. 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. To request an extension for one of these emergency conditions, you must put the request in writing to Dr. Parece (cc to the TA) and the email must contain the following information:

- Course Name and Code (GEOG 2200 Mapping Our World)
- Reason for the extension request:
- The specific assignment:
- Specific extension requested:
- Attach documentation of the reason for the extension

Any emails requesting extensions without this information will be returned with a request to provide this information.

OTHER COURSE AND UNIVERSITY POLICIES

Academic Misconduct

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct **http://studentlife.osu.edu/csc/**.

Turnitin has been enabled for the lab and final paper submissions (https://www.turnitin.com/). Turnitin is a plagiarism and AI verification platform. This check is set to automatically review your paper when you submit it on Canvas. Please note that any assignments with significant scores may result in reporting a code of conduct violation to OSU's Committee on Academic Misconduct (please see the Academic Integrity Policy below). Please note that when you use quotes or repeat the assignment instructions within your written report, it increases the Turnitin and AI score. Avoid these when at all possible.

To maintain a culture of integrity and respect, generative AI tools should not be used in this complete of course assignments including lab reports, quizzes, exams, and final paper unless specifically authorized by Dr. Parece.

Disability Services

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If you anticipate or experience academic barriers based on your disability (including mental health, chronic, or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

If you are isolating while waiting for a COVID-19 test result, please let me know immediately. Those testing positive for COVID-19 should refer to the **Safe and Healthy Buckeyes site** for resources. Beyond five days of the required COVID-19 isolation period, I may rely on Student Life Disability Services to establish further reasonable accommodations. You can connect with them at **slds@osu.edu**; 614-292-3307; or **slds.osu.edu**.

Religious Holidays, Holy Days and Observances

Ohio State has had a longstanding practice of making reasonable academic accommodations for students' religious beliefs and practices in accordance with applicable law. In 2023, Ohio State updated its practice to align with new state legislation. Under this new provision, students must be in early communication with their instructors regarding any known accommodation requests for religious beliefs and practices, providing notice of specific dates for which they request alternative accommodations within 14 days after the first instructional day of the course. Instructors in turn shall not question the sincerity of a student's religious or spiritual belief system in reviewing such requests and shall keep requests for accommodations confidential.

With sufficient notice, instructors will provide students with reasonable alternative accommodations with regard to examinations and other academic requirements with respect to students' sincerely held religious beliefs and practices by allowing up to three absences each semester for the student to attend or participate in religious activities. Examples of religious accommodations can include, but are not limited to, rescheduling an exam, altering the time of a student's presentation, allowing make-up

assignments to substitute for missed class work, or flexibility in due dates or research responsibilities. If concerns arise about a requested accommodation, instructors are to consult their tenure initiating unit head for assistance.

A student's request for time off shall be provided if the student's sincerely held religious belief or practice severely affects the student's ability to take an exam or meet an academic requirement and the student has notified their instructor, in writing during the first 14 days after the course begins, of the date of each absence. Although students are required to provide notice within the first 14 days after a course begins, instructors are strongly encouraged to work with the student to provide a reasonable accommodation if a request is made outside the notice period. A student may not be penalized for an absence approved under this policy.

If students have questions or disputes related to academic accommodations, they should contact their course instructor, and then their department or college office. For questions or to report discrimination or harassment based on religion, individuals should contact the Office of Institutional Equity. Religious Holidays, Holy Days and Observances | Office of Academic Affairs, The Ohio State University (osu.edu)

Mental Health Statement

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. 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* or calling *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* and 24 hour emergency help is also available 24/7 by dialing 988 to reach the Suicide and Crisis Lifeline.

Statement on Title IX

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories (e.g., race). If you or someone you know has been sexually harassed or assaulted, you may find the appropriate resources at *http://titleix.osu.edu* or by contacting the Ohio State Title IX Coordinator at *titleix@osu.edu*.

Inclement Weather

Should in-person classes be canceled, we will meet virtually via CarmenZoom during our regularly scheduled time. I will share any updates via [CarmenCanvas, email or other mode of communication].

