SYLLABUS

GEOG 4998

Research Geography

Autumn 2026 (full term)
3 credit hours

Day: By arrangement with instructor
Time: By arrangement



COURSE OVERVIEW

Instructor

- **Name:** Sen Wang, Ph.D. C.M.
- **Email:** wang.18872@osu.edu
- **Office location:** 1105 Derby Hall
- **Office hours:** 2pm–4pm, T/W/Th or appointment by email

Prerequisites

There are no prerequisites for this course. You are free to take this class without ever having taken a Geography class beforehand. For the uninitiated, this may require extra work to get caught up.

Course description

GEOG 4998 provides undergraduate students with the opportunity to engage in supervised, independent research on topics within Geography. Students work closely with a faculty mentor to design, conduct, and communicate original research. Research topics may span physical geography, human geography, geospatial analysis, transportation and aviation geography, environmental systems, urban studies, or other approved areas within the discipline. The course emphasizes research skill development, critical thinking, and professional communication rather than mastery of a single content area.

Course learning outcomes

By the end of the course, students will be able to:

- Formulate a clear and feasible research question grounded in geographic theory or practice
- Conduct a structured review of relevant academic literature or data sources
- Apply appropriate geographic research methods (qualitative, quantitative, spatial, or mixed)
- Demonstrate progress in independent research through written, analytical, or applied outputs
- Communicate research findings clearly in written, visual, or oral formats

HOW THIS COURSE WORKS

Mode of delivery: This is an individually supervised research course and does not follow a traditional lecture or classroom format. Research activities and supervisory interactions are arranged by mutual agreement between the student and the instructor. At the beginning of the semester, the student and instructor will jointly establish a research plan, including anticipated goals, deliverables, and a general schedule for progress check-ins.

To support meaningful research progress, the student is expected to maintain ongoing communication with the instructor throughout the semester. Supervisory interactions may include periodic meetings, email correspondence, and feedback on research materials, as appropriate to the nature and stage of the project. The frequency and format of meetings (e.g., in person or virtual) may vary over the semester and are determined collaboratively, consistent with university policy for independent study and undergraduate research courses. As a 1-credit undergraduate research course, GEOG 4998 typically involves approximately 3 hours per week of research activity, including independent work and supervisory interaction, though actual time commitments may vary based on the scope of the project.

COURSE MATERIALS AND TECHNOLOGIES

Textbooks

There is no required textbook for this course. Readings and reference materials will be determined in consultation with the instructor based on the student's research topic.

Course Technology

Technology support

For help with your password, university email, Carmen, or any other technology issues, questions, or requests, contact the Ohio State IT Service Desk. Standard support hours are available at ocio.osu.edu/help/hours, and support for urgent issues is available 24/7.

- **Self-Service and Chat support:** ocio.osu.edu/help
- **Phone:** 614-688-4357(HELP)
- **Email:** servicedesk@osu.edu
- **TDD:** 614-688-8743

Carmen access

You will need to use BuckeyePass (buckeyepass.osu.edu) multi-factor authentication to access your courses in Carmen. To ensure that you are able to connect to Carmen at all times, it is recommended that you take the following steps:

- Register multiple devices in case something happens to your primary device. Visit the BuckeyePass - Adding a Device help article for step-by-step instructions (go.osu.edu/add-device).
- Request passcodes to keep as a backup authentication option. When you see the Duo login screen on your computer, click Enter a Passcode and then click the Text me new codes button that appears. This will text you ten passcodes good for 365 days that can each be used once.
- Download the Duo Mobile application (go.osu.edu/install-duo) to all of your registered devices for the ability to generate one-time codes in the event that you lose cell, data, or Wi-Fi service

If none of these options will meet the needs of your situation, you can contact the IT Service Desk at 614-688-4357(HELP) and IT support staff will work out a solution with you.

