



<https://xkcd.com/1662/>

ENR 4285: Watershed Hydrology

Spring Semester 2023

3 credit hours

Lecture: Monday/Wednesday 12:40 – 1:35 (Kottman 102)

Lab: Thursday 10am – 1pm or 2pm – 5pm (Heffner Wetlands)

Instructor:

Dr. Rachel Gabor, gabor.40@osu.edu,

Office Hours: See Carmen

Teaching Assistant:

Holly Stanley, stanley.406@osu.edu

Office Hours: See Carmen

Course Description:

In this course we will study the movement of water and how water interacts with the landscape at the watershed/catchment scale. By the end of the semester students will be able to:

- Utilize basic scientific principles to describe controls of the hydrologic cycle on a watershed scale
- Understand the relationship between water and the landscape and how the landscape drives watershed hydrologic functioning
- Use multiple physical and chemical techniques to characterize the hydrology of a watershed
- Utilize the scientific method and conduct data analyses to investigate the hydrologic functioning of watersheds

Course Structure and Attendance Expectations

In person vs. online expectations for this class will vary. Please check Carmen modules weekly.

Lecture (Monday / Wednesday 12:40 – 1:35): These sessions will happen in one of the following ways:

- (1) You will be asked to complete asynchronous work on your own time in place of scheduled lecture.
- (2) Class will be held in the classroom (Kottman 102). These will not be livestreamed on Zoom.
- (3) Class will be held over Zoom (this will be rare)

LECTURE ATTENDANCE EXPECTATIONS: All synchronous sessions will be recorded on Zoom and posted to Carmen. It is in your best interest to attend class, however **you do not need to inform us if you must miss class**. If you miss, please watch the recording, get notes from a classmate, and come to office hours with any questions.

Lab (Thursday 10-1 or 2-5) There will be three kinds of lab activities:

- (1) Activities you can complete on your own at any time during the week
- (2) Activities which will occur over synchronous Zoom sessions during the scheduled timeslot,
- (3) Activities which will occur outdoors or indoors

Check the weekly modules on Carmen to be clear on what to expect each week. Note that due to weather sometimes plans for outdoor labs are subject to last minute changes.

LAB ATTENDANCE EXPECTATIONS: Attendance is expected for synchronous Zoom activities as well as classroom/outdoor labs. **If you must miss lab please contact Dr. Gabor as soon as you can, ideally before lab.**

WHAT IF I'M SICK?: If you (1) have any symptoms (fever, body aches, cough, sore throat, etc) or (2) have tested positive for COVID within the last 10 days, **please do not come to class**. If you are sick in other ways (flu, RSV, etc), also please stay home. Your number one priority in these cases is to rest as much as possible and get better. If you feel well enough you are welcome to participate over Zoom, but you are also welcome to wait and make the work up after you recover. Please communicate with Dr. Gabor and your TA as much as possible about your situation so we can work with you.

Nothing we do in class is more important than the health and well-being of you, your classmates, and your instructors. Please respect that by taking care of yourself and doing all you can to avoid exposing those around you.

What Book Do I Need?

Main Text:

- Hendriks, Martin. 2010. *Introduction to Physical Hydrology*, Oxford University Press

This text is required. A physical copy is available on reserve at the CFAES library. Unfortunately there is no online edition. There is also a physical copy in Dr. Gabor's office and with the TA which you can borrow but cannot leave Kottman with.

Supplemental Texts (for reference):

- Brooks, Kenneth, Peter F Ffolliott, Joseph A Magner. 2012. *Hydrology and the Management of Watersheds*. 4th edition. Wiley-Blackwell. (eBook available online through OSU library)
- Hornberger, George M., Patricia Wiberg, Jeffrey P. Raffensberger, Paolo D'Odorico. *Elements of Physical Hydrology*. Johns Hopkins University Press.
- Occasional supplementary reading will be posted on Carmen.

How to use the text: Each week I will post text associated with the lecture. Some readings are required and will be indicated as such. Others are supplemental references to use at your discretion. You are expected to refer to the text as a supplement to lecture, to reinforce main points and enrich your understanding

How Will Course Communication take Place?

Course Announcements will be made using the "Announcement" page on Carmen. We recommend you adjust your individual Carmen settings so that course announcements are sent to your email.

Email to your instructor/TA can be done through Carmen or directly to our osu emails. Please include "ENR4285" in the subject line to help draw our attention to your email. We will endeavor to reply to email within 24 hours of receipt within standard working hours (Mon-Fri, 9-5).

Office Hours we will be available on Zoom for weekly office hours, with days and time posted to Carmen. These are times for you to ask questions about the course or other questions about water science at SENR. If you need to meet and cannot make the scheduled office hours please email to arrange another time to meet.

Carmen There will be a module on Carmen for each week of class with details of what material is covered that week and what work you need to do.

What Assignments Will There Be?