Course Schedule

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 6 - 11, 2025	Monday: Introduction to class Wednesday: Introduction to cartography and geospatial technologies Friday: Lab time Online Self-introduction due 1/14, responses due 1/17 Quiz 1 due Friday, 1/10 Required Reading: Household Food Security in the US, 2022 Optional Readings: Tyner Chapter 3	**ELO 1.1** **Goal Statement**: 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 12 - 18, 2025	Monday: Scale & Coordinate Systems Wednesday: Projections Friday: Lab time Quiz 2 due by 11 a.m. Monday 1/13 Lab 1 Detroit Public High Schools due 1/21 Optional Readings in Carmen Canvas: Kimmerling, et al. Chapters 1 – 4	**ELO 1.1** **Goal Statement**: 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 19 – 25, 2025	Monday: Martin Luther King Jr. Birthday, No class Wednesday: Thematic Map types, variables, and measurements Friday: Introduction to Lab 2 & lab time Lab 2 Wind Farm Suitability Analysis due 1/31 Optional Readings: Tyner Chapters 8 – 11 in Carmen: Kimmerling Chapters 7 & 8	**ELO 1.1, ELO 1.2, ELO 2.1, ELO 2.2, ELO 3.1** **Goal Statement:** 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 January 26 – February 1, 2025	Quiz 3 Map Types in Class on Wednesday, 1/29 Lab 2 Wind Farm Suitability Analysis due 1/31	**ELO 1.1** Engage in critical and logical thinking. **Goal Statement:** 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 2 – 8, 2025	Monday: Exam Review Wednesday: Exam on Maps Friday: Lab time	
Week 6 February 8 – 15, 2025	Monday: Data collection 2: GPS, observational data. Wednesday: Formulation of groups and preparation for Lab 3 Creating a Story Map (due 2/21) Friday: Lab 3 Data collection (on campus, outside activity) Quiz 4 in class on Wednesday, 2/11 Optional Reading: Tyner Chapter 1	**ELO 1.1 & ELO 3.1** **Goal Statement:** Students demonstrate the ability to work in a group and execute a group assignment within the confines of the university environment.
Week 7 February 16 – 22, 2025	Quiz 5 in class 2/19 Lab 3 Story Maps due 2/21	**ELO 1.1 & ELO 3.1** **Goal Statement:** Students select, identify, and map related places on OSU Campus, compare the locations to each other, defend their choices by explaining the value of the locations to other OSU students.
Week 8 February 23 – March 1, 2025	Monday: Descriptive Statistics Wednesday: Descriptive Statistics Practice Problems; Introduction to Lab 4 Friday: Lab time Quiz 6 due on Friday, 2/29 Lab 4 Health Disparities in Large US Metropolitan Regions due 3/7	**ELO 1.1, ELO 1.2, ELO 2.1, ELO 2.2, ELO 3.1** **Goal Statement:** Students will differentiate between different descriptive statistics, execute their use, and interpret the varying results when using different statistical measures.
Week 9 March 2 – 8, 2025	Monday: Probability, Distributions, Central Limit theorem Wednesday: Probability Practice Problems Friday: Finish Lab 4 Quiz 7 due on Friday, 3/7	**ELO 1.1 & ELO 2.1** **Goal Statement**: Students will discuss how statistical variables helps identify different living conditions between types of environments
Spring Break March 10 – 14, 2025		
Week 10 March 16 – 22, 2025	Monday: Hypothesis testing, gathering data, testing hypotheses Wednesday: Practice Hypothesis testing examples Friday: Lab time Quiz 8 due 3/21 Lab 5 Earthquakes Dashboard due 3/28	**ELO 1.1, ELO 1.2, ELO 2.1, ELO 3.1** **Goal Statement:** 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 peoples and the environments that they use.

Week 11 March 23 – 29, 2025	Monday: Correlation, Spatial Autocorrelation, Outlier/cluster analysis Friday: Lab time	**ELO 1.1 & ELO 2.1** **Goal Statement:** 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.
Week 12 March 30 – April 5, 2025	Monday: Final Lecture: Hotspot Analysis, Kernel Density, Interpolation Wednesday & Friday: Lab time Lab 6 Analyzing Patterns of Traffic Crashes & Volumes around Public Schools due 4/11	**ELO 1.1, ELO 1.2, ELO 2.1, ELO 2.2**. & **ELO 3.1** **Goal Statement:** 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.
Week 13 April 6 – 12, 2025	Monday: Exam Review Wednesday: Exam on Statistics Friday: Final paper, work time: A comparative analysis of eviction rates in Frankin County, Ohio, 2016 - present	**All ELOs** **Final Project Goal Statement:** 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.
Weeks 14, 15 & 16 April 13 – April 29, 2025	Final Paper: work time Final paper due April 21, 2025 Last Day of class: Monday, April 21, 2025	

ELO 1.1 Engage in critical and logical thinking.

