

ESM 323: Environmental Systems Lab 1, Fall 2023
Syllabus

Lab Time: 14:00-17:50 Tuesday, Thursday, OR Friday

Instructor: Kelly E. Gleason, PhD, email: k.gleason@pdx.edu

Lab location: Science Research and Teaching Center (SRTC), Room 149

TAs and (Office Hours):

Tuesday: Bria Bleil for Lab 004 Tuesday 2-5:50pm (briab@pdx.edu; office hrs TBA)

Thursday: Tris Kibbey for Lab 003 Thursday 2-5:50pm (tkibbey@pdx.edu; office hrs TBA)

Friday: Sam Hall for Lab 005 Friday 2-5:50pm (hallsam@pdx.edu; office hrs TBA)

Course Format: In-person class meetings, once a week. Student teams may also schedule their own remote meetings to complete assignments.

Required Text or Other Materials: No separate textbook is required for this lab course. All written materials provided online in Canvas. However, the text required for the lecture part of this course, will be helpful for the lab section of the course. *Skinner and Murck (2011). The Blue Planet: An Introduction to Earth System Science, 3rd Edition. Wiley. Available used and new online or at the PSU Bookstore*

KEY POINTS TO KNOW ABOUT THE COURSE (Syllabus Summary):

1. Lab sessions are scheduled 14:00-17:50 each week.
2. Attendance every week is *mandatory*, recorded, and graded.
3. An electronic lab notebook file is due for submission in each lab and is due in the Canvas Submission folder before the start of the lab session. Submit clean scans of your work as a pdf *only*. *NO photos or jpegs accepted.*
4. Lab deliverables (reports, etc.) are due at 14:00 on the due date. The Canvas submission folder closes at 14:00 sharp.
5. Late submissions can be made only after contacting your TA. Late submissions lose 10% of points for each day late.
6. Each of the 3 equipment labs has a required online quiz in Canvas that tests your understanding of the instrumentation and methodology. You get two attempts at this quiz.
7. All email communication is via your ***.pdx.edu account *only*.

8. Teamwork is good. Plagiarism or dishonesty is bad and punishable.

Course Learning Objectives: The overall learning objectives of this laboratory course are to give students an experience in understanding, collecting, analyzing, and presenting data about physical earth systems including in the atmosphere, the hydrosphere, and the geosphere.

Specifically, students will develop proficiency in:

- Accessing printed and digital online resources preparation for data collection.
- Proper operation of field instrumentation.
- Teamwork in data processing and report preparation.
- The critical skills of organization, presentation and effective writing of results following standard scientific paper formatting

Lab Reports: There will be five major lab assignments submitted during the term:

1. One excel activity (Lab 1)
2. One lab worksheet (Lab 2)
3. One lab report in outline form (Lab 3)
4. One formal lab report (Lab 4)
5. One journal article evaluation (Lab 5)

As will be discussed in the class sessions and in supporting materials, lab reports must be written in standard scientific paper format using clear and concise language that conforms to the standards of academic written English (sentence structure, grammar, spelling, etc.).

GRADING

Lab assignment evaluation criteria:

Lab 1 – 20 points

Lab 2 – 20 points

Lab 3 – 40 points

Lab 4 – 60 points

Lab 5 – 30 points

Grading notes:

% Grade	Letter
90-100	A
80-89	B
70-79	C
60-69	D
<60	F

The quantitative learning evaluations total 250 points; see breakdown in table below.

Item	Points	Percent	Notes
Lab assignments (5)	170	68%	Started in-class on lab days, due before the following lab day.
Quizzes (3) @ 10pt ea	30	12%	Due before experimental lab days (wk 2,4,6)
Participation	50	20%	Attendance will be taken during class.
<i>Total</i>	250	100%	

Due Dates: Lab reports and worksheets **must** be turned in **on time** via Canvas. Submissions must be made *prior to the beginning of the lab period*. **Ten percent of assignments points are lost**

per day overdue.

Lab Datasheets: Use the lab datasheet templates provided by your TA to record data and field observations. Your lab notes will be turned in at the end of each Lab via Canvas.