ASSIGNMENT AND GRADING RUBRIC

GEOG 4998 is an individually supervised research course. Because research projects may differ in topic, method, scope, and final product, specific expectations and deliverables will be established jointly by the student and instructor at the beginning of the semester. Assessment emphasizes sustained research progress, quality of work, responsiveness to feedback, and completion of the agreed-upon research objectives. This approach is consistent with the course structure described in the syllabus, in which the student and instructor establish research goals, deliverables, and a general schedule for progress.

ASSIGNMENT CATEGORY	PERCENTAGE
Research Proposal	20%
Literature and/or Data Review	20%
Research Methods and Analysis	30%
Final Report	30%
Total	100%

Research Plan and Proposal — 20%

The student will identify a research topic, formulate clear and feasible research question(s), establish project objectives, identify appropriate data or other research materials, and develop a realistic research plan.

Literature and/or Data Review — 20%

The student will identify, review, and synthesize scholarly literature, datasets, documents, or other materials relevant to the project. The student should demonstrate an understanding of the research context and explain how the proposed project relates to existing knowledge or practice.

Research Methods and Analysis — 30%

The student will develop and appropriately apply methods suited to the research question. Depending on the project, this may include quantitative analysis, qualitative analysis, spatial analysis, GIS, data collection, modeling, visualization, or other approved approaches. Evaluation will consider the appropriateness, accuracy, rigor, and documentation of the research process.

Final Research Product — 30%

The student will complete a final research product appropriate to the scope and stage of the project. Examples may include a research paper, report, poster, presentation, analytical portfolio, maps, visualizations, dataset and documentation, or another product approved by the instructor. Evaluation will consider completeness, quality of analysis, interpretation, clarity of communication, and the extent to which the final product addresses the agreed-upon research objectives.

GRADING SCALE

GEOG 4998 will be evaluated on a **Satisfactory/Unsatisfactory (S/U)** basis.

S — Satisfactory: A student earns a Satisfactory mark when the overall course performance demonstrates satisfactory completion of the agreed-upon research responsibilities. Normally, this requires:

- an overall weighted assessment of **70% or higher**;
- completion of the major agreed-upon research deliverables;
- reasonable and sustained progress toward the research objectives;
- appropriate application of research methods and responsible handling of data or other research materials;
- participation in agreed-upon meetings or progress communications;
- reasonable responsiveness to instructor feedback; and
- submission of an acceptable final research product.

U — Unsatisfactory: A student receives an Unsatisfactory mark when the overall course performance does not meet the minimum expectations for satisfactory research progress. An Unsatisfactory mark may result from an overall weighted assessment below **70%**, substantial failure to complete agreed-upon research activities or

deliverables, insufficient research progress, inadequate engagement with the research process, repeated failure to respond to feedback or maintain necessary communication, or failure to submit an acceptable final research product.

The above qualitative language on grades is adopted from: https://trustees.osu.edu/index.php?q=rules/university-rules/chapter-3335-8-instruction.html

COURSE SCHEDULE

As GEOG 4998 is an independent research course, the schedule provides a general framework rather than a fixed weekly lecture sequence. The specific timing of activities may be adjusted according to the student's research topic, methods, data availability, and progress.

Weeks	Research Activities and Milestones
Weeks 1–2	• Identify the research topic • Formulate research question(s) • Establish objectives, expected deliverables • Develop an research plan
Weeks 3–5	• Conduct literature and/or data review • Identify relevant theories, studies, datasets, or other research materials • Refine the research scope as needed
Weeks 6–7	• Develop the research design and methodology • Obtain and prepare necessary data or research materials.
Weeks 8–11	• Conduct the primary research and analysis. Activities may include data collection, GIS or spatial analysis, statistical analysis, qualitative analysis, modeling, mapping, visualization, or other project-specific research.
Weeks 12–13	• Interpret preliminary results • Conduct additional or revised analyses as appropriate • Discuss findings and next steps with the instructor
Weeks 14–15	• Prepare and revise the final research report
Final Week	• Submit the final research product and complete a final research progress discussion or presentation, as appropriate.

Research meetings and progress check-ins will occur periodically throughout the semester by mutual arrangement between the student and instructor. Note: Because research is iterative and may develop in unexpected directions, milestones and specific deliverables may be modified in consultation with the instructor. The schedule is subject to change due to research needs or unforeseen circumstances.

