ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health

Jump to Today

ENVH 465A / 565A: Geographic Information Systems (GIS) in Public Health

3 credits, graded

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Office hours available by appointment

Lectures on Thursdays 10:30-12:00pm in-person at Hans Rosling Center for Population Health room 135.

Computer Labs on Fridays in the Magnuson Health Sciences Building - Health Sciences Library Computer Classroom C (See note below on the need for your ID card to access the library, and rules for working in the lab). There are two sections, and please attend the section you signed up for, unless approved by instructor/TA that there is room to accomodate you working in the other section.

12:30-1:50pm
2:00-3:20pm

Both 465/565 will meet for one combined Thursday 90-minute lecture/discussion session each week. Additionally, each course will meet separately for a Friday 90-minute hands-on lab session in a computer lab.

Note: there is no final exam for this course. Students will present the final projects in the last 2 weeks of classes during the lecture period.

Note Regarding Access/Working in Health Sciences Library

Students, staff, and faculty may need to have their UW ID to key into the 2nd floor library entrance to get in the library. Per library staff: the 3rd floor entrance is locked for Autumn (we aren't allowing the general public into the Library for Autumn.)

Please refer to the library's latest hours/requirements/recommendations: **https://hsl.uw.edu/ (https://hsl.uw.edu/)**

Course Overview

The goal of this course is to familiarize students with the applications of Geographic Information Systems (GIS) in Public Health, and to provide students with practical experience using GIS methods to conduct spatial analyses. Lectures, case studies, and hands-on computer lab exercises will highlight the principles, methods, and techniques of spatial analysis to solve practical public health problems within a variety of health sub-disciplines, focusing on environmental health, but also exploring infectious diseases, health services and community health. Topics covered by this course include spatial data representation and management, visualization of spatial data using traditional GIS-based maps or newer interactive mapping technologies, and exploratory spatial data analyses.

Undergraduate students (ENV H 465) will focus on using existing health related datasets to conduct practical GIS analyses that solve common spatial analyses that might be encountered in daily public health practice.

Graduate students (ENV H 565) will focus on conducting original independent GIS analyses, using data that they have sourced themselves, to address a public health issue that they have identified.

Learning Objectives

By the end of this course, students in **both ENV H 465 and 565** should be able to:

- Solve practical Public Health spatial problems using GIS methods
- Differentiate between different spatial object representations, such as raster versus vector data, different map projections and coordinate systems

- Describe major sources of spatial data used in the Public Health, including those that come from the census, satellite imagery, street address geocoding, global positioning system, and health services
- Critique and produce maps
- Use spatial joins, buffer analyses, spatial overlays and map algebra, basic spatial statistics and cluster analyses
- Explain the value of GIS within Public Health, and be able to cite key studies in which GIS was used in environmental health, infectious disease, health services, and community health
- Demonstrate the ability to work effectively and co-operatively as part of a team

Additionally, graduate students in **ENV H 565** should be able to:

- Work independently to develop their own GIS project
- Effectively communicate the findings of a spatial data analysis
- Demonstrate fluency in technical writing and oral presentation

Class Format

Instruction will consist of a 90-minute lecture and a 90-minute supervised computer lab session each week. Each week will examine a specific public health topic with lecture, discussion, and readings demonstrating the use of GIS for spatial problem solving. The same topic will be explored with a hands-on computer lab exercise, which will provide practical experience with using GIS. The exercises may be conducted individually or in two-person student teams to allow for peer-learning and teamwork.

For undergraduate students (ENV H 465), the last two weeks of the course will be devoted to each student (individually, not in teams) conducting a final project assignment – an analysis of an instructor-provided GIS dataset to answer a set of provided questions. Students will be expected to apply the GIS skills they have learned in the class exercises in order to finish their final project assignment. The deliverable for the final project assignment will consist of concise answers to the questions provided. It will be due on the day after the last class at noon.