Participation: Students will be graded on attendance **and** active participation. Active participation includes participating in in-person activities, having a positive attitude, and the ability to work professionally with other students. If you need to miss a lab for a valid reason, let the TA know ahead of time. **You *must* email the TA no later than the morning of your planned absence to receive attendance credit for the lab session.** You are responsible for getting any relevant data for the missed lab session from your lab team members.

Preparation: You are required to review individual Lab instructions and materials *before* Lab.

ESM 323 Lab Course Schedule:

Week	Topics	Location
1	Lab 1: Excel tutorial <i>Complete in class:</i> Excel tutorial.	Lab
2	Lab 2: Radiation physics, light in the environment, heat transfer. <i>DUE before class:</i> Excel tutorial Lab 1 <i>Complete in class:</i> Lab 2 worksheet	Lab/PSU on campus
3	Lab 3, Part 1: Prepare for field work, map resources and map reading, data collection table in lab notebook, introduction to field instrumentation <i>DUE before class:</i> Lab 2 worksheet <i>Complete in class:</i> Identify field site locations and record elevation of all sites <i>DUE before class in Week 4:</i> Lab notebook prepared for data collection	Lab
4	Lab 3, Part 2: Field data collection. Atmospheric pressure and temperature relationships to altitude in the Tualatin Mountains. <i>DUE before class:</i> Lab notebook prepared for data collection <i>Complete in field:</i> Field data recorded in lab notebooks. <i>Complete in class after field:</i> Initial data workup. <i>DUE before class in Week 5:</i> Lab 3 report outline with abstract and introduction	Field/ West Hills

5	<p>Lab 4, Part 1: Prepare for field work, map resources and map reading, site orientation, field instrumentation. Manning velocities, review of data collection, demo practice for field sampling.</p> <p><i>DUE before class:</i> Final Lab 3 outline report</p> <p><i>Complete in class:</i></p> <ul style="list-style-type: none"> Identify field site location and record elevation Practice calculations for simulated stream sampling <p><i>DUE before class in Week 6:</i> Lab notebook prepared for data collection</p>	Lab
6	<p>Lab 4, Part 2: Field data collection. Crystal Springs Creek field work, stream flow and watershed properties.</p> <p><i>DUE before class:</i> Lab notebook prepared for data collection</p> <p><i>Complete in field:</i> Field data recorded in lab notebooks.</p> <p><i>Complete in class after field:</i> Initial data workup.</p> <p><i>DUE before class in Week 7:</i> Draft Methods and Results sections of Lab 4.</p>	Field/ Johnson Creek
7	<p>Lab 5: Scientific writing, journal article evaluation</p> <p><i>DUE before class in Week 7:</i> Draft Methods and Results sections of Lab 4.</p> <p><i>DUE before class in Week 8:</i> Journal article evaluation (Lab 5).</p>	Virtual due to Veterans day
8	<p>Lab 4, Part 3: Watershed delineation, contributing drainage area statistics, basic GIS, and data visualization.</p> <p><i>DUE before class:</i> Journal article evaluation (Lab 5).</p> <p><i>Complete in class:</i> Watershed delineation of Crystal Springs and Johnson Creek</p> <p><i>DUE in Week 9:</i> Have a safe holiday!</p>	Lab
9	<p>NO LAB: Thanksgiving Holiday Thursday</p> <p><i>DUE in Week 10:</i> Lab 4 full report draft, printed copies for peer review</p>	---
10	<p><i>DUE before class:</i> Lab 4 full report draft, printed copies for peer review</p> <p><i>Complete in class:</i> Lab 4 report peer review.</p> <p><i>DUE in Week 10:</i> Two days following peer review in class, submit final Lab 4 full report on Canvas.</p>	Lab

Extra Credit: Environmental physics scavenger hunt (extra credit) available to do on your own time and available via Canvas.

Live Lab Sessions: The class **meets together at SRTC 149 at 2:00 PM** sharp on the day of your section. On-time arrival is critical as important information you need will be shared at the start of each session. The activities in each session will vary but typically will include an opening introduction and overview of the day by the TA, a chance for open Q & A about prior lab activities, a period for performing lab activities and data recording, and other discussion and breakout sessions.

