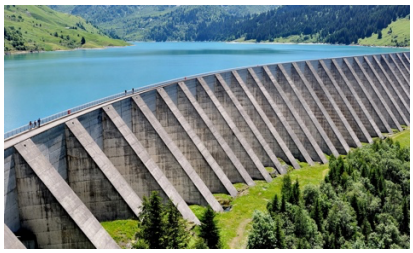
Tentative Syllabus:
Subject to Change

Fall 2025 Syllabus
EVSC 1600: Water on Earth
a.k.a Our Thirsty Planet





Instructor Details

Instructor: Frederick Cheng
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Please start all email subjects with "EVSC 1600:" so that I can easily find it!

Course Information

M,W,F 12:00 -12:50 PM Wilson Hall 325

Course Overview:

Water is a fundamental resource on Earth and is intricately linked to the well-being of society and the environment. We will explore the physical, ecological, and human dimensions of the water cycle and its critical role in shaping our everyday lives, with an interdisciplinary focus on how human disturbances affect water quantity, quality, and management.

Course Attributes: This course fulfills the Chemical, Mathematical, and Physical Universe (CMP) or Science and Society (SS) Disciplines within the Arts and Sciences curriculum. Students planning to major in Environmental Sciences (but have not declared) may use this course as an EVSC elective.

Overall Course Goals:

After successful completion, the course is structured so that you will:

1) Develop an understanding and appreciation of how physical, chemical, biological, and socioeconomic factors interact to affect water resources.
2) Learn science-based strategies for evaluating how human and natural disturbances and differing management actions affect water resources.

Specific Learning Objectives:

- Define the boundaries of watersheds and evaluate watershed resources and management practices in terms of long-term sustainability
- Identify the components of the hydrologic cycle, the forces that drive the cycle, and evaluate each component in relation to resources of watersheds.
- Calculate and interpret a watershed's water balance or water budget
- Assess watershed stressors in terms of impacts on watershed resources
- Connect watershed processes to fundamental principles of water quality and aquatic ecology.
- Examine the human dimensions of water management, including water law, water supply and demand, and economics

Course Content and Textbook:

Course notes are available via Canvas. It is recommended that you bring the notes (printed or in PDF format) to follow along and annotate during class. I will strive to have relevant content uploaded 24 hrs prior to the class.

There is no required textbook for this course.

Grading Policy

Grades are based on the following components; descriptions of each on next page:

Case Studies (5*8%)	40%
Module Tests (4*10%)	40%
Check-in Quizzes (15*2/3%)	10%
Water Beyond the Classroom Activities (4*2.5%)	10%

Final grades will be converted based on the following scale:

A+	≥97%	B+	≥87%	C	≥70%
A	≥93%	B	≥83%	D	≥60%
A-	≥90%	B-	≥80%	F	<60%

Alternate Grading Scheme

Students who complete the following will be eligible for the alternate grading scheme:

- Complete at least 10 check-in quizzes with at least a 60%
- Complete all water beyond the classroom activities with at least a 60%

For those eligible for the alternate grading scheme, we will drop your lowest grade for the case study and module test. Final eligibility will be determined at the end of the semester.

Late Policies

I recognize that this is not the only course you're taking, nor is coursework your only responsibility. Sometimes, life happens, and you might not be able to put your full effort into an assignment/test. We have designed the deliverables so that you will have ample time to complete them, ask for assistance if required, and have a wide submission window for flexibility. Thus, to provide flexibility while maintaining academic integrity, here's how grading will work:

- **No late work or late penalties:** In recognition of continued engagement, the alternate grading scheme is structured so that you can skip/do poorly on a case study/test and still achieve a strong grade. However, missed work will not be accepted. You are still responsible for understanding the material.
- **No make-ups or rescheduling**: We will release all relevant content/quizzes/activities/tests, etc. with sufficient time to complete them. We will encourage you to read the instructions and ask questions early rather than the night before it's due!
- **Flexibility in exceptional circumstances:** This policy is designed so you don't need to justify missing a deliverable for common situations. However, if exceptional circumstances arise, please reach out, and we can discuss possible accommodations.