For graduate students (ENV H 565), the last two weeks of the course will be devoted to each graduate student (individually, not in teams) conducting an original GIS analysis final project. Unlike the projects undertaken by the undergraduate students, graduate students will be expected to:

1. Identify a real-world public health question or research hypothesis that involves spatial data analysis
2. Identify and collect spatial data to address their question/hypothesis
3. Use the methods acquired from the lab exercises to analyze their project data
4. Write a clear and concise (no more than 6-pages, single-spaced, not including figures & tables) final project report summarizing hypothesis, methods and findings.
5. Share what they learned from their project with the rest of the ENV H 565 class, by presenting a 1-slide oral summary at the end of the class.

The instructor will be available to advise on the analysis.

Please see the Assignment page on course Canvas site for the due dates of all exercises, assignments, and projects.

Student Assignments and Grading

For undergraduate students (ENV H 465):
Lab exercise reports = 50%
Final project assignment = 50%

For graduate students in (ENV H 565):

Lab exercise reports = 50%
Final project assignment = 35%
Final presentation = 15%

For all students in both courses, lab exercise reports will be prepared and submitted to the course website by each team (each student should submit their own copy of the lab report to the Canvas Assignment -- it can be the identical lab report for the team). The reports are due one week after the lab (at noon 12pm). Reports will be graded on the completeness of work, validity of findings, and quality of explanation. Specific questions asked in the lab assignments should be answered in the lab reports. Maps should be of good quality (e.g., with symbol legends, scale bars). The reports should be concise, typed, clearly organized, and submitted on time. 10% of each lab report score will be deducted for each day late.

For undergraduate students (ENV H 465), the final project assignment should completely and concisely address each of the questions asked in the assignment using the data provided. The work should be done independently of other students. Responses will be graded on accuracy, quality of the work (e.g., maps should be of good quality with symbol legends, scale bars, legible text), and should be submitted on time. 10% of the score will be deducted for each day late.

For graduate students (ENV H 565), a final project report should be prepared as described above. The report should have a clear structure (Using the following headings: Introduction, Methods, Results, Discussion, References), using tables and figures judiciously to support and communicate findings. Maps should be of good quality (e.g., with symbol legends, scale bars, legible text). The final report should be concise, typed, clearly organized, and submitted on time. 10% of the score will be deducted for each day late.

Graduate students (ENV H 565) will also prepare a final 2-minute "rapidfire" project presentation consisting of a single PowerPoint slide. The presentation may be "work in progress", focusing only on the goals and data used for the project, rather than actual findings, because the presentations will be

given before the final written project report is due. This presentation will be delivered during the last 2 lecture days to all students in the class (undergrads are expected to attend and learn from the graduate students presentations). The presentation will be given a full score if the student gives an oral presentation. If a presentation is not given, the student will receive a score of zero.

Student Responsibilities

Students in both ENV H 465 and 565 are expected to:

1. Participate in class discussions/group work.
2. Read the assigned readings.
3. Prepare and submit lab reports on time. Reports should be concise and clearly written.
4. Prepare and submit final project work on time.
5. Learn how to use citations: For ENVH 565 final project reports, give credit, when and where credit is due: if you mention other people's data, studies, etc., please be sure to cite it appropriately (see: **http://guides.lib.uw.edu/research/citations/citation-basics)** **(http://guides.lib.uw.edu/research/citations/citation-basics))**

GIS Software, Texts and Readings:

GIS software

We will be using ESRI ArcGIS. **http://www.esri.com/software/arcgis** **(http://www.esri.com/software/arcgis)**

You will be able to access this software on the computers in the Health Sciences Library computer lab. You can access the lab outside of class hours, when the library is open and others aren't using the computer lab.