Lab Instrumentation Quizzes: For each instrumentation lab (Labs 2, 3, and 4) there is an accompanying online quiz in Canvas that tests your understanding of any instrumentation used in the lab and the methodology employed. The quizzes are short and fairly easy, but they are required and are worth 12% of your final grade.

You are given 10 min to complete an attempt and you get **two** attempts. Quizzes **must be completed by 11:59 PM on the night of the corresponding lab session**. The online quiz is locked at this time and **no late submissions allowed**.

Mandatory Field Trips: There will be 3 field trips for this lab course where we will be going outside the lab room SRTC 149. These will occur during week 2 around the PSU campus, during week 4 up Burnside in the West Hills of Portland, and during week 6 at Johnson Creek in SE Portland. You will be required to sign a waiver for these field trips, and inform the instructor/TAs whether you will utilize the rented vans to attend the field trips by the end of week 1.

Email: All email correspondence must use pdx.edu email addresses as these are considerably more secure than most “free” services and will allow much easier access to shared files throughout the term. **Please DO NOT use the Canvas email tools to contact your lab TA!** Your lab TA will always strive to respond to emails within 24 hours (excluding weekends and holidays), so please wait at least that long before sending follow up emails regarding the same issues. **Please include “ESM 323” in all email subject lines to ensure your messages can be quickly identified and replied to!**

Safety and Proper Lab PPE (aka Lab attire): When in the teaching lab you should always wear closed toed shoes and long pants or skirts that fully cover your legs and ankles. No sandals or exposed leg skin is permitted. If you are not complying with the dress code you may be asked to leave the room and miss the lab period. Alternatively, the room contains waders and rubber boots that you can borrow. Some labs may use chemicals or heat hazards. In these labs the TA will instruct you to wear personal protective equipment and to tie back any long hair. They may ask you to leave the room if you do not comply with these safety instructions.

Statement on Academic Honesty: All PSU students are expected to respect the honor of the educational process. Plagiarism of any form will not be tolerated in this class and will result in failing grades for the assignment and course participation, and a referral to the Office of the Dean of Student Life. For more information, please see the Portland State University's Bulletin.

Examples of academic misconduct include, but are not limited to:

- **Copying** the coursework of someone else
- Submitting for credit **work done by someone else** (including plagiarism and paraphrasing without citing sources)
- **Tampering** with the University's grade records, or with another student's work
- Knowingly and intentionally **assisting another student in any of the above**

Please contact your TA at the beginning of the term if you have any DRC accommodation needs.

Access and Inclusion for Students with Disabilities:

PSU values diversity and inclusion; we are committed to fostering mutual respect and full participation for all students. Our goal is to create a learning environment that is equitable, usable, inclusive, and welcoming. If any aspects of instruction or course design result in barriers to your inclusion or learning, please notify your TA. The Disability Resource Center (DRC) provides reasonable accommodations for students who encounter barriers in the learning environment.

If you have, or think you may have, a disability that may affect your work in this class and feel you need accommodations, contact the Disability Resource Center to schedule an appointment and initiate a conversation about reasonable accommodations. The RC is located in 116 Smith Memorial Student Union, 503-725-4150, drc@pdx.edu, <https://www.pdx.edu/drc>.

- If you already have accommodations, please contact me to make sure that the TA has received a faculty notification letter and discuss your accommodations.
- For information about emergency preparedness, please go to the Fire and Life Safety webpage(<https://www.pdx.edu/environmental-health-safety/fire-and-life-safety>) for information.

COVID POLICIES

Classroom Requirements for All Students and Faculty Due to Covid-19

The University has established rules and policies to make the return to the classroom as safe as possible. It is required for everyone to follow all the Return to Campus rules and policies. To participate in this class, PSU requires all students to comply with the following.

COVID-19 VACCINE REQUIREMENT

Portland State University's COVID-19 Vaccine Policy requires all students who learn, work, and engage at PSU locations to submit either (1) an attestation confirming the student is fully vaccinated; (2) an attestation confirming they will not be taking in person classes, living in on-campus housing and not be using in person services; or (3) submit an applicable exemption as described below.

This requirement applies to all students enrolled in or registered for in-person instruction for any portion of their course load. It also applies to students who are registered for fully online courses and participate in any on-site or in-person university activity or university-provided or sponsored service.