ASSIGNMENT CATEGORY	POINTS
Homework (~10-12 total)	45%
Lab Reports (10-12 total)	45%
Asynchronous Activities	10%
Total	100%

Can I Get More Detail About These Assignments?

Homework Assignments:

There will be weekly homework assignments throughout the semester. These will largely consist of problem sets related to the material covered in class. Homework assignments will be challenging so please start them early so you have time to ask for help. Each assignment will have two submissions.

Your first submission will be due at **NOON on Wednesday** and will be graded out of a total of 3 points. To get full credit all problems must be substantially attempted with either an answer or a sentence indicating where the student believes they are stuck/incorrect. Each assignment will be returned on Thursday with either a 100% or a “redo”, indicating you have one chance to fix your mistakes and turn the assignment back in by the following Monday. If you do not turn in a redo, your original assignment will be graded.

Your second submission will be due at **5pm on Monday** and will be graded for correctness based on points listed on the assignment. You can turn this in even if you did not submit a first submission.

Homework will be assessed on both the write-up and the final answer. You must clearly show your work so someone else can easily follow it. Units must be written next to every number in every step of your analysis, unless it is a unit-less number. Please refer to the Carmen page about homework expectations for more detail.

Academic integrity and collaboration: You are encouraged to work with other classmates on assignments. However you should do the write-ups entirely on your own, in your own words, to ensure you fully understand the solution. Nothing on your assignment should be copied from an internet source.

Lab Assignments:

Lab assignments will vary throughout the semester. Some weeks you can earn full points for participating during the lab period, but most weeks there will be a short lab report due. Weather-permitting, we will have labs outside later in the semester. Lab Reports will be due the Thursday after the lab is assigned. Occasionally a lab may have a short pre-lab assignment

Academic integrity and collaboration: You are encouraged to work with other classmates on assignments. However you should do the write-ups entirely on your own, in your own words, to ensure you fully understand the solution. Nothing on your assignment should be copied from an internet source.

Asynchronous Activities:

On the weeks where asynchronous work is assigned, there will be a short assignment to show you accomplished the work. These will be minimal. These will have due dates indicated on Carmen.

Academic integrity and collaboration: These should be done completely independently, but you may use course resources including texts, notes, and assignments.

A sample week of assignments (first weeks of semester):

Monday	Wednesday	Thursday
Jan 16	Jan 20 Turn in HMWK 1	Jan 19 <ul style="list-style-type: none">• HMWK 1 returned in lab• Work on lab 2 (write-up due next week)
Jan 23 Turn in redo of HMWK 1	Jan 25 Turn in HMWK 2	Jan 26 <ul style="list-style-type: none">• HMWK 2 returned in lab• Turn in lab 2 report• Work on lab 3 (write-up due next week)

Can I Turn In Work Late?

Because of the constant rotation of new assignments and redo assignments, students are encouraged to do everything possible to stay on top of assignment deadlines. This will help us get prompt feedback to you and help you stay on top of work. That said, we anticipate COVID (flu, RSV...) and life will cause significant disruptions to the semester.

If you must miss a synchronous lab or need flexibility with a deadline, please ask before the due date (if at all possible) which gives us flexibility to work with you. We will almost always say yes, but it helps us plan grading if you communicate. Extensions requested after the deadline will be considered on a case-by-case basis. Note: no documentation of illnesses, deaths in family, etc. will be asked for.

If you need to prioritize work, your first priority should be the 1st submission of your homework assignments. Your second priority should be your 2nd submissions. Your third priority (where we can give the most leeway) should be lab reports. We are more likely to grant extensions on lab reports and 2nd submissions than on 1st submissions.

Other Course Policies

1) There will likely be times you find an aspect of this course particularly challenging. I invite you to come to office hours for help. The sooner you bring forth your concerns, the sooner I can help – there is very little that can be done at the end of the semester.

2) Sometimes mistakes happen during grading. If you feel that your grade on an assignment is incorrect, please submit in writing an explanation of why you wish to appeal your grade within one week of the assignment being returned. Final course grades are non-negotiable outside of clerical error.

3) You are encouraged to work with other classmates on assignments. However you should do the write-ups entirely on your own, in your own words, to ensure you fully understand the solution.

4) Life happens and this is a very chaotic time in the world. If something is happening in your life that will impact your full participation in the course, please utilize campus resources and give me a heads up so we can find how to best help you succeed.

Zoom Expectations

- Come to the session having completed pre-work and ready to have open, civil, and supportive discussions in video and chat spaces.
- Be present during the entire class session.
- We request you turn your camera on during Zoom sessions. This will make conversation easier and might help you pay attention during class. You are always welcome to not turn on your camera for any reason. Note that Zoom has a “hide self view” option if you (like many people) feel weird looking at yourself.
- Please feel free to use a non-distracting [virtual background](#). Many students and instructors prefer not to share their remote spaces for a variety of reasons.
- Mute your microphone when not talking to minimize background noise in the meeting.