UW students can also use ArcGIS by remotely logging into their CSDE accounts, which are paid for by the Student Technology Fee (this works well for both PC and Mac users): **https://csde.washington.edu/computing/accounts/** **(https://csde.washington.edu/computing/accounts/)**

UW maintains a site license for ArcGIS this is available for students: **https://depts.washington.edu/arcgis/pages/** **(https://depts.washington.edu/arcgis/pages/)**

While our course will focus on ArcGIS, the GIS skills are applicable to other GIS software, some of which are open source and freely available:

Maptitude (**http://www.caliper.com/** (http://www.caliper.com/))
GRASS (**http://grass.osgeo.org/)**
(http://grass.osgeo.org/)) QGIS (**http://www.qgis.org/en/site/** (http://www.qgis.org/en/site/))

Increasingly R (**http://www.r-project.org/** (http://www.r-project.org/)) is being used to perform spatial data analyses. If you would like to learn R spatial analysis, please consider the Instructor's online learning material and registering for independent study with the Instuctor separate from this course: **https://www.edmundseto.com/edmundseto/introduction-to-spatial-analysis-for-r-a-focus-on-environmental-health/** (https://www.edmundseto.com/edmundseto/introduction-to-spatial-analysis-for-r-a-focus-on-environmental-health/)

Recommended (but not required) course texts:

Cromley and McLafferty (2011) GIS and Public Health, 2nd Edition, The Guilford Press, New York. (*Pretty much the only overarching GIS textbook that focuses on Public Health that's relatively current. ~$52 used on Amazon*).

Kurland and Gorr (2012) GIS Tutorial for Health: Fourth Edition, ESRI Press, New York. (*An "exercise" oriented book with health services related examples. ~$20 used on Amazon*).

Land Acknowledgment

The University of Washington acknowledges the Coast Salish people of this land, the land which touches the shared waters of all tribes and bands within the Duwamish, Suquamish, Tulalip and Muckleshoot nations.

Illness Protocol

If you feel ill or exhibit respiratory or other symptoms, you should not come to class. Seek medical attention if necessary and notify your instructor(s) as soon as possible by email. UW Environmental Health & Safety recommends that you wear a well fitting mask while you are symptomatic.

Additional recommendations include getting your **annual flu shot** (https://wellbeing.uw.edu/flu-vaccination/) and getting boosted with the updated COVID vaccines (available **at clinics and pharmacies, as well as through UW Medicine** (https://www.washington.edu/coronavirus/vaccines/) and local health agencies).

Please check your email and CANVAS announcements daily BEFORE coming to class. If we need to conduct class remotely because the instructor or a guest speaker is unable to attend in person, we will send all registered students an email and/or post a CANVAS announcement with a Zoom link for remote instruction or a plan for making up the class.

Communication and Writing Skills

Communication through writing and speaking is an important transferable skill for all career pathways. Establishing a strong foundation in communication skills will help you be successful throughout your future course work and career. Therefore, this course includes assignments with the goal to help you identify areas of strength and improvement in your communication. If you feel that you could benefit from additional opportunities to improve your writing skills in particular, a list of resources at the UW and others accessible online can be found on the SPH website **here (https://sph.washington.edu/sites/default/files/2020-09/Writing-Resources-9.24.20.pdf)** .

Important Policies & Resources

Academic Integrity

Students at the University of Washington (UW) are expected to maintain the highest standards of academic conduct, professional honesty, and personal integrity.

The UW School of Public Health (SPH) is committed to upholding standards of academic integrity consistent with the academic and professional communities of which it is a part. Plagiarism, cheating, unauthorized use of artificial intelligence (AI) tools, and other misconduct are serious violations of the University of Washington **Student Conduct Code (WAC 478-121) (https://apps.leg.wa.gov/WAC/default.aspx?cite=478-121)** . We expect you to know and follow the university's policies on cheating and plagiarism, and the SPH Academic Integrity Policy. Any suspected cases of academic misconduct will be handled according to University of Washington regulations. For more information, see the University of Washington **Community Standards and Student Conduct (https://www.washington.edu/cssc/)** .

Use of Generative Artificial Intelligence in Coursework

TL;DR -- It's allowed.