Health Check, Illness, Exposure, or Positive Test for COVID-19

Complete the required self-check for COVID-19 symptoms before coming to campus each day. Please do not come to class if you are feeling ill or showing any symptoms of COVID-19.

Please notify your TA should you need to miss a class period for any of these reasons so that we can

discuss strategies to support your learning during this time.

Failure to Comply with Any of these Rules

As the instructor of this course, the University has given me the authority to require your compliance with these policies. If you do not comply with these requirements, I may ask you to leave the classroom, or I may need to cancel the class session entirely.

In addition, failure to comply with these requirements may result in a referral to the Office of the Dean of Student Life to consider charges under PSU's Code of Conduct. A student found to have violated a university rule (or rules) through the due process of student conduct might face disciplinary and educational sanctions (or consequences). For a complete list of sanctions, see Section 14 of the Student Code of Conduct & Responsibility.

Guidance May Change

Please note that the University rules, policies, and guidance may change at any time at the direction of the CDC, State, or County requirements. Please review the University's main COVID-19 Response webpage and look for emails from the University on these topics.

Cheating or plagiarism in any form is unacceptable. Cheating includes, but is not limited to: copying work or allowing your work to be copied; use of unauthorized material during quizzes and exams; any communication between students during quizzes and exams, including take-home exams; actively looking at another student's paper during a quiz or exam. Plagiarism includes copying from or resubmitting homework from a previous semester, whether your own work or that of another, whether previously graded or not. Plagiarism also includes using laboratory data from another person [unless specifically instructed to share data] or from a previous semester. Any occurrence of cheating may be reported to the Office of Student Conduct. Reports of cheating, or suspected cheating, by classmates will be kept strictly confidential and anonymous to every extent possible. Cheating by classmates inflates grades and dilutes the value of ethical hard work. Cheating may incur various consequences, up to and including course failure.

Safety is a top priority in the classroom, lab, and field. Safety protocols will be presented and reviewed as necessary. Safety includes treating each other with respect.

Title IX and Mandatory Reporting Statement:

Portland State is committed to providing an environment free of all forms of prohibited discrimination and sexual harassment (sexual assault, domestic and dating violence, gender or sex-based harassment and stalking). If you have experienced any form of gender or sex-based discrimination or sexual harassment, know that help and support are available. PSU has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and on-housing accommodations, helping with legal protective orders, and more. Information about PSU's support services on campus, including confidential services and reporting options, can be found on PSU's Sexual Misconduct Response website or you may call a Confidential Advocate at 503-894-7982 or by scheduling on-line: psuwrc.youcanbook.me. You may also report any incident of discrimination or discriminatory harassment, including sexual harassment, to the Title IX Coordinator, Office of Equity and Compliance, or the Office of the Dean of Student Life. Please be aware that all PSU faculty members and instructors are required to report information of an incident that may constitute prohibited discrimination, including sexual harassment and sexual violence. This means that if you tell me about a situation of sexual

harassment or sexual violence that may have violated university policy or student code of conduct, I have to share the information with the University's Title IX Coordinator or the Office of the Dean of Student Life. Please complete the required student module Understanding Sexual Misconduct and Resources in your D2L, which provides information about PSU policy and resources.

Mandatory reporting notice: The instructor of this course is required to report any instance or suspicion of harassment or discrimination or intimidation, sexual or otherwise, observed first-hand or brought to the instructor's attention by a student. Please feel free, encouraged, and supported to report instances of harassment or discrimination or intimidation to the instructor. Confidentiality will be maintained to the degree possible while following university, state, and federal policies regarding reported behaviors or incidents.

Emergency Notification System: PSU has made an emergency notification system available for faculty, students, and staff, please register at <https://www.pdx.edu/emergency-management/psu-alert-emergency-notification-system>. Please register in Banweb with emergency contact information (cell, email, text, etc.). You may have been prompted to complete emergency contact information when registering for classes in Banweb. In the event of a building evacuation, a map at each classroom entrance shows the evacuation point for each building. Please refer to it. Individual class cancellations may be made at the discretion of the instructor.