If you have any concerns about participating in class over Zoom in this way, please let us know. Our goal is to create a safe environment where we can benefit from seeing each other and connecting, but we want to prioritize your safety and well-being.

Recording: Zoom sessions may be recorded for the benefit of students who may need to miss class and so you can refer back to them. These links will only be shared within the class and we will always announce before beginning the recording.

Required Course Technology

Technology skills needed for this course

- Basic computer and web-browsing skills
- Navigating Carmen go.osu.edu/canvasstudent
- CarmenZoom virtual meetings go.osu.edu/zoom-meetings

Required equipment

- Desktop or Laptop: (Mac or PC) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed and tested
- Microphone: built-in laptop or tablet mic or external microphone
- Other: a mobile device (smartphone or tablet) to use for BuckeyePass authentication

Required software

- Microsoft Office 365: All Ohio State students are now eligible for free Microsoft Office 365. Full instructions for downloading and installation can be found at go.osu.edu/office365help. You will need to use Microsoft Excel in this class so be sure to have it downloaded by week 2.

What If I Need Help With 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.

University Policies

Academic integrity policy

Ohio State's academic integrity policy

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* (studentconduct.osu.edu), 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 we recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If we suspect that a student has committed academic misconduct in this course, we are obligated by university rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the university's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the university.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

Other sources of information on academic misconduct (integrity) to which you can refer include:

- Committee on Academic Misconduct web page (go.osu.edu/coam)
- *Ten Suggestions for Preserving Academic Integrity* (go.osu.edu/ten-suggestions)
- *Eight Cardinal Rules of Academic Integrity* (go.osu.edu/cardinal-rules)

Safe and Healthy Buckeyes

Health and safety requirements: All students, faculty and staff are required to comply with and stay up to date on all university safety and health guidance (<https://safeandhealthy.osu.edu>), which includes wearing a face mask in any indoor space and maintaining a safe physical distance at all times. Non-compliance will result in a warning first, and disciplinary actions will be taken for repeated offenses.

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.

Counseling and Consultation Services/Mental Health

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 Counseling and Consultation Services (CCS) by visiting ccs.osu.edu or calling (614) 292- 5766. CCS is located on the 4th Floor of the Younklin 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 through the 24/7 National Prevention Hotline at 1-(800)-273-TALK or at suicidepreventionlifeline.org.

David Wirt, wirt.9@osu.edu, is the CFAES embedded mental health counselor. He is available for new consultations and to establish routine care. To schedule with David, please call 614-292-5766. Students should mention their affiliation with CFAES when setting up a phone screening.

Accessibility accommodations for students with disabilities

The university strives to make all learning experiences as accessible as possible. In light of the current pandemic, students seeking to request COVID-related accommodations may do so through the university's request process, managed by Student Life Disability Services. 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. SLDS contact information: slds@osu.edu; 614-292-3307; slds.osu.edu; 098 Baker Hall, 113 W. 12th Avenue.

Accessibility of course technology

This online course requires use of CarmenCanvas (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- [Canvas accessibility \(go.osu.edu/canvas-accessibility\)](http://go.osu.edu/canvas-accessibility)
- Streaming audio and video
- CarmenZoom accessibility (go.osu.edu/zoom-accessibility)
- Collaborative course tools

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

The Ohio State University is committed to building and maintaining a community to reflect diversity and to improve opportunities for all. 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 Office of Institutional Equity:

1. Online reporting form at equity.osu.edu,
2. Call 614-247-5838 or TTY 614-688-8605,
3. Or Email equity@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 Office of Institutional Equity 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.

This course adheres to The Principles of Community adopted by the College of Food, Agricultural, and Environmental Sciences. These principles are located on the Carmen site for this course; and can also be found at <https://go.osu.edu/principlesofcommunity>. For additional information on Diversity, Equity, and Inclusion in CFAES, contact the CFAES Office for Diversity, Equity, and Inclusion (<https://equityandinclusion.cfaes.ohio-state.edu/>). If you have been a victim of or a witness to a bias incident, you can report it online and anonymously (if you choose) at <https://studentlife.osu.edu/bias/report-a-bias-incident.aspx>.

Student Resources

There are many resources on campus devoted to assisting students personally and academically. Please do not hesitate to utilize them if you find you need. Some include:

Counseling and Consultation Service: <https://ccs.osu.edu/>

Ohio State Writing Center: <https://cstw.osu.edu/writing-center>

Dennis Learning Center: <http://dennislearningcenter.osu.edu/>

Office of Diversity and Inclusion: <https://odi.osu.edu/>

OSU Libraries: <https://library.osu.edu/>

Buckeye Food Alliance: <https://www.buckeyefoodalliance.org/>

Mathematics and Statistics Learning Center: <https://mslc.osu.edu/>