

<b>Course Number</b>	<b>CE 474/574</b>
<b>Title</b>	<b>Unit Operations in Environmental Engineering</b>
<b>Section</b>	<b>001</b>
<b>CRN(s)</b>	<b>10547/10563</b>
<b>Credits</b>	<b>4</b>
<b>Prerequisite(s)</b>	<b>CE 371</b>
<b>Days/Time</b>	<b>MW 1200-1350</b>
<b>Location</b>	<b>EB 103</b>
<b>Final Exam Day/Time</b>	Final Project Presentations: 15:30 W 12/10/14

<b>Course Website</b>	<a href="http://www.ce.pdx.edu/~fishw/UO-Readings14.htm">http://www.ce.pdx.edu/~fishw/UO-Readings14.htm</a>
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<b>Instructor</b>	<b>William Fish</b>
<b>Office</b>	<b>EB 202F</b>
<b>Phone</b>	<b>503-725-4278</b>
<b>E-mail</b>	<a href="mailto:fishw@cecs.pdx.edu">fishw@cecs.pdx.edu</a>
<b>Office Hours</b>	W 1400-1500
<b>Mailbox Location</b>	CEE Office, Eng Building 2, Suite 200

**Required Text or Other Materials:** Reading materials posted online. None required for purchase

**Recommended References/Optional Text/Supplemental Readings & Resources:**

*Theory and Practice of Water and Wastewater Treatment*, R. L. Droste

**Catalog Course Description:** Unit operations of water and wastewater treatment; pretreatment; sedimentation, filtration, aeration, disinfection, sludge treatment and disposal, advanced waste-water treatment processes.

**Design/Professional:**

Course is 50% design in nature, with an emphasis on design criteria, regulatory requirements, economic considerations, and design alternatives.

**Course Objectives**

This is an introductory course on the treatment of public drinking water supplies and municipal wastewater. Students will learn the most widely used techniques for treating water or wastewater so that it meets state and federal water quality requirements. Students must: 1) develop an understanding of quantitative and engineering principles related to the topic, including scientific fundamentals such as chemistry, microbiology, mass transfer; 2) learn and apply engineering principles and calculations for standard unit operations; 3) have a basic understanding of design methodology, design criteria, regulatory requirements, economic considerations, and design alternatives.

**Course Requirements:** Lecture and discussion during the class periods. Students are expected to complete each reading *before* class, be prepared to complete a short **preparation check** (“prep check”) on

the reading at the start of each class, and discuss the material during class. The questions for the prep check will be posted on the web in advance so that students can review the questions as a study guide. Design Assignments are assigned as homework each week; due *in class* on **Wednesdays**

All written responses in this course shall be in your own words. *As per PSU policy, acts of academic dishonesty will result in a failing grade on the exam or assignment for which the dishonesty occurred, disciplinary probation, suspension or dismissal from the University*

### **Course Grading**

<b>Assignment</b>	<b>Points Assigned or % of Total Grade</b>
Daily preparation checks	10%
Midterm Exams (2)	30% Total
Final Project	20%
Weekly Design assignments	40%

**Incompletes:** A grade of "I" is granted by the instructor *only* with prior approval and consent. Criteria are outlined in the PSU Bulletin.

**Program requirements:** {for UG courses} The CEE Department requires that junior and senior engineering courses must be completed with a minimum grade of C-, and a student's cumulative PSU GPA must be 2.25 or higher to graduate from the BSCE program.

### **Course Schedule :**

[www.cecs.pdx.edu/~fishw/UO-Readings14.htm](http://www.cecs.pdx.edu/~fishw/UO-Readings14.htm)

## **Ethics and Professionalism**

As future professional engineers you should plan to take the FE Exam (see the Oregon State Board of Examiners for Engineering and Land Surveying at <http://www.oregon.gov/OSBEELS/Pages/index.aspx>), and you should be familiar with the ASCE Code of Ethics (<http://www.asce.org/Leadership-and-Management/Ethics/Code-of-Ethics>), which includes the following:

*Engineers shall act in such a manner as to uphold and enhance the honor, integrity and dignity of the engineering profession.*

The PSU Student Conduct Code prohibits all forms of academic cheating, fraud, and dishonesty. Further details can be found in the PSU Bulletin. The Student Code of Conduct was updated September 28, 2009. To read the new language please visit: <http://www.pdx.edu/dos/codeofconduct>

Allegations of academic dishonesty may be addressed by the instructor, and/or may be referred to the Office of Student Affairs for action. Acts of academic dishonesty may result a failing grade on the exam or assignment for which the dishonesty occurred, disciplinary probation, suspension or dismissal from the University. The students and the instructor will work together to establish optimal conditions for honorable academic work. Questions about academic honesty may be directed to the Office of Student Affairs.

## **Classroom Rules and Behavior Expectations**

The classroom is a professional space and professional conduct is expected. Please silence your cell phone and refrain from text messaging during class and exam times. Treat your fellow students and the instructor with respect and please use appropriate language at all times. Additional rules may be added at the instructor's discretion.

## **Resources**

As a PSU student, you have numerous resources at your disposal. Please take advantage of them while you are here. A small sample is listed below:

- CE Website (includes program info, job listings, etc.)
- Portland State University's Career Center
- Center for Student Health & Counseling
- The Writing Center at Portland State
- PSU Disability Resource Center

Note: The PSU Disability Resource Center is available to help students with academic accommodations. If you are a student who has need for test-taking, note-taking or other assistance, please visit the DRC and notify the instructor at the beginning of the term.

## **Introduction to Library and Literature Research**

With the advent of the Internet it is very tempting to think that all necessary resources for a term project will be available in full text after typing in a few words at Google.com. This is not the case. You will often need to go to the library, use real library search tools and access real books and articles contained in refereed/archival journals.

Be sure to make use of the Vikat library catalog. Go to the PSU library home page at <http://www.lib.pdx.edu/>. Also available on the library home page are full text electronic journals, and on-line databases. Note that access to these databases is free for PSU students, but

*CEE Department Syllabus*

you must be using a computer on campus or via a dial-in service. Visit PSU's library for instructions on how to gain off-campus access using a proxy server.

### **Campus Safety**

The University considers student safety paramount. The Campus Public Safety Office is open 24 hours a day to assist with personal safety, crime prevention and security escort services. Call 503-725-4407 for more information. **For Campus emergencies call 503-725-4404.**

### **Computer and E-mail Accounts**

- If you haven't done so already, please go to the CadLab located in EB 325 to activate your engineering account. If you need help in using this account, please see the attendant or send an e-mail to [support@cecs.pdx.edu](mailto:support@cecs.pdx.edu)
- If you choose not to check your CECS e-mail account regularly ([yourname@cecs.pdx.edu](mailto:yourname@cecs.pdx.edu)) then please forward it to an e-mail account that you do check. Important information and announcements are delivered via this e-mail address and only to this email address.

### **Student Groups and Professional Organizations**

Participation in student and professional groups can be a valuable part of your education experience. Membership gives students opportunities to get to know fellow students better, meet and network with professionals, collaborate in solving real engineering problems, learn about internship or job possibilities, socialize and have fun. Consider becoming active with a student organization, such as the following:

- American Society of Civil Engineers Student Group (ASCE)
- Engineers Without Borders (EWB)
- Tau Beta Pi (TBP)

Most professional organizations have monthly meetings and encourage student participation by providing discounts for lunch and dinner meetings. These meetings provide opportunities to network with potential future employers, learn about scholarships, and increase your technical knowledge.