

**ENVE 3200 – Water Quality Engineering**

# Fall 2021 Syllabus

**Excluding materials for purchase, syllabus information may be subject to change. The most up-to-date syllabus is located within the course in HuskyCT.**

## Course and Instructor Information

**Course Title:** Water Quality Engineering **(**ENVE 3200)

**Credits:** 3

**Format:** In Person

**Prerequisites:**  Basic knowledge of water chemistry, calculus, and ordinary differential equations.

**Classroom:** BCH 317

**Course Hours:** 5:00-6:15 pm, Tuesday and Thursday

**Professor:** Baikun Li, Ph.D. PE., Professor, Department of Civil and Environmental Engineering,

**Email:** [baikun.li@uconn.edu](mailto:baikun.li@uconn.edu) (preferred method of contact, will respond M-F within 24 hours)

**Telephone:** 860-486-2339

**Office Hours/Availability:** Tuesday and Thursday, 4:00-5:00 pm in person or via Webex ((<https://uconn-cmr.webex.com/meet/bal06007>)

**Teach assistant:** Yuankai Huang, Ph.D candidate, Department of Civil and Environmental Engineering,

**Email:** [yuankai.huang@uconn.edu](mailto:yuankai.huang@uconn.edu)

## Course Materials

**Required course materials should be obtained before the first day of class**.

Required textbooks are available for purchase through the [UConn Bookstore](http://uconn.bncollege.com/webapp/wcs/stores/servlet/TBWizardView?catalogId=10001&langId=-1&storeId=88191) (or use the Purchase Textbooks tool in HuskyCT). Textbooks can be shipped ([fees apply](http://uconn.bncollege.com/webapp/wcs/stores/servlet/BNCBShippingDeliveryView?langId=-1&storeId=88191&catalogId=10001)).

**Required Materials:**

Warren Viessman Jr. and Mark J.Hammer, Water Supply and Pollution Control. 8nd edition, Addison & Wesley, 2009.

*All the PPT slides for lectures will be uploaded in HuskyCT before lecture.*

*Additional course readings and media are available within HuskyCT, through either an Internet link or Library Resources.*

*Pre-recorded videos of the calculation examples will be uploaded before lectures.*

*YouTube clips for each class are listed in the course design.*

## Course Description

## This course will integrate both fundamental physical, chemical and biochemical water and wastewater treatment principles with engineering design projects.

## The course will provide an overview of water and wastewater treatment processes, and their environmental impacts.

## Through numerous engineering calculation examples, students will learn the theoretical and practical skills for water and wastewater treatment, and keep up-dated with new knowledge for water quality monitoring, nutrient removal, resource recovery, and operation control.

## By taking this course, students will understand the importance of water and wastewater treatment and cultivate systematic mindset to develop cost-efficient energy-positive water and wastewater treatment processes.

## Course Objectives

By the end of the semester, students should be able to:

1. Understand the fundamental theories and principles of water and wastewater treatment processes.
2. Develop fundamental skills for the analysis and design of water collection/transmission systems, and wastewater collection systems
3. Apply the physical, chemical and biological approaches for pollution control
4. Analyze and quantitatively describe natural and engineered processes in environmental engineering
5. Calculate water and wastewater treatment processes using theoretical principles and practical engineering knowledge.

## Course Outline

Module 1 Community planning and water sources

Module 2: Water Treatment Processes

Module 3: Wastewater Treatment Processes

Module 4: Sludge Treatment and Resource Recovery

## Inclusive Classroom Statement

I will strive to establish and support an including learning climate. I will set explicit expectations that level the playing field for all students, making sure that the criteria by which students will be assessed are understandable and accessible to all students, and reducing opportunities for bias. I will cultivate critical self-reflection and ensure that all materials are accessible to all students. Through inclusive teaching, students from all diverse backgrounds and perspectives (gender, sexuality, disability, age, ethnicity, race, national origin, language, and culture) can voice their opinions. Keeping an open mind is a key for inclusive teaching and learning. Please come and talk to me if you encounter any problem or concern in our classroom.

Three surveys (pre-semester, mid-semester and end-semester) will be conducted to get your feedback about your learning experience. These surveys are on-line anonymous. In addition, you can provide anonymous feedback by writing it on a piece of paper and dropping into the box outside my office door in **Castleman 312**.

If any of our class schedules, student hours, or mid-term exams conflicts with your religious events or participation in extra-curricular activities, please let me know so that I can make arrangements for you. You are encouraged to review the course schedule at the beginning of the semester for potential conflicts and promptly notify me of any anticipated accommodation needs. You are responsible for making arrangements in advance to make up missed work.