This course builds skills for critical and logical thinking about humans and their interactions/impacts on various environments in which humans live and utilize. Students' knowledge is developed through lectures and verified through 8 weekly quizzes, six written lab reports, two exams and a final project. The quizzes allow students to practice the knowledge gained from lectures and the exams verify the synthesis of their knowledge. Through 6 labs assignments and a final project, students apply the skills learned by mapping spatial data, analyzing their results, applying statistical testing to evaluate their results (for 50% of the lab assignments), and reflect on their results, for the populations in the region of their analysis, in a conclusion section within their written lab essays. Students demonstrate their critical and logical thinking processes within their written lab essays, exams, and the final project. The course lectures and lab assignments present spatial problems focused on human centric variables critical to analysis on city design, use, allocation, and their implications to diverse populations. Through critically thinking how data present patterns of resource access, spatial distribution of human-centric services and the factors which impact the design, navigation, and purpose of communities, students link the analyses to real-world problems they can observe within their own surroundings. Five of these lab assignments must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor. Lab #3 Story Map assignment may be completed in collaboration with one other student.

Lab assignments are as follows:

- Lab 1 Analyzing Detroit Public High Schools. The intention of this lab assignment is to introduce students to the ArcGIS Online platform (and basic thematic map reading and spatial analysis) to address children's access (or lack thereof) to healthy and nutritious food. In preparation for this lab, students read the most recent USDA report on US Food Security. Students download a table of high school locations (data for each school includes name, address, number of students by race, total number of students, and percent of students eligible for the national free and reduced lunch program). Students add the table to a GIS, use geoprocessing operations to map the locations of the schools. Students then create various thematic maps using the different data identified in the table. Student describe the patterns seen within the map and reflect on why differences, if any, are seen between the schools. They question if a higher percentage of one race within a school equates to a higher qualification for the lunch program and how this relates to the USDA report (for example, does a higher percentage of utilization of the NSLP demonstrate a lack of access to health and nutritious foods within the locale of the different schools). Students utilize supplemental resources to help explain the patterns, as an example, using population numbers or incomes within census tracts to help explain the differences. Students consult the ancillary sources of their choice and reflect on the patterns seen.

- Lab 2 Wind Farm Suitability Analysis for Colorado. Addressing energy needs is an essential part of evaluating area livability for populations, especially in rural areas of places, such as Colorado, with growing populations. In this lab, students are provided a set of parameters to use when siting a new wind farm, in a county with a population over 20,000, within 10 miles of existing 400-kilovolt capacity powerlines, within 5 miles of an existing windfarm, and within a wind power class with windspeeds ≥ 12.5 mph. Students

download the data for all parameters and utilizing different geoprocessing tools within the GIS platform, identify the locations that meet all the parameters. After identifying suitable locations, the students are required to further evaluate the locations for connectivity to the company's corporate office in Denver Colorado and the suitability of the existing road systems to transport equipment to those identified locations. Within their lab reports, students reflect on the reasons why a new wind farm is needed. In their conclusions, students explain their final site selection and why this choice will meet the energy needs of the people residing in region.

- Lab 3 Story Maps. Within this lab assignment, students work in groups of 2 to explore OSU campus and identify 15 related locations that would be important for OSU students to know when engaging with each other while on campus. Students collect the location information using GPS apps and collect details on each specific location. Students upload the information collected into a GIS platform and map a direct route between locations and set their maps to zoom into each location as they navigate through the map. Students import the map into a story map online platform, tying their map and related bookmarked locations. Students write an introduction and, as navigation occurs through the story map, explain each location and how it relates to their overall theme. Examples of potential story maps include the best 15 locations to study on campus, the 15 oldest buildings on campus, 15 places to eat, 15 works of art, etc. This Story Map lab assignment may be completed in collaboration with one other student.