Instructor feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course. (Remember that you can call 614-688-4357(HELP) at any time if you have a technical problem.)

- **Grading and feedback:** For assignments and exams, you can generally expect feedback within 7 days.
- **Email:** I will reply to emails within 24 hours on days when class is in session at the university. I do not check email on the weekends and after 5 p.m. during the weekday.

OTHER COURSE POLICIES

Discussion and communication guidelines

The following are my expectations for how we should communicate as a class. Above all, please remember to be respectful and thoughtful.

Email communication style: I expect proper email etiquette. This means using your osu.edu email address for communication, writing the subject of your email in the subject line, identifying which class you're taking with me, being concise, not writing in block letters, using spell check, not deleting prior communications in your reply, and ending with a signature that includes your contact information. I am also expecting that you address me formally. You can find useful information on how to communicate via email at https://onpace.osu.edu/modules/polishing-your-job-etiquette-skills/communicate-as-a-professional/e-mail-etiquette-content-area

Tone and civility during office hours: Office hours are not individualized; you can expect multiple visitors. As a result, let's maintain a supportive learning community during office hours where everyone feels safe and where people can disagree amicably.

Academic Misconduct

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's Code of Student Conduct, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines

established in the University's Code of Student Conduct and this syllabus may constitute Academic Misconduct.

The Ohio State University's Code of Student Conduct (Section 3335-23-04) defines academic misconduct as: Any activity that tends to compromise the academic integrity of the University or subvert the educational process. Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's Code of Student Conduct is never considered an excuse for academic misconduct, so please review the Code of Student Conduct and, specifically, the sections dealing with academic misconduct.

If an instructor suspects that a student has committed academic misconduct in this course, the instructor is obligated by University Rules to report those suspicions to the Committee on Academic Misconduct. If COAM determines that a student violated the University's Code of Student Conduct (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in the course and suspension or dismissal from the University.

If students have questions about the above policy or what constitutes academic misconduct in this course, they should contact the instructor.

Using Artificial Intelligence (AI) in this class

There has been a significant increase in the popularity and availability of a variety of generative artificial intelligence (AI) tools, including ChatGPT, Claude, and others. These tools will help shape the future of work, research and technology, but when used in the wrong way, they can stand in conflict with academic integrity at Ohio State.

All students have important obligations under the Code of Student Conduct to complete all academic and scholarly activities with fairness and honesty. Our professional students also have the responsibility to uphold the professional and ethical standards found in their respective academic honor codes. Specifically, students are not to use unauthorized assistance in the laboratory, on field work, in scholarship, or on a course assignment unless such assistance has been authorized specifically by the course instructor. In addition, students are not to submit their work without acknowledging any word-for-word use and/or paraphrasing of writing, ideas or other work that is not your own. These requirements apply to all students undergraduate, graduate, and professional.

To maintain a culture of integrity and respect, these generative AI tools should not be used in the completion of course assignments unless an instructor for a given course specifically authorizes their use. Some instructors may approve of using generative AI tools in the academic setting for specific goals. However, these tools should be used only with the explicit and clear permission of each instructor, and then only in the ways allowed by the instructor.

If you use AI tools:

- You must first consult with me, as well as provide precise details on how you will use AI and to what end, as per the rules above. If you do not consult with us, and do not receive written approval to use AI, you cannot use it.
- If you use generative AI in your work, you must document, in detail, how and where you used it. For example, you can use footnotes to indicate where you used AI in an assignment, in much the same way you might cite a source.
- You are responsible for any information you submit in an assignment using generative AI, keeping in mind the points raised above about the fallibility of AI-generated information. If an AI tool generates plagiarized content, and you use it, you are responsible for the plagiarized content as per COAM.