Case Study Activities (5*8%)

The case study activities are designed to increase your understanding of hydrologic principles and issues, and to develop basic data collection, analysis and communication skills. Instructions for the activities will be uploaded on Canvas, and you will work in groups (from 3 to 6 students) to answer a series of questions during class. You must attend class to join a group and submit one final file for grading. If you miss class on these days, you will have to complete the case study independently. We encourage you to document your work in a Google/Word document/Excel spreadsheets, etc. and retain it for your records.

All assignments will be due on Canvas at 11:59PM on the day indicated in the course schedule.

Module Tests (4*10%)

The first four modules will have an accompanying test to evaluate your knowledge of the course material. The tests will be administered on Canvas and must be completed alone. You may use the course materials during the tests, but you may not use other resources or the internet. The tests should take less than an hour but will have a six-hour time limit. Please ensure you have reliable internet to submit the test. We encourage you to document your work either by writing it separately on paper/on your computer and retain it for your records.

Each test will be open 9AM of the Friday morning at the end of each module, and will close a week later at 11:59PM the following Friday. You will only have one submission attempt for the test! Please be mindful that the closing of the test may override the six-hour time limit.

Check-In Quizzes (15*2/3%)

Starting on week 2, until the end of the course, there will be a short check-in quiz on Canvas based on the previous week's material. The quizzes will be ~3-5 questions and are low-stakes assessments designed to evaluate your understanding of the material presented from the previous week.

The weekly quizzes will be available after the Friday lecture and will remain open until the following Wednesday at 11:59PM, and have no time limit. You will be allowed three submissions per quiz, and the highest grade will be recorded.

Water Beyond the Classroom Activities (4*2.5%)

Water is connected to all aspects of our lives, sometimes in less obvious ways. Here, we will encourage you to link course content to water in our lives through a series of activities/submissions. You will be able to select from a variety of activities from a list and submit it on Canvas. Each activity will have its own set of instructions, deliverables, and submission requirements. Additionally, these activities will follow the guidelines below:

- Two lists of activities will be released during the term:
    - List 1 released beginning of the course, due by end of week 7 at 11:59PM
    - List 2 released beginning of week 8 of the course, due by last day of lectures at 11:59PM
- These are designed so that you can complete them at your own pace, but that also means you are responsible for remembering to do them. As a guideline, ***aim to submit one activity during each module*** so that they don't pile up!
- You can only submit two activities per list
- Each submitted activity is worth 3.75% and will be given full/half/zero credit based on completion and satisfactory effort. A rubric will be provided to outline what counts as half/full/zero credit.

Additional Class Information

Communication and Office Hours: I am available for questions and discussion about the course via email and during office hours. My office hours will be in person. Conversations about your academic programs, future goals, broader interests in hydrology and environmental sciences are welcome too! I will try my best to reply to your email within 24 hours during the regular work week. Please keep this in mind when asking questions about deliverables <24 hours before the due date.

Inclusive Teaching Philosophy: Factors such as social identities, visible and invisible disabilities, family circumstances, physical location, mental health, access to the internet all influence the experiences that everyone can have in my courses this and every semester. I am committed to building an environment so that you will be successful and supported. We have structured the course to provide students flexibility; students requiring further accommodations for university-sanctioned events, religious observances, learning needs should provide documentation as soon as possible so that we can discuss alternate options.

Generative AI: Tools such as ChatGPT and Claude are powerful and exciting. Both students and faculty have been experimenting with their use in academic settings. While these tools have applications that foster student learning and understanding, these tools can also be used in ways that bypass key learning objectives. I will strive to be clear about course/assignment learning objectives so that we can understand the underlying reasons for doing tasks yourself, or if AI tools can be used to assist in learning. *For this course*, we will consider generative AI analogously to assistance from another person. In particular, using generative AI tools to substantially complete an assignment or usage on an exam (e.g. by uploading exam or assignment questions) is not permitted. If you're unsure if using generative AI aligns with the course learning objectives or is a permissible usage, please ask me and we can have a discussion. In general, students should acknowledge the use of generative AI (other than incidental use) and default to disclosing such assistance when in doubt.