- Lab 4 Health Disparities in Large US Metropolitan Regions. This is the first lab assignment students complete after their introduction to descriptive statistics. Students use demographic data (total populations, mortality rates for heart disease, infectious diseases, respiratory illnesses, external (such as automobile accidents), tumors, all other) to determine if living in an urban versus suburban environment affects different types of mortality and their rates. Within this lab, students download boundary files for US Metropolitan areas and population data from the US Census Bureau. Students obtain mortality information from the Centers for Disease Control, which includes identification numbers of diseased by category for each metro area, and if the area is considered urban or suburban. Students add the data to a GIS platform, joining all the tabular data into the metropolitan areas. Within GIS, students calculate the rate of each type of mortality by population. Students are required to compare 2 types of mortality rates by region, then summarize the data by state. Students then export the data into a spreadsheet format to calculate descriptive statistics for each type of mortality by suburban and urban regions. In the students' results section of their report, they are required to first comment on the spatial patterns that they visualize within the relationship maps, for example – does one region have higher rates across all types or does one type predominate. They also write a comparative analysis by state, reflecting on the patterns seen. Students summarize the descriptive statistics to determine if there is a difference between all rates (or a specific rate) between urban and suburban. Within their conclusion statements, students are required to comment on the reasons why the relationships are seen within their analysis, including any differences seen in the by state analysis. Students are encouraged to use ancillary information in the conclusion section of their report to help support their conclusions.

- Lab 5 Creating an Earthquake Dashboard. In this lab, students are evaluating the impact of natural disasters on populations in two different highly populated and wealthy countries and are creating a mechanism with which people can interact to get more

information on these disasters. Students use current and active data from the United States Geological Survey for the occurrence of earthquakes around the world. They map the data, including magnitude, shake intensity. Students import this map to create an online dashboard platform and then add additional details such as place, time and date of most recent occurrences, a scatterplot of magnitudes over the past week and additional details such as: was an alert issued, did a tsunami warning occur, etc. The dashboard created is interactive that can be used by anyone who wants to understand earthquake patterns, locations, and impacts. In addition, the students download a table on earthquakes within the United States and calculate descriptive statistics for 6,000+ earthquakes that occurred over a 2-year period. Students are provided descriptive statistics for earthquakes in Japan over the same time period. Students apply inferential statistics to compare earthquakes between the US and Japan. Use of Japan and the United States allows the students to evaluate the impacts of a natural disaster on an area that is a densely populated high-income country (Japan) with that of the less densely populated and high-income county (the United States). Students have created a Dashboard useful to the public but also completed a lab report analyzing their dashboard, how it can be used, and reporting on the statistical analysis comparing the two countries. Within their conclusions of their lab report, students reflect on how this data can be used by populations within those two countries to help make informed decisions about the spaces where they live.

- Lab 6 Analyzing Patterns of Traffic Crashes and Volumes. Within this assignment, students are evaluating the interaction of school locations (fixed data) with gross traffic data and actual vehicle collisions. Students first map locations of traffic collisions for Pasadena California and filter these crashes to only include vehicles with pedestrian or bicycle accidents. The students then add school zones and identify those crashes that occur within ½ mile of each of the school zones, evaluating which school zones have higher exposure to this type of crash (where it could involve a student either walking or biking to school). Student then access a dataset that provides Traffic Counts for the entire US and filter this just to Pasadena California. They perform a geoprocessing operation that interpolates the locations into a density analysis – where the densest traffic patterns occur. Students interpret the findings, including the numbers of crashes and the density of the traffic. Students complete a comparative analysis to see if these traffic patterns are a contributing factor in the school zone accidents. Within their conclusions, they make recommendations for the City of Pasadena to reduce the students, who walk or bike to school, and their exposure to a potential accident.

ELO 1.2 Engage in an advanced, in-depth, scholarly exploration of the topic or ideas within this theme.

Students complete the 6 lab assignments (identified under ELO 1.1), which relate to various topics on human interaction with the lived and natural environments evaluating the spatial patterns seen within their mapping assignments and for 3 assignments include statistical analysis to either support or contradict their conclusions. 5 of the 6 lab assignments require a written lab report with the following headings: Introduction, Data, Methods, Results,

Conclusions and Recommendations, References. Five of these lab assignments must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor. Lab #3 Story Map assignment may be completed in collaboration with one other student. A template is provided for the student to use as follows:

Name:
Course: GEOG 2200 Mapping our World
Date:
Assignment Title: You Choose the Appropriate Title for your Report.

Introduction
What is the problem? State a hypothesis as to what you think you may find. In many instances the beginning of the lab tells you what you are evaluating. If you need help with your introduction, go back and read the introduction to the specific lab assignment.