## Course Requirements and Grading

**Summary of Course Grading:**

|  |  |
| --- | --- |
| Course Components | Weight |
| Calculation Assignments (seven homeworks) | 15% |
| Class Project (Video Assignments, or Flyer Design, or Experiments) | 25% |
| Self Quizzes | 5% |
| In class Discussion | 5% |
| Midterm Exam | 20% |
| Final Exam | 30% |
| **TOTAL** | 100% |

**Homeworks**

Each homework is graded out of 100 points, which is broken down into 40 points for accuracy and 60 points for process. Therefore, you may have an incorrect answer to a problem but be awarded credit for employing the correct process. Submit all Calculation Assignments as PDFs. Homeworks will be submitted on HuskyCT one week after assignment.

**Class project.**

You will decide your class project theme/topic in the fifth week, and notify the instructor and TA through email. The theme/topic of the class project should be closely related with water quality engineering, social impacts, public health, and sustainability. You have about 10 weeks to conduct the class project. There are three formats for the project delivery: Presentation videos (2 minutes), Flyer design (a comprehensive drawing), and experiment/report. The project outcome will be submitted on HuskyCT the last week of the class.

**Flyers Design**

Each Flyer is graded out of 100 points, which is broken down into 50 points for the quality of works and 50 points for the presentation of thoughts/ideas/solutions. Flyers will be due 1-2 weeks after assignment. Experiment reports will be due 2-3 weeks or longer according to their difficulty and complexity. (NOTE: a flyer design as an appetizer will be assigned for the entire class in the first week).

**Video Assignments**

For video assignments you will be asked to address provided questions in a 1-2 minute Kaltura video response (per question). You must show your photo identification next to your face at the beginning of each video for authentication verification. Each video is graded out to 100 points, which is broken down into 50 points for the quality of visual (PowerPoint, Google Slides, etc.) presentation and 50 points for the presentation of thoughts/ideas. Videos will be due one week after assignment. (NOTE: a presentation video as an appetizer will be assigned for the entire class in the third week.).

**Experiments and other projects**

If you plan to do experiment for your project, you may contact with the instructor or TA in the fifth week. You will discuss your thoughts and objectives. You are supposed to conduct experiments independently. But if you indeed need help for certain protocols, the TA could provide help. You will turn in a well-written experimental report by the end of the semester. Each report is graded out of 100 points, which is broken down into 50 points for the quality of experimental works and 50 points for the writing clarity and discussion indepth. (NOTE: the TA will do a lab demo for the entire class in the fourth week).

**Self Quizzes**

Self quizzes are graded for completeness only, not accuracy. If you complete a self quiz by the due date, you will earn 100 points. If you do not complete a self quiz, you will receive a zero.

**Discussion in class**

Discussion is graded out of 100 points, which is broken down into 70 points for the solutions you propose, in addition to questions you raise on the topic(s), and 30 points for the clarity in which you present ideas.

**Midterm Exam**

The Midterm Exam is an open note and open book exam. It is grade out 100 points, which is broken down into 40 points for accuracy and 60 points for process. Therefore, you may have an incorrect answer to a problem but be awarded credit for employing the correct process.

**Final Exam**

The Final Exam is an open note and open book exam. It is grade out 100 points, which is broken down into 50 points for accuracy and 50 points for process. Therefore, you may have an incorrect answer to a problem but be awarded credit for employing the correct process.

**Course Survey**

Three surveys (pre-semester, mid-semester, end-semester) will be developed on HuskyCT to get your feedback in terms of course delivery and learning efficiency throughout the semester. These surveys can be found in the folder of “Surveys throughout the semester” in the tag of “Course Content”.

**Grading Scale (per the Registrar):**

For additional information on undergraduate grading policies see here: <https://registrar.uconn.edu/grades/>.

**Grading Scale:**

|  |  |  |
| --- | --- | --- |
| **Grade** | **Letter Grade** | **GPA** |
| 93-100 | A | 4.0 |
| 90-92.9 | A- | 3.7 |
| 87-89.9 | B+ | 3.3 |
| 83-86.9 | B | 3.0 |
| 80-82.9 | B- | 2.7 |
| 77-79.9 | C+ | 2.3 |
| 73-76.9 | C | 2.0 |
| 70-72.9 | C- | 1.7 |
| 67-69.9 | D+ | 1.3 |
| 63-66.9 | D | 1.0 |
| 60-62.9 | D- | 0.7 |
| 0-59.9 | F | 0.0 |

**Due Dates and Late Policy**All course due dates are identified in the course schedule within HuskyCT. Deadlines are based on Eastern Time; if you are in a different time zone, please adjust your submittal times accordingly. *The instructor reserves the right to change dates accordingly as the semester progresses. All changes will be communicated in an appropriate manner.*

Late work will NOT be accepted or graded.

**Feedback and Grades**

I will make every effort to provide feedback and grades within one week of the submission due date. To keep track of your performance in the course, refer to My Grades in HuskyCT.

**Weekly Time Commitment**

You should expect to dedicate 9 to 12 hours a week to this course. This expectation is based on the various course activities, assignments, and assessments and the University of Connecticut’s policy regarding credit hours. More information related to hours per week per credit can be accessed at the [Online Student website](https://onlinestudent.uconn.edu/learn-more/#collapsepanel-269-1-0-07).