General student information:

Please learn about and use the many campus resources available to you via PSU's I Am A Student website: <https://www.pdx.edu/student>. These resources are made possible by your tuition and fees.

Students with documented disabilities who may need accommodations, who have any emergency information the instructor should be aware of, or who need special arrangements in the event of an evacuation, should make an appointment with the instructor as early as possible, and no later than the first week of the term. Class materials will be made available in an accessible format upon request.

All students should review the PSU policies on classroom conduct and academic honesty at, <https://pdx.smartcatalogiq.com/en/2016-2017/Bulletin/Student-Policies-and-Guidelines/Student-Conduct>

Student Resources:

PSU Library, <http://library.pdx.edu/>

PSU Writing Center, <http://www.writingcenter.pdx.edu/>

Disability Resource Center, <http://www.pdx.edu/drc/>

Don't forget to check out the ESM department and School of Environment webpages:

<http://www.pdx.edu/esm/>

<http://www.pdx.edu/environment/>

Advising & Career Services: <https://www.pdx.edu/careers/> and

<https://www.pdx.edu/careers/what-can-i-do-degree-environmental-studiesenvironmental-sciences>

Library Research Tutorials: <http://guides.library.pdx.edu/home/howto> and <http://guides.library.pdx.edu/biology>

Safe Campus: If you have not done so already, please complete the [Safe Campus Module in D2L](#). The module should take approximately 30 to 40 minutes to complete and contains important information and resources. If you are uncomfortable completing the module, please send an email to saveact@pdx.edu to request an exemption. If you or someone you know has been harassed or assaulted, you can find the appropriate resources at Sexual Misconduct Prevention & Response: www.pdx.edu/sexual-assault/. PSU's Student Code of Conduct makes it clear that violence and harassment based on sex and gender are strictly prohibited and offenses are subject to the full realm of sanctions, up to and including suspension and expulsion. <http://www.pdx.edu/sexual-assault/safe-campus-module>

Learning Center/Free Tutoring: <http://www.pdx.edu/tutoring/> PSU library rm 245

Writing Center: for class assignments, resumes... <http://www.writingcenter.pdx.edu/> Cramer rm 188

Please consult the Purdue OWL regarding *plagiarism* and other writing issues: <https://owl.english.purdue.edu/owl/resource/589/01/>

Math: <https://www.pdx.edu/math/math-resource-lab>; Department of Mathematics and Statistics provides free tutors for lower division algebra, calculus and statistics: <https://www.pdx.edu/math/resources>

Disability Resource Center: If you are a student with a documented disability and are registered with the Disability Resource Center, please contact me so that we can arrange whatever academic accommodations you need.

Veterans: If you are a Veteran and have questions about University services or need assistance with your transition from military to campus life, please contact Chris Goodrich, Coordinator of Veterans Services at the Office of Veterans' Services, SMSU room 425.

Multicultural Centers: <https://www.pdx.edu/dmss/multicultural-student-center> ; <https://www.pdx.edu/dmss/native-american-student-community-center> ; <https://www.pdx.edu/dmss/la-casa-latina-student-center>

Queer Resource Center: www.pdx.edu/queer

See the ESM www site for scholarship opportunities.

LSAMP (Louise Stokes Alliance for Minority Participation) is dedicated to enhancing the undergraduate experience for underrepresented students in Science, Technology, Engineering, and Mathematics. Funded by the National Science Foundation, our LSAMP program focuses on: Creating a community among LSAMP scholars that values excellence, diversity, and persistence; and Expanding opportunities for LSAMP scholars through participation in undergraduate research experiences and leadership initiatives. If you're interested in finding out more, visit our LSAMP center [in 103 Epler Hall](#), talk to ESM-LSAMP faculty advisory member Cat de Rivera <derivera@pdx.edu>, SRTC 238e, or check out: <http://www.pdx.edu/lsamp/home>

McNair Fellows program - for first-generation to college students as well as students from backgrounds underrepresented in the sciences.

EXITO - first year students interested in health-related disciplines (broadly defined) are encouraged to apply to the NIH-funded EXITO program spring of their freshman year:

<http://www.pdx.edu/undergraduate-pathways-to-research-careers/about-build-exito>