AI continues to be an emerging technology that offers promising use within all academic fields. The school has provided instructors with the flexibility to develop their own policies for appropriate use of AI for student's coursework. I believe that we should embrace new technologies, and view AI as part of the evolution of tools that have always been well-intentioned to improve science and communication. Word processors (helped to improve the formating and editting of our writting), spell-checking (helped to

improve our spellling -- ah, that's spelling), grammer checking, etc. Today's it's common practice to criticize someone for having spelling and grammer errors and NOT having checked their writing with spell/grammer checkers. Obviously generative text AI tools, Chat-GPT are a different type of tool. But, you should be the the judge of whether you feel that you're leaning to heavily on tools such as Chat-GPT to generate your writing and ideas, such that it hampers rather than helps your learning. Moreover, you should seriously consider whether something generated by AI is or isn't correct, reflects your own thinking and understanding. Also note that the use of Chat-GPT and similar tools does not alleviate the need to cite sources and references in your writing.

Access and Accommodations

Your experience in this class is important to me. It is the policy and practice of the University of Washington to create inclusive and accessible learning environments consistent with federal and state law. If you have already established accommodations with Disability Resources for Students (DRS), please activate your accommodations via myDRS so we can discuss how they will be implemented in this course.

If you have not yet established services through DRS, but have a temporary health condition or permanent disability that requires accommodations (conditions include but not limited to; mental health, attention-related, learning, vision, hearing, physical or health impacts), contact DRS directly to set up an Access Plan. DRS facilitates the interactive process that establishes reasonable accommodations. Contact DRS at **disability.uw.edu (https://depts.washington.edu/uwdrs/)** .

Religious Accommodations

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at **Religious Accommodations Policy (https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/) (https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/)** . Accommodations must be requested within the first two weeks of this course using the **Religious Accommodations Request form (https://registrar.washington.edu/students/religious-accommodations-request/) (https://registrar.washington.edu/students/religious-accommodations-request/)** .

Inclusion & Diversity

Diverse backgrounds, embodiments and experiences are essential to the critical thinking endeavor at the heart of University education. In SPH, we are expected:

1. To respect individual differences, which may include, but are not limited to, age, cultural background, disability, ethnicity, family status, gender, immigration status, national origin, race, religion, sex, sexual orientation, socioeconomic status and veteran status.
2. To engage respectfully in the discussion of diverse worldviews and ideologies embedded in course readings, presentations and artifacts, including those course materials that are at odds with personal beliefs and values.
3. To encourage students with concerns about classroom climate to talk to their instructor, adviser, a member of the departmental or SPH EDI Committee, the Assistant Dean for EDI, or the program's director.

Classroom Climate

We are co-creators of our learning environment. It is our collective responsibility to develop a supportive learning environment for everyone. Listening with respect and an open mind, striving to understand others' views, and articulating your own point of view will help foster the creation of this environment. We engage our differences with the intent to build community, not to put down the other and distance our self from the other. Being mindful to not monopolize discussion and/or interrupt others will also help foster a dialogic environment.

The following guidelines can add to the richness of our discussion:

- We assume that persons are always doing the best that they can, including the persons in this learning environment.
- We acknowledge that systematic oppression exists based on privileged positions and specific to race, gender, class, religion, sexual orientation, and other social variables and identities.
- We posit that assigning blame to persons in socially marginal positions is counter-productive to our practice. We can learn much about the dominant culture by looking at how it constructs the lives of those on its social margins.
- While we may question or take issue with another class member's ideology, we will not demean, devalue, or attempt to humiliate another person based on her/his experiences, value system, or construction of meaning.
- We have a professional obligation to actively challenge myths and stereotypes about our own groups and other groups so we can break down the walls that prohibit group cooperation and growth. [Adapted from Lynn Weber Cannon (1990). Fostering positive race, class and gender dynamics in the classroom. *Women Studies Quarterly, 1 & 2, 126-134*.]

We are a learning community. As such, we are expected to engage with difference. Part of functioning as a learning community is to engage in dialogue in respectful ways that supports learning for all of us and that holds us accountable to each other. Our learning community asks us to trust and take risks in being vulnerable.

