

CEE 411 Open Channel Hydraulics (Fall 2023, 3 Credits)

https://cosefm.cee.wisc.edu/CEE411_Open_Channel_Hydraulics/CEE411_UW_Madison.html

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Tuesday & Thursday, 11:00 ~ 12:15 AM., Engr. Hall 1209

Office Hour, Thurs: 9-10:30 A.M. or appointment at Engineering Hall

Description

This course introduces the principles and applications of open channel flow. We will cover several topics including **assessment** (analysis and characteristics) of flow in open channels (natural and artificial); open channel flow analysis including uniform flow (rivers, sewers), flow measuring devices (weirs, flumes), gradually varied flow (backwater and other flow profiles, flood routing), rapidly varied flow (hydraulic jump, spillways), and **design** of channels (geometric considerations, scour, stabilization, sediment transport, etc.). Analytical and numerical methods with programming assignments in Matlab or other common software will be used.

Course Learning Objectives:

Student will learn to understand and solve problems of open channel flow. Students will apply fundamental principles governing open channel hydraulics to the design of engineering or nature-based systems. The course is aimed to develop the skills needed for systematic decomposition and solution of real-world problems.

Text: Chaudhry, M.H. 2022. *Open Channel Flow*, 3rd Ed., Springer; ISBN: 978-3-030-96446-7

Course Outline

- Introduction
- Energy and Momentum Principles & Applications
- Uniform Flow
- Gradually Varied Flow
- Project Discussion & HECRAS
- Hydraulic Structures
- Design of Open Channels

Reading

- Chapter 1 & 2
- Chapter 2, 3, & 7
- Chapter 4
- Chapter 5 & 6
- Handout
- Chapter 7 & 10
- Chapter 9

Homework:

7 ~ 8 homework assignments will be given. Homework will be turned in through electronically. Late homework will be accepted at the discretion of the instructor. Clear, methodical problem statements, objectives, and solutions will be rewarded.

Mid-Term exam

An in-class mid-term exam will occur on the 9th or 10th week

Final project

A final presentation and website will be required in lieu of a final exam. You (1-2 people) will be working on a topic (see http://homepages.cae.wisc.edu/~chinwu/CEE411_Open_Channel_Hydraulics/CEE411_UW_Madison.html). You will complete the project during the semester and present the project outcome on December 12th.

Grading:

Homework: 40% Mid-Exam: 20% Project:40%

Exam Proctoring

Instructors have the authority to decide whether to proctor their tests, quizzes or other course assessments whether the courses is offered in-person or remotely. Remotely proctored Canvas exams (via Honorlock) are a requirement of this class. Failure to use the proctoring service assigned will result in a zero grade on the exam. The use of remote proctoring is a condition of enrollment in the class.

Additional Information About Remote Exam Proctoring

[Honorlock](#) is the campus-supported proctoring tool. See [FAQ's](#) about Honorlock. Honorlock will be used to proctor your exams this semester. Honorlock is an online proctoring service that allows you to take your exam from the comfort of your home or selected location on campus. You DO NOT need to create an account, download software or schedule an appointment in advance. Honorlock is available 24/7, and all that is needed is a computer, a working webcam/microphone, your ID, and a stable internet connection. All data is collected and stored in compliance with [FERPA](#).

To get started, you will need Google Chrome and download the Honorlock Chrome Extension. UW-Madison recommends creating a new Chrome profile to use during assessments with Honorlock. This profile creates a fresh version of Google Chrome, free of all existing data, and, when finished, students can simply switch back to the default profile. This is an added security measure, but no data is tracked or stored outside of FERPA related use during the exam period.

When you are ready to complete your assessment, log into Canvas, go to your course, and click on your exam. Clicking "Launch Proctoring" will begin the Honorlock authentication process, where you will take a picture of yourself, show your ID, and complete a scan of your room. Honorlock will be recording your exam session through your webcam, microphone, and recording your screen. Honorlock also has an integrity algorithm that can detect search-engine use, so please do not attempt to search for answers, even if it's on a secondary device.

If you are taking a proctored exam in a setting that requires a mask, Honorlock may ask you to briefly slide the mask down for identity verification prior to the start of your exam.

Additional Honorlock information:

- If an instructor wants ID verification, a student ID is acceptable and is only used to set up the exam the first time. It is only used to verify the test-taker. We do not collect any other personal identifying information.
- There is no invasion of privacy if other voices/images are seen during the exam. A flag may appear for the instructor to view but it is not voice tracking or infringing on privacy. All data is stored and reviewed using FERPA compliant servers.
- Facial recognition is FERPA compliant and ensures that the test-taker is the same during the full assessment period.
- Honorlock does not scan home networks or monitor data from any device on the network other than the one used for testing. Secondary devices, such as phones, can be detected, but this is not accomplished by network snooping. Other users connected to the same network during a student's Honorlock session can process personal or confidential information concurrently without fear of eavesdropping on secondary device activities. In addition, the application does

not have the capability of intercepting network communications from devices connected to the same network during the student's session.