Data:
What data did you use to investigate? Where did you get it?
For Example: *I obtained data for the public high schools in Detroit Michigan from the National Center for Education Statistics' Education Demographics and Geographic Estimates Program. This data includes each public school, the school's name, address and telephone number, total number of students, the number of students using the free and reduced price lunch program, and numbers of students by race/ethnicity.* You will identify the complete citation in your reference list.
Do not state that the data was provided to you in ArcGIS or that it was provided by the instructor or TA. Do not tell us what you did with the data, that goes in the next section.

Methods:
What did you do in GIS? What tools did you use and how did you analyze the data. Be very detailed about what you did. Did you do anything with the data in Excel? Do not discuss results or findings – that goes in the next section.

Results:
What are the results? What do the results mean? Why is it the case? What is the story you want to tell the audience from the results? Embed your maps here to demonstrate your point. When embedding maps, you also explain what the map is showing. If you are completing any statistical analysis, those results will also be presented here. Hold opinions and reflections for the next section.

Conclusions and recommendations:
What can you conclude from the analysis (reflect on the results shown in the prior section)? What does the analysis of these specific variables tell you about the environment in which these students live? Is there a problem that needs to be addressed/mitigated/solved? If so, what policy/strategies that should be implemented to solve the problem? Does the analysis seem incomplete without looking at additional variables (for example access to health and nutritious foods)? If so, what variables would you like to explore? Does your analysis promote additional questions that you would like to answer?

References:
You must cite your sources, including your data sources. Reading the assignment instructions gives you information on where the data was obtained. For example, data reference format:
National Center for Education Statistics' (NCES) Education Demographic and Geographic Estimates (EDGE) Program. 2024. Accessed through ArcGIS Online: Public School Characteristics - Current - Overview (arcgis.com)

ELO 2.1 Identify, describe, and synthesize approaches or experiences.

Students explore each of the course topics with a combination of lectures, quizzes, exams, lab assignments and a final project (lab assignments are identified in detail under ELO 1.1).

Lectures: course materials come from a variety of sources and students are provided access to these sources either through active online links or PDFs of reading materials. We have 11 topics containing materials from either peer-reviewed publications, professional organizations (such as Esri, the USDA or the United States Geological Survey) and textbooks. Each topic is introduced to the students through a verbal lecture including powerpoint slides. Students are engaged within the lectures through discussions of the topics as they are covered in class. Students are not required to purchase any textbooks; optional readings are provided. Exams and quiz questions come straight from the lectures (pdf of lectures are provided in accordance with OSU's accessibility requirements).

8 Quizzes (5 points each) provide students an opportunity to synthesize and practice the topics learned in class. For example, 2 quizzes are related to mapping questions (one quiz on projection types and distortions; one quiz on types of maps), 1 quiz is related to GPS concepts; 1 quiz to different scales of data; and 3 quizzes relate to statistical calculations (students are provided a sample set of numbers and are quired to calculate descriptive statistics (Quiz 6), calculate probability and use a Z table (Quiz 7) and perform a hypothesis test (Quiz 8)). These quizzes must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor.

Lab assignments (55%)

Two exams (one on mapping and one on statistics) further confirm students' understanding of the topics and concepts covered. The mapping exam covers basic mapping concepts students must understand before they can create and interpret maps, including projections, coordinate systems, types of maps, qualitative and quantitative thematic maps. The statistics exam covers definitions of different types of statistics (mean, mode, average, probabilities, etc.) and includes actual problems to calculate these different variables and evaluate Z test, t test and correlation. These exams must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor.

Lab Assignments: students are either provided or download geospatial data. This data is used to create a thematic map or maps. The students then write a written lab report as identified under ELO 1.2 and utilize their critical thinking skills to synthesize the data as it pertains to that specific population and the local environment. While the first 3 sections of the report (Introduction, Data and Methods) are describing their processes. The results and conclusions sections are the specific areas of the reports that the students demonstrate their critical thinking

skills and data synthetization. Within the results section, students include images of their complete maps with their interpretation of what the maps shows. Any statistical analysis completed is also discussed within this section and how it relates to their interpretation of the maps. Under Conclusions and Recommendations, students describe what the results tell them about their hypothesis, either rejecting or failing to reject, what conclusions about their issues being presented, how their conclusions impact those populations within their environment, and what they would do different to expand their analyses. Within the conclusions, students are asked to reflect on their analysis. Three of the six lab assignments include statistical analysis. In each lab assignment, students are evaluating actual locations where people live, actual data, and how the interactions within the environment (schools, locations needing new energy sources, how location affects healthy living (mortality rates), how OSU students can interact while on campus, the effects of natural disasters on populations, and traffic congestion and accidents near schools).