Here are some guidelines that we try to use in our learning process:

- LISTEN WELL and be present to each member of our group and class.

- Assume that I might miss things others see and see things others miss.
- Raise my views in such a way that I encourage others to raise theirs.
- Inquire into others' views while inviting them to inquire into mine.
- Extend the same listening to others I would wish them to extend to me.
- Surface my feelings in such a way that I make it easier for others to surface theirs.
- Regard my views as a perspective onto the world, not the world itself.
- Beware of either-or thinking.
- Beware of my assumptions of others and their motivations.
- Test my assumptions about how and why people say or do things.
- Be authentic in my engagement with all members of our class.

Pronouns

We share our pronouns because we strive to cultivate an inclusive environment where people of all genders feel safe and respected. We cannot assume we know someone's gender just by looking at them. So we invite everyone to share their pronouns.

Bias Concerns

The Office of the Dean has a **student concern policy (https://sph.washington.edu/students/student-concern-policy)**, a faculty concern policy and standard HR procedures for staff concerns. Our 2018 climate survey states that most people in SPH do not report bias incidents because they do not know where to go. Students are encouraged to report any incidents of bias to someone they feel comfortable with, including instructors, advisers or department staff. They can email **dcinfo@uw.edu (mailto:dcinfo@uw.edu)** for immediate follow up. Bias concerns can be anonymously and confidentially reported via the online form found here: **https://sph.washington.edu/about/diversity/bias-concerns (https://sph.washington.edu/about/diversity/bias-concerns)**. Data is collected by the Assistant Dean for EDI and the Director of Program Operations for Student and Academic Services and tracked for resolution and areas are identified for further training.

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follow the university's policies on cheating and plagiarism, and the **SPH Academic Integrity Policy (https://sph.washington.edu/students/academic-integrity-policy)**. Any suspected cases of academic misconduct will be handled according to University of Washington regulations. For more information, see the University of Washington **Community Standards and Student Conduct (https://www.washington.edu/cssc/)**.

Sexual Harassment

Sexual harassment is a form of harassment based on the recipient's sex that is characterized by:

1. Unwelcome sexual advances, requests for sexual favors, or other verbal or physical conduct of a sexual nature by a person who has authority over the recipient when:
   - Submission to such conduct is an implicit or explicit condition of the individual's employment, academic status, or ability to use University facilities and services, or
   - Submission to or rejection of the conduct affects tangible aspects of the individual's employment, academic status, or use of University facilities.
2. Unwelcome and unsolicited language or conduct that creates an intimidating, hostile, or offensive working or learning environment, or has the purpose or effect of unreasonably interfering with an individual's academic or work performance.

If you believe that you are being harassed, or have observed harassment, you can report it to SPH using the **bias concerns link (https://sph.washington.edu/about/diversity/bias-concerns)**. The University also has designated offices to help you: **SafeCampus (https://www.washington.edu/safecampus/)**; **Office of the Ombud (https://www.washington.edu/ombud/)**; **Title IX Investigation Office (https://www.washington.edu/titleix/report/)**; and **University Complaint Investigation and Resolution Office (https://www.washington.edu/compliance/uciro/)**.

Course Summary:

Date	Details	Due
Thu Sep 28, 2023	**ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304124&include_contexts=course_1663782)**	10:30am to 12pm
	ENVH 465/565 - Introductions (you, me, the course, the GIS Lab, and someone named John Snow)	10:30am to 12pm