- Honorlock does not access the test-taker's network, nor does it monitor or access any secondary devices that are on the test-taker's network. Honorlock monitors the internet connection to ensure and document the quality of the connection during the test-taking experience. This helps with addressing situations where the test-takers internet connection becomes unstable during the test-taking experience.
- Students using their smartphones to search online resources for test questions should note that Honorlock utilizes a manual technology to detect academic integrity issues. Specifically, Honorlock hosts websites with seeded test questions that, when assessed during an examination session, sets off an action, such as a sound alert, on the phone. This action is picked up during the student's session and may alert instructors to review for academic integrity issues. Honorlock does not initiate any technologies to eavesdrop on the student's smartphone activity either during or after an examination session.
- The Chrome Web browser extension allows Honorlock to interact with the student and the exam content during the exam. During the exam, the following data may be captured, analyzed, and stored, depending on the options enabled by the instructor:
 - o webcam video, including audio, and screen recording
 - o student information presented by Canvas, such as student name, course number, and exam name;
 - o webpages visited during the exam session;
 - o specific behavior that may indicate academic dishonesty, such as attempts to copy/paste into search engines.
- Because Honorlock requires the use of a Google Chrome browser, some international students may need to use a VPN while taking their exam. UW-Madison recommends and provides a VPN for all staff and students with a netID, which can be downloaded as described in this [Knowledgebase document](#). Students are not required to use the UW-Madison VPN, but it is considered more reliable than others.
- During the exam, Honorlock's AI analyzes and flags certain behaviors. Then, an instructor with legitimate educational interest can review the exam session's flags to determine if any academic integrity violations occurred.
- Honorlock's AI monitors students during the exam and automatically generates a flag if unusual activity is detected. Once an exam session is complete, instructors are able to review flags to determine if there was an academic integrity violation. Please note that flags are not confirmations of cheating or misconduct, only that unusual activity was detected. All flags are tagged as either low, medium, or high risk and require manual instructor review.
- Prior to your exam, it is best to alert your instructor if you do not have a private, quiet space to take your exam. Knowing this in advance is helpful, because it provides your instructor with context about your testing environment and allows you to concentrate on your assessment instead of fearing you'll be accused of cheating.
- We recommend that test-takers find a quiet room to take an exam where others are not present. But we also understand that may be impossible in our new reality and videos are reviewed with this understanding and following FERPA best practices for review, storage and compliance to protect the rights of our students.
- No data is transferred to a third party or stored by a third party. UW-Madison is the sole owner of all data collected during an exam period.

- This link provides additional information on Honorlock's [Student Privacy Statement](#)..

Honorlock support is available 24/7/365. If you encounter any issues, you may contact them through live chat on the support page or within the exam itself. Some guides you should review are [Getting Started for Students](#), [Honorlock MSRs](#), [Student FAQ](#), [Honorlock Knowledge Base](#), and [How to Use Honorlock](#).

Privacy of Student Information and Digital Proctoring Statement

The privacy and security of faculty, staff and students' personal information is a top priority for UW-Madison. The university carefully reviews and vets all campus-supported teaching and learning tools, including proctoring tools and takes necessary steps to ensure that tool providers prioritize proper handling of sensitive data in alignment with FERPA, industry standards and best practices. Under the [Family Educational Rights and Privacy Act](#) (FERPA – which protects the privacy of student education records), student consent is not required for the university to share with Honorlock those student education records necessary for carrying out the proctoring service. 34 CFR 99.31(a)(1)(i)(B). FERPA specifically allows universities to treat vendors as school officials and to share student education records with them where they perform services for the university and are subject to FERPA requirements governing the use and redisclosure of personally identifiable information from education records. Honorlock is FERPA compliant and is bound by the terms of its agreement with the university to comply with FERPA's restrictions on the use of student education records.

Privacy of student records and the usage of audio recorded lectures

See information about [privacy of student records and the usage of audio-recorded lectures](#).

- UW-Madison [Badger Pledge](#) & UW-Madison [Face Covering Guidelines](#)

While on campus all employees and students are required to [wear appropriate and properly fitting](#) face coverings while present in any campus building unless working alone in a laboratory or office space.

- **Quarantine or Isolation Due to COVID-19**

Student should reach out to instructors as soon as possible if they become ill or need to isolate or quarantine, in order to make alternate plans for how to proceed with the course. Students are strongly encouraged to communicate with their instructor concerning their illness and the anticipated extent of their absence from the course (either in-person or remote). The instructor will work with the student to provide alternative ways to complete the course work. Every effort will be made to accommodate the academic progress of students who may become ill or be asked to isolate or quarantine.

- **Course Evaluations**

Students will be provided with an opportunity to evaluate this course and your learning experience. Student participation is an integral component of this course, and your feedback is important to me. I strongly encourage you to participate in the course evaluation. In addition to the AEFIS course evaluation, supplemental course evaluations will be available through Canvas.

- **Digital Course Evaluation (AEFIS)**

UW-Madison now uses an online course evaluation survey tool, [AEFIS](#). In most instances, you will receive an official email two weeks prior to the end of the semester when your course evaluation is available. You will receive a link to log into the course evaluation with your NetID where you can complete the evaluation and submit it, anonymously. Your participation is an integral component of this course, and your feedback is important to me. I strongly encourage you to participate in the course evaluation.

Academic Integrity

By virtue of enrollment, each student agrees to uphold the high academic standards of the University of Wisconsin- Madison; academic misconduct is behavior that negatively impacts the integrity of the institution. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these previously listed acts are examples of misconduct which may result in disciplinary action. Examples of disciplinary action include, but is not limited to, failure on the assignment/course, written reprimand, disciplinary probation, suspension, or expulsion.