Final Project: Exploring Eviction Rates in Franklin County Ohio, 2016 to the Present. Students use demographic data to explore and answer questions on how and why specific demographic characteristics are found within the same environment (at the census tract level). Within this final project, students download American Community Survey data for variables such as total population numbers, unemployment rates, percentages of different minority populations at the census tract level for Franklin County, Ohio, and eviction rates (from Princeton University). Students complete this activity twice, once for 2016 and once for the immediate past year (2023). Students add the data to a GIS platform, joining all the tabular data into one file – Franklin County Census Tracts. Then using a relationship display, students are required to compare 3 types of relationships within the mapping symbology; median income to eviction rate is required, and the other 2 variables are students' choice (such as poverty rate to eviction rate or percent African American to eviction rate). Students then export the joined data into tabular form and import into Excel to create scatterplots and trend lines comparing the 3 same sets of data. In students' results section of their report, they are required to first comment on the spatial patterns that they visualize within the relationship maps. Students provide their results of the scatterplots and trend line, identifying if they support the relationships seen in the maps. Within their conclusion statements, students are required to reflect on the reasons why the relationships are seen within their analysis. Students compare their results from 2016 to current results, reflect on changes (or lack thereof). If a lack of change is seen, why? How can this problem be addressed? Students are encouraged to use ancillary information in this portion of their report. This final project must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor.

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.

Within the conclusions of 5 of the lab assignments and the final project, students are asked to reflect on the processes and results of their analyses. The final project analysis enables students to utilize the topics and skills they learned through lectures, quizzes, exams, and lab assignments to observe and critically analyze elements of society/human interaction with space to their own daily interactions with their lived environment, whether that be their current environment on campus or the place in which they will live after graduation.

Five of lab assignments must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor. Lab #3 Story Map assignment may be completed in collaboration with one other student.

These quizzes must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor.

These exams must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor.

This final project must be your own independent work and not completed in collaboration with any other student, the TA nor the instructor.

ELO 3.1 Engage with the complexity and uncertainty of human-environment interactions.

Four of the lab assignment address this ELO with regards to their lived environments and two are specifically related to human interaction with the natural environment.

Human/Environment Interaction – Lived Environments

- In Lab 1, Analyzing Food Access using Detroit Public High Schools, students are evaluating whether race affects access to schools' service to local populations, which could impact the health and vitality of a lived environment.
- For Lab 3, Story Maps, students are evaluating and providing information to OSU student population on how to utilize different services available within the OSU campus.
- For Lab 4 Health Disparities in Large US Metropolitan Regions, students are analyzing whether the urban or suburban lived environment impacts a healthy lifestyle by looking at historical records of different types of mortality.
- In Lab 6 Analyzing Patterns of Traffic Crashes and Volumes, student evaluate traffic patterns, collision information and locations of Pasadena California public schools. In their conclusions, students make recommendation to the City of Pasadena on implementation of policies or procedures to protect students who attend the schools.

Human Lived Environment, Interaction with Natural Environment

- Lab 2 Wind Farm Suitability Analysis for Colorado requires students to assess locations for a new Wind Farm in Colorado as noted under ELO 1.1. This assignment fits ELO 3.1 because it is evaluating multiple parameters needed to provide new energy sources (a new wind farm) for local populations. The lived environment is where populations in excess of 20,000 are located and the natural environment using wind as an energy source.
- In Lab 5 Creating an Earthquake Dashboard, students have created a Dashboard useful to the public but also completed a lab report analyzing their dashboard and how it can be used by populations in looking at/preparing for earthquakes. The statistical analysis comparing the two countries provides students an opportunity to explore the impacts on two types of populations and how different earthquakes impact the two populations similarly or dissimilarly.

ELO 3.2 Describe examples of human interaction with and impact on environmental change and transformation over time and across space.

This ELO is specifically addressed in Labs 2,5 and 6 and is addressed by the final project.