Honor Policy: Given the availability of old exams, worked problem sets, and laboratory exercises that are increasingly becoming available from third-party venues, the Environmental Sciences Department considers student access of these materials for Environmental Sciences courses, without explicit instructor permission, to be a violation of the UVA Honor Code. Uploading class materials such as lecture slide, assignments/questions, exams to online repositories or generative AI platforms from this course is prohibited.

Mental Health and Well-being: If you are feeling overwhelmed, stressed, or isolated, there are many individuals here to help. The Student Health and Wellness Center offers Counseling and Psychological Services (CAPS) for its students; call 434-243-5150 to speak with an on-call counselor and/or schedule an appointment. If you prefer to speak anonymously, you can call Madison House's HELP Line at any hour of any day: 434-295-TALK. Alternatively, you can call or text the Disaster Distress Helpline (1-800-985-5990, or text TalkWithUs to 66746) to connect with a trained crisis counselor; this is toll-free, multilingual, and confidential, available to all residents in the US and its territories. For information on CARES Act Student Emergency Funding, Bridge Scholarships, and Emergency Loans, please visit Student Financial Services Operational Updates. You might also be eligible for an Honor Loan.

Tips for Success

1. ***Show up to class*** - Attending class regularly is one of the biggest factors in your success. Even if lecture slides are available, being present helps you engage, ask questions, and pick up insights that aren't always in the notes.

2. ***Stay organized and up-to-date*** - Our class has many deadlines! Keep track of them in a planner/calendar with reminders, and read announcements on Canvas

3. ***Engage with the material -*** Don't just passively watch lectures. Take notes, summarize key ideas, and ask questions about the content.

4. ***Don't wait until the last minute*** – Assignments and tests require time and effort. Start early so you have time to ask questions and avoid last-minute stress.

5. ***Ask questions!*** – If something doesn't make sense, chances are others are confused too. Participate in class, post in discussion forums, or attend office hours.

6. ***Use available resources*** – Take advantage of office hours! If you're struggling**,** reach out early rather than waiting until the end of the semester.

7. ***Be respectful and professional*** – This is a large class, and respectful communication with peers, and instructors helps create a positive learning environment.

8. ***Take care of yourself*** – College can be overwhelming, but balancing coursework with sleep, nutrition, and mental well-being will help you stay focused and productive.

9. ***Take responsibility for your learning*** – Success in this course is up to **you**. Be proactive, seek help when needed, and stay engaged with the material.

Tentative Course Schedule

Detailed schedule to be posted in Fall.

Week	Starting	Topic
Module 1: The Water Cycle		
1	**Aug 25**	Introduction
2	**Sep 1**	The Water Cycle
3	**Sep 8**	Case Study Activity
Module 2: Physical & Chemical Dimensions of Watersheds		
4	**Sep 15**	Watershed Processes
5	**Sep 22**	Water Quality
6	**Sep 29**	Case Study Activity
Module 3: Watershed Disturbances		
7	**Oct 6**	Human Disturbances
8	**Oct 13**	Natural Hazards
9	**Oct 20**	Case Study Activity
Module 4: Ecological Dimensions of Watersheds		
10	**Oct 27**	Stream Ecology
11	**Nov 3**	Lakes and Limnology
12	**Nov 10**	Case Study Activity
Module 5: Human Dimensions of Watersheds		
13	**Nov 17**	Water Governance
14	**Nov 24**	Water Economics/Thanksgiving
15	**Dec 1**	Case Study Activity
16	**Dec 8**	Future Directions in Hydrology