Date	Details	Due
	(https://canvas.uw.edu/calendar?event_id=3303860&include_contexts=course_1663782)	
Fri Sep 29, 2023	ENVH 465/565 Lab Orientation (https://canvas.uw.edu/calendar?event_id=3303853&include_contexts=course_1663782)	12:30pm to 3:30pm
	Lab Work Exercise 1 (https://canvas.uw.edu/calendar?event_id=3304222&include_contexts=course_1663782)	12:30pm to 3:30pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304135&include_contexts=course_1663782)	12:30pm to 2pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304146&include_contexts=course_1663782)	2pm to 3:30pm
Thu Oct 5, 2023	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304125&include_contexts=course_1663782)	10:30am to 12pm
	ENVH 465/565 - Exploratory Data Analysis, Environmental Health (https://canvas.uw.edu/calendar?event_id=3303850&include_contexts=course_1663782)	10:30am to 12pm
Fri Oct 6, 2023	Exercise 1 Assignment Due (https://canvas.uw.edu/courses/1663782/assignments/8636634)	due by 12pm
	Lab Work Exercise 2 (https://canvas.uw.edu/calendar?event_id=3304223&include_contexts=course_1663782)	12:30pm to 3:30pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health	12:30pm to 2pm

Date	Details	Due
	(https://canvas.uw.edu/calendar?event_id=3304136&include_contexts=course_1663782)	
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304147&include_contexts=course_1663782)	2pm to 3:30pm
Thu Oct 12, 2023	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304126&include_contexts=course_1663782)	10:30am to 12pm
	ENVH 465/565 - Spatial Stats, Infectious Disease (https://canvas.uw.edu/calendar?event_id=3303869&include_contexts=course_1663782)	10:30am to 12pm
Fri Oct 13, 2023	Exercise 2 Assignment Due (https://canvas.uw.edu/courses/1663782/assignments/8636635)	due by 12pm
	Lab Work Exercise 3 (https://canvas.uw.edu/calendar?event_id=3304224&include_contexts=course_1663782)	12:30pm to 3:30pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304137&include_contexts=course_1663782)	12:30pm to 2pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304148&include_contexts=course_1663782)	2pm to 3:30pm
Thu Oct 19, 2023	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304127&include_contexts=course_1663782)	10:30am to 12pm

Date	Details	Due
	ENVH 465/565 - Community Health and Built Environment (https://canvas.uw.edu/calendar?event_id=3303881&include_contexts=course_1663782)	10:30am to 12pm
Fri Oct 20, 2023	Exercise 3 Assignment Due (https://canvas.uw.edu/courses/1663782/assignments/8636636)	due by 12pm
	Lab Work Exercise 4 (https://canvas.uw.edu/calendar?event_id=3304225&include_contexts=course_1663782)	12:30pm to 3:30pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304138&include_contexts=course_1663782)	12:30pm to 2pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304149&include_contexts=course_1663782)	2pm to 3:30pm
Thu Oct 26, 2023	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304128&include_contexts=course_1663782)	10:30am to 12pm
	ENVH 465/565 - Health Care Services, Location-Allocation Problems (https://canvas.uw.edu/calendar?event_id=3304466&include_contexts=course_1663782)	10:30am to 12pm
Fri Oct 27, 2023	Exercise 4 Assignment Due (https://canvas.uw.edu/courses/1663782/assignments/8636637)	due by 12pm
	Lab Work Exercise 5 (https://canvas.uw.edu/calendar?event_id=3304226&include_contexts=course_1663782)	12:30pm to 3:30pm

Date	Details	Due
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304139&include_contexts=course_1663782)	12:30pm to 2pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304150&include_contexts=course_1663782)	2pm to 3:30pm
Thu Nov 2, 2023	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304129&include_contexts=course_1663782)	10:30am to 12pm
	ENVH 465/565 - GPS and Mobile GIS (https://canvas.uw.edu/calendar?event_id=3303856&include_contexts=course_1663782)	10:30am to 12pm
Fri Nov 3, 2023	Exercise 5 Assignment Due (https://canvas.uw.edu/courses/1663782/assignments/8636638)	due by 12pm
	Lab Work Exercise 6 (https://canvas.uw.edu/calendar?event_id=3304228&include_contexts=course_1663782)	12:30pm to 3:30pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304140&include_contexts=course_1663782)	12:30pm to 2pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304151&include_contexts=course_1663782)	2pm to 3:30pm
Thu Nov 9, 2023	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health	10:30am to 12pm