- Lab 2 Wind Farm Suitability Analysis for Colorado provides the opportunity to evaluate a new location for a renewable energy source and sustainable living. Within their conclusions sections, students frequently comment on how adding a new energy source today will provide for populations in the future.
- Lab 5 Creating an Earthquake Dashboard provides students the opportunity to evaluate two different lived environments (Japan and the United States) with a comparative analysis of actual earthquake data collected by the United States Geological Survey. The data analyzed using statistical data is historical data. The actual dashboard is using current data (up to and including the earthquakes that have occurred the day before the dashboard is completed by the student). Within the statistical analysis, students are using probability testing to calculate the likelihood of future earthquakes of different magnitudes and how these would impact the resident populations.
- Lab 6 Analyzing Patterns of Traffic Crashes and Volumes provides students the opportunity to evaluate how traffic congestion can affect the environment directly around and within school zones and the threat traffic can have on students walking or biking to the specific schools. Students are asked to provide specific recommendations on changes to make these zones safer.
- The final project is specifically addressing the changes overtime between 2016 and the present. Additionally, it is looking at data at the census tract level to determine if the spaces with above average historical rates of evictions have changed (and students are asked to address these causes of change or the lack thereof).

ELO 4.1 Analyze how humans' interactions with their environments shape or have shaped attitudes, beliefs, values and behaviors.

The final project Exploring Eviction Rates in Franklin County Ohio, 2016 to the present specifically addresses this ELO. Students are evaluating census tracts within Franklin County Ohio for correlation of multiple demographic variables, such as income and eviction rates. Students use their critical thinking skills to determine why correlations between different demographic variables and the possible causes of such spatial patterns and whether or not these patterns have changed over time. Students frequently see a pattern between higher percentages of African American populations, higher eviction rates and lower incomes, and many students tie these results to historical redlining in Columbus.

ELO 4.2 Describe how humans perceive and represent the environments with which they interact.

Lab 3 Story Maps addresses this ELO. Students map locations with a specific relationship and then create a story map using an online template to display and provide information about each location. This assignment addresses this ELO because the students decide on what part of OSU campus is important to them, thus would be important to other OSU students. Their

perception of importance depends on their individual life experiences both inside and outside of OSU.

ELO 4.3 Analyze and critique conventions, theories, and ideologies that influence discourses around environments.

Each one of the lab assignments address this ELO in a unique way**.**

- Lab 1 Analyzing Food Access using Detroit Public High Schools. Students explore real data to explain the rate of eligibility to the national free and reduced school lunch program with different percentages of race. Students answer if there is a correlation between different percentages and high eligibility. Does the example of schools in Detroit correlate with the USDA findings on US Food Insecurity?
- Lab 2 Wind Farm Suitability Analysis for Colorado. Students explore real data to analyze placement of a new renewable energy source and explain the reasons for additional energy needs and sources for a sustainable environment.
- Lab 3 Story Maps. Students use their individual histories and experiences along with their ability to navigate the space in which they live and are educated. By working in a group of 2 students, students come to an agreement on what aspect of OSU campus has shared importance to both students, and how the spaces they identify would also be important to other students.
- Lab 4 Health Disparities in Large US Metropolitan Regions. The demographic spatial patterns comparing the different mortality rates between each state and those comparing urban to suburban regions are very distinctive and show relationships between region and specific mortality rates. Students use their critical thinking to determine or propose causes and correlation between these patterns and the spaces where these patterns occur.
- Lab 5 Creating an Earthquake Dashboard. Students are analyzing the impact of natural phenomena that could have disastrous effects on two populations. Students analyze their own environment here in the United States and then complete a comparative analysis with another high income, densely populated country (Japan).
- Lab 6 Analyzing Patterns of Traffic Crashes and Volumes. Students explore levels of safety within specific school zones. Students use real data for traffic congestion and crash events involving pedestrians and bicycles within school zones to evaluate levels of safety and make recommendations to increase safety in those places with highest levels where safety is lacking.

The final project Exploring Eviction Rates in Franklin County Ohio, 2016 to the present specifically addresses this ELO. Students reflect on the results such as why correlations between different demographic variables, possible causes of such spatial patterns and whether, or not, these patterns have changed over time. Students frequently see a pattern between higher percentages of African American populations, higher eviction rates and lower incomes, and many students tie these results to historical redlining in Columbus.