

**University of Connecticut**  
**CE 4900W Civil Engineering Projects I**  
**Syllabus – Fall 2018**

**Instructor:** Dr. Wei Zhang, [wzhang@uconn.edu](mailto:wzhang@uconn.edu), 860-486-5642

**Class meets:** T/Th 2:00-5:00 PM, Castleman 204/212 (See attached schedule)

**Course Description:**

Issues in the practice of Civil & Environmental Engineering: management, business, public policy, leadership, importance of professional licensure, professional ethics, procurement of work, law/contracts, insurance/liability, global/societal issues (e.g., sustainable development, product life cycle), and construction management. Students working singly or in groups prepare proposals for Civil Engineering design projects, oral presentation and written reports.

**Course Purpose:**

All undergraduate majors in Civil Engineering must take this course. This course covers topics important in preparing students to responsibly engage in the civil engineering profession as required for accreditation of the program (see next page). Because these topics are inherently practice-oriented, most lectures are taught by practicing professionals who have extensive experience in the civil engineering profession. Students will also form groups to prepare proposals for a design project they will conduct during the next semester in the follow-on course, CE 4920W *Civil Engineering Projects II*.

**Course Outcomes:**

This course contributes to students' acquisition of the following:

1. an understanding of professional and ethical responsibility
2. an ability to communicate effectively
3. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
4. a recognition of the need for, and an ability to engage in life-long learning
5. a knowledge of contemporary issues
6. an ability to design a system, component or process in more than one civil engineering context;
7. an ability to explain basic concepts in management, business, public policy, and leadership; and
8. an ability to explain the importance of professional licensure.

**Course Writing Component:**

The senior design courses (CE 4900W & CE 4920W) carries a “W” designation, and thus includes an intensive writing component, including instruction, feedback, and revision. All writing is double-space, 1” margins, Times New Roman size 12 font. The writing assignments for CE4900W consist of:

- A three-page job application (1 page resume and 2 page cover letter) for a position on one of the project teams.
- An essay on a case study in engineering ethics (2 pages);
- Meeting minutes for two group meetings of duty assignment and proposal preparation. (2 pages);
- Literature review paper related to their duties in their team assignments (6 pages).

- Students will participate in writing a proposal as a group for a design project that will be implemented in the subsequent semester. Each student will write a minimum of 2 pages in the proposal; each student's contribution must be clearly indicated.

These assignments address different aspects of writing you will encounter in your working life including the use of different types of writing (technical or persuasive), addressing different audiences (peers, public, regulators, future employers), and overall the ability to effectively analyze and convey data and design decisions in writing. Writing feedback will be provided by the instructor, your peers and your project advisors in order to revise and improve your writing. Due dates for assignments are indicated on the schedule below.

Each student must pass the writing component in order to pass the course.

**Course Textbook:**

Irish, Robert. Writing in Engineering: A Brief Guide. Oxford University Press, 2015.

**Grading Contributions**

<b>Course Component</b>	<b>Percent of Grade</b>
Job application	10%
Ethics essay	15%
Literature review	30%
Meeting Minutes	15%
Proposal Written Report	30%

Other grade considerations:

- Attendance at seminars, presentations, interviews and workshops are required. Deductions in grade will be made if there are more than two unexcused absences
- Even for the same team, differing individual grades may be assigned.

## **CRITERIA FOR ACCREDITING UNDERGRADUATE PROGRAMS IN CIVIL ENGINEERING (from the Engineering Accreditation Commission of ABET, Inc.)**

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The elements inside the boxes are addressed and assessed in CE 4900W.

### **PROGRAM EDUCATIONAL OBJECTIVES (PEO's)**

*These are expected accomplishments of graduates during the first few years after graduation.*

**The Civil Engineering undergraduate program educational objectives are to prepare alumni/ae with the knowledge and skills needed to:**

- **actively contribute to the practice and profession of engineering** in the public or private sectors in the technical areas of environmental, geotechnical, structural, transportation, and water resources engineering;
- **follow a path that can lead to licensure** as professional engineers who design and construct solutions to civil engineering problems in the natural and built environments; and
- **practice life-long learning** through post-graduate and professional education.

### **STUDENT OUTCOMES**

*This is what students are expected to know and be able to do by the time of graduation*

1. identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. (A+E)
2. apply the engineering design process to produce solutions that meet specified needs with consideration for public health and safety, and global, cultural, social, environmental, economic, and other factors as appropriate to the discipline. (C)
3. develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions. (B)
4. communicate effectively with a range of audiences. (G)
5. recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts. (F+H+J)
6. recognize the ongoing need to acquire new knowledge, to choose appropriate learning strategies, and to apply this knowledge. (I+K)
7. function effectively as a member or leader of a team that establishes goals, plans tasks, meets deadlines, and creates a collaborative and inclusive environment. (D)

### **CE PROGRAM CRITERIA (Defined by ASCE)**

**The program must prepare graduates to ...**

- apply knowledge of mathematics through differential equations, calculus-based physics, chemistry and at least one additional area of basic science, consistent with the program educational objectives;
- apply knowledge of four technical areas appropriate to civil engineering
- conduct civil engineering experiments and analyze and interpret the resulting data;
- design a system, component or process in more than one civil engineering context;
- explain basic concepts in management, business, public policy, and leadership; and
- explain the importance of professional licensure.

## CE 4900W Schedule

<b>Date</b>	<b>Time</b>	<b>Tuesday Topics</b>
Aug. 28	2:00 PM	Introduction, available projects, cover letters, and career fairs
Sep. 4	2:00 PM	Job applications due, Job interview
Sep. 6	2:00 PM	Job interview, Cover letter review
Sep. 11	2:00 PM	Job Interview, Cover letter review
Sep. 13	2:00 PM	Job Interview, Project assignments
Sep. 18	2:00 PM	Ethics case study, resume/cover letter revision due
Sep. 25	2:00 PM	Ethics Seminar
Oct. 2	2:00 PM	Ethics essay draft due; Literature review paper topics assigned
Oct.9	2:00 PM	Aida Grad School / Minutes for job assignment due.
Oct. 16	2:00 PM	Ethics essay final due;
Oct. 23	2:00 PM	Literature review paper draft due
Oct. 30	2:00 PM	
Nov. 6	2:00 PM	Draft of proposal due to your advisor
Nov. 13	2:00 PM	Final minutes for job assignment and proposal due
<b>THANKSGIVING BREAK</b>		
Nov. 27	2:00 PM	Final literature review paper due
Dec. 4	2:00 PM	Final written project proposals due Dec. 6

### ADDITIONALLY

Tuesdays      2:00-3:30 PM    Group progress updates scheduled throughout Oct/Nov  
 Tuesdays      3:30- 5:00 PM    Meeting with advisors (on an as needed basis)

Thursdays      2:00-5:00 PM    Reserved for team meetings, meetings with sponsors  
 CAST114 and 212 are available, other rooms are available to reserve (123, SU)

T/Th              2:00 or 3:30 PM    Seminars (tentative schedule below)

### SEMINARS

<b><u>Date</u></b>	<b><u>Time</u></b>	<b><u>Location</u></b>	<b><u>Topics</u></b>
Aug 28	2:30 PM	CAST212	Eran Peterson – cover letters and navigating a career fair
Sept 25	2:00 PM	CAST212	Mark Austin, Ethics presentation.
Oct 16	2:00 PM	CAST212	Chuck, CME - Bidding/Proposals