Date	Details	Due
	(https://canvas.uw.edu/calendar?event_id=3304130&include_contexts=course_1663782)	
	ENVH 465/565 - Spatial Sampling and Spatial Interpolation (https://canvas.uw.edu/calendar?event_id=3303845&include_contexts=course_1663782)	10:30am to 12pm
Fri Nov 10, 2023	No Lab (Holiday) (https://canvas.uw.edu/calendar?event_id=3304230&include_contexts=course_1663782)	12:30pm to 3:30pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304141&include_contexts=course_1663782)	12:30pm to 2pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304152&include_contexts=course_1663782)	2pm to 3:30pm
Thu Nov 16, 2023	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304131&include_contexts=course_1663782)	10:30am to 12pm
Fri Nov 17, 2023	Exercise 6 Assignment Due (https://canvas.uw.edu/courses/1663782/assignments/8636639)	due by 12pm
	Lab Work Exercise 7 (https://canvas.uw.edu/calendar?event_id=3304231&include_contexts=course_1663782)	12:30pm to 3:30pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304142&include_contexts=course_1663782)	12:30pm to 2pm
	ENV H 465/565 Au 23: Geographic Information Systems	2pm to 3:30pm

Date	Details	Due
	(GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304153&include_contexts=course_1663782)	
Thu Nov 23, 2023	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304132&include_contexts=course_1663782)	10:30am to 12pm
	No class (Holiday) (https://canvas.uw.edu/calendar?event_id=3304232&include_contexts=course_1663782)	10:30am to 12pm
Fri Nov 24, 2023	No Lab (Holiday) (https://canvas.uw.edu/calendar?event_id=3304233&include_contexts=course_1663782)	12:30pm to 3:30pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304143&include_contexts=course_1663782)	12:30pm to 2pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304154&include_contexts=course_1663782)	2pm to 3:30pm
Wed Nov 29, 2023	Submit slides for Project Presentation (565 students only) (https://canvas.uw.edu/courses/1663782/assignments/8636641)	due by 12pm
Thu Nov 30, 2023	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304133&include_contexts=course_1663782)	10:30am to 12pm
	ENVH 465/565 - Last day of class (Project presentations for 565 students) (https://canvas.uw.edu/calendar?event_id=3303841&include_contexts=course_1663782)	10:30am to 12pm

Date	Details	Due
	Exercise 7 (optional) Assignment Due (https://canvas.uw.edu/courses/1663782/assignments/8636640)	due by 12pm
	ENVH 465/565 (Optional open lab today to work on your final projects) (https://canvas.uw.edu/calendar?event_id=3303843&include_contexts=course_1663782)	12:30pm to 3:20pm
Fri Dec 1, 2023	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304144&include_contexts=course_1663782)	12:30pm to 2pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304155&include_contexts=course_1663782)	2pm to 3:30pm
	Additional project presentations (https://canvas.uw.edu/calendar?event_id=3304218&include_contexts=course_1663782)	10:30am to 12pm
Thu Dec 7, 2023	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304134&include_contexts=course_1663782)	10:30am to 12pm
Fri Dec 8, 2023	ENVH 465/565 (Optional open lab today to work on your final projects) (https://canvas.uw.edu/calendar?event_id=3303842&include_contexts=course_1663782)	12:30pm to 3:30pm
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304145&include_contexts=course_1663782)	12:30pm to 2pm

Date	Details	Due
	ENV H 465/565 Au 23: Geographic Information Systems (GIS) In Public Health (https://canvas.uw.edu/calendar?event_id=3304156&include_contexts=course_1663782)	2pm to 3:30pm
Mon Dec 11, 2023	465 Final Assignment Due (https://canvas.uw.edu/courses/1663782/assignments/8636632)	due by 12pm
	565 Final Project Report Due (https://canvas.uw.edu/courses/1663782/assignments/8636633)	due by 12pm