Copyright for instructional materials

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

Intellectual Diversity

Ohio State is committed to fostering a culture of open inquiry and intellectual diversity within the classroom. This course will cover a range of information and may include discussions or debates about controversial issues, beliefs, or policies. Any such discussions and debates are intended to support understanding of the approved curriculum and relevant course objectives rather than promote any specific point of view. Students will be assessed on principles applicable to the field of study and the content covered in the course. Preparing students for citizenship includes helping them develop critical thinking skills that will allow them to reach their own conclusions regarding complex or controversial matters.

Grievances and Solving Problems

According to University Policies, if you have a problem with this class, you should seek to resolve the grievance concerning a grade or academic practice by speaking first with the instructor or professor. Then, if necessary, take your case to the department chairperson, college dean or associate dean, and to the provost, in that order. Specific procedures are outlined in Faculty Rule 3335-8-23. Grievances against graduate, research, and teaching assistants should be submitted first to the supervising instructor, then to the chairperson of the assistant's department.

Creating an Environment Free from Harassment, Discrimination, and Sexual Misconduct

The Ohio State University is committed to building and maintaining a welcoming community. All Buckeyes have the right to be free from harassment, discrimination, and sexual misconduct. Ohio State does not discriminate on the basis of age, ancestry, color, disability, ethnicity, gender, gender identity or expression, genetic information, HIV/AIDS status, military status, national origin, pregnancy (childbirth, false pregnancy, termination of pregnancy, or recovery therefrom), race, religion, sex, sexual orientation, or protected veteran status, or any other bases under the law, in its activities, academic programs, admission, and employment. Members of the university community also have the right to be free from all forms of sexual misconduct: sexual harassment, sexual assault, relationship violence, stalking, and sexual exploitation.

To report harassment, discrimination, sexual misconduct, or retaliation and/or seek confidential and non-confidential resources and supportive measures, contact the Civil Rights Compliance Office (CRCO):

Online reporting form: http://civilrights.osu.edu/

Call 614-247-5838 or TTY 614-688-8605

civilrights@osu.edu

The university is committed to stopping sexual misconduct, preventing its recurrence, eliminating any hostile environment, and remedying its discriminatory effects. All university employees have reporting responsibilities to the Civil Rights Compliance Office to ensure the university can take appropriate action:

- All university employees, except those exempted by legal privilege of confidentiality or expressly identified as a confidential reporter, have an obligation to report incidents of sexual assault immediately.

- The following employees have an obligation to report all other forms of sexual misconduct as soon as practicable but at most within five workdays of becoming aware of such information: 1. Any human resource professional (HRP); 2. Anyone who supervises faculty, staff, students, or volunteers; 3. Chair/director; and 4. Faculty member.

Religious Accommodations

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 Civil Rights Compliance Office.

Your mental health

As a student you may experience a range of issues that can cause barriers to learn, 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. No matter where you are engaged in distance learning, The Ohio State University's Student Life Counseling and Consultation Service (CCS) is here to support you. If you find yourself feeling isolated, anxious or overwhelmed, on-demand resources are available at go.osu.edu/ccsondemand. You

can reach an on-call counselor when CCS is closed at 614- 292-5766, and 24-hour emergency help is also available through the 24/7 National Prevention Hotline at 1-800-273-TALK or at suicidepreventionlifeline.org. The Ohio State Wellness app is also a great resource available at go.osu.edu/wellnessapp.

Disability Statement (with Accommodations for Illness)

The university strives to maintain a healthy and accessible environment to support student learning in and out of the classroom. If students anticipate or experience academic barriers based on a disability (including mental health and medical conditions, whether chronic or temporary), they should let their instructor know immediately so that they can privately discuss options. Students do not need to disclose specific information about a disability to faculty. To establish reasonable accommodations, students may be asked to register with Student Life Disability Services (see below for campus-specific contact information). After registration, students should make arrangements with their instructors as soon as possible to discuss your accommodations so that accommodations may be implemented in a timely fashion.

If students are ill and need to miss class, including if they are staying home and away from others while experiencing symptoms of viral infection or fever, they should let their instructor know immediately. In cases where illness interacts with an underlying medical condition, please consult with Student Life Disability Services to request reasonable accommodations.