## Student Responsibilities and Resources

As a member of the University of Connecticut student community, you are held to certain standards and academic policies. In addition, there are numerous resources available to help you succeed in your academic work. Review these important [standards, policies and resources](https://onlinestudent.uconn.edu/learn--more/#POL), which include:

* The Student Code
  + Academic Integrity
  + Resources on Avoiding Cheating and Plagiarism
* Copyrighted Materials
* Credit Hours and Workload
* Netiquette and Communication
* Adding or Dropping a Course
* Academic Calendar
* Policy Against Discrimination, Harassment and Inappropriate Romantic Relationships
* Sexual Assault Reporting Policy

## Students with Disabilities

The University of Connecticut is committed to protecting the rights of individuals with disabilities and assuring that the learning environment is accessible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let me know immediately so that we can discuss options. Students who require accommodations should contact the Center for Students with Disabilities, Wilbur Cross Building Room 204, (860) 486-2020 or<http://csd.uconn.edu/>.

Blackboard measures and evaluates accessibility using two sets of standards: the WCAG 2.0 standards issued by the World Wide Web Consortium (W3C) and Section 508 of the Rehabilitation Act issued in the United States federal government.” (Retrieved March 24, 2013 from [Blackboard's website](http://www.blackboard.com/platforms/learn/resources/accessibility.aspx))

## Software/Technical Requirements (with Accessibility and Privacy Information)

The software/technical requirements for this course include:

* HuskyCT/Blackboard ([HuskyCT/ Blackboard Accessibility Statement](http://www.blackboard.com/Platforms/Learn/Resources/Accessibility.aspx), [HuskyCT/ Blackboard Privacy Policy](http://www.blackboard.com/footer/privacy-policy.aspx))
* [Kaltura Capture](https://ait.uconn.edu/2017/10/10/how-to-install-and-setup-capturespace/) ([Accessibility Statement](https://corp.kaltura.com/products/core-platform/video-accessibility), [Privacy Policy](https://corp.kaltura.com/privacy-policy))
* [Adobe Acrobat Reader](http://www.adobe.com/products/acrobat/readstep2.html) ([Adobe Reader Accessibility Statement](http://www.adobe.com/accessibility/products/reader.html), [Adobe Reader Privacy Policy](http://www.adobe.com/privacy.html))
* Microsoft Office (free to UConn students through [uconn.onthehub.com](https://uconn.onthehub.com)) ([Microsoft Accessibility Statement](http://www.microsoft.com/enable/microsoft/mission.aspx), [Microsoft Privacy Statement](https://privacy.microsoft.com/en-us/privacystatement/))
* PDF Creator App of your choice
* Dedicated access to high-speed internet with a minimum speed of 1.5 Mbps (4 Mbps or higher is recommended).
* WebCam

For information on managing your privacy at the University of Connecticut, visit the [University’s Privacy page](https://privacy.uconn.edu/).

**NOTE:** This course has NOT been designed for use with mobile devices.

## Help

[Technical and Academic Help](https://onlinestudent.uconn.edu/frequently-asked-questions/) provides a guide to technical and academic assistance.

This course is completely facilitated online using the learning management platform, [HuskyCT](http://huskyct.uconn.edu/). If you have difficulty accessing HuskyCT, you have access to the in person/live person support options available during regular business hours through the [Help Center](http://helpcenter.uconn.edu/). You also have [24x7 Course Support](http://www.ecampus24x7.uconn.edu/) including access to live chat, phone, and support documents.

## Minimum Technical Skills

To be successful in this course, you will need the following technical skills:

* Use electronic mail with attachments.
* Save files in commonly used word processing program formats.
* Copy and paste text, graphics or hyperlinks.
* Work within two or more browser windows simultaneously.
* Open and access PDF files.
* Use a webcam and microphone

University students are expected to demonstrate competency in Computer Technology. Explore the [Computer Technology Competencies](http://geoc.uconn.edu/computer-technology-competency/) page for more information.

**Masking Policy**

Inside (general policy): Because vaccinations are not mandatory for faculty and staff and social distancing rules have been relaxed, we will still require masking inside buildings in an abundance of caution. This includes classrooms and laboratories, and applies to both vaccinated and unvaccinated students, faculty, and staff.

<https://president.uconn.edu/wp-content/uploads/sites/2794/2021/07/Fall-2021-Semester-Update.pdf>

## Evaluation of the Course

Students will be provided an opportunity to evaluate instruction in this course using the University's standard procedures, which are administered by the[Office of Institutional Research and Effectiveness](http://www.oire.uconn.edu/) (OIRE).

Additional informal formative surveys may also be administered within the course as an optional evaluation tool.

**Let’s build a WARM, INVITING, SUPPORTIVE, and COLLABORATIVE learning environment.**