

CE 3153 – Water and Wastewater Laboratory – Spring 2020

The University of Texas at El Paso
 Department of Civil Engineering
 Laboratory: M, W, or F 1:30-4:20pm, ENGR 204
 Laboratory CRNs:
 Mon (25824), Wed (25825), or Fri (25826)
 Prerequisites: CE 2375 and Junior Standing

Instructor: W. Shane Walker, Ph.D., P.E.
 Email: wswalker2@utep.edu
 Office: Engineering A-215
 Phone: (915) 747-8729
 Office hours: Mon & Wed, 2:30-3:30pm

NOTICE: Degree Plan Change

In previous semesters, CE 3342 was only lecture, and the CE 3153 laboratory was a separate course. However, in the new B.S. C.E. degree plan, this course is now an integrated lecture and laboratory. Thus, students taking this course this semester need to be aware of several directives:

- If you are on an old degree plan that requires both CE 3342 (lecture only) and CE 3153 (lab), then:
 - If you have not already taken CE 3342 (lecture only), then you will need to register for both the CE 3342 (now both lecture (28312) and a Mon (28323), Wed (28324), or Fri (28325) lab) and CE 4171 Engineering Problems (20510), so that you can satisfy the four credit-hour requirement for your degree plan. When you apply for graduation, the combination of the new CE 3342 combined with CE 4171 will count together for credit for CE 3342 and CE 3153.
 - If you already passed CE 3342 (lecture only) in a previous semester but not CE 3153 (lab only), then you only need to register for CE 3153 lab only, either Mon (25824), Wed (25825), or Fri (25826).
 - If you already passed CE 3153 (lab only) in a previous semester but not CE 3342, then you need to register for CE 3342 (28312), and you need to complete the same book reading and Packback assignments as the students enrolled in CE 4171 to earn the full three hours of credit this semester.
- If you are on the new degree plan which does not require CE 3153 (lab), then you will need to register for only the CE 3342 (lecture and lab).

Required Personal Protective Equipment:

- Lab coat (available at UTEP bookstore)
- Goggles or protective eyeglasses (available at UTEP bookstore)

Philosophy

I believe that *teaching* and *learning* are interdependent; you cannot have one without the other. You and I are partners and colleagues, working together to help you become a knowledgeable, curious, intrinsically motivated, and confident engineer. I want to help you become a critical thinker with sharpened skills of analysis, evaluation, and synthesis. I incorporate team-based, hands-on laboratory exercises in this course to help you prepare for professional practice and to help you develop as a more robust and intrinsically-motivated engineer. I have also realized that it is important for students to complete weekly reports, which help students keep up with understanding and applying concepts.

Expectations

Participation: More than simply attending class, you are invited to *think*, and *participate* in the lectures and discussions. I encourage you to be curious and inquisitive during class discussions and online forums.

Preparedness: I recommend that you bring the textbook, a personal course notebook, a pen or pencil, a calculator, completed assignments, and questions from the lab exercises and reading.

Punctuality: You are expected to be on time to class, laboratory exercises, and plant tours. Late assignments will not be accepted.

Ethics: In engineering, personal integrity is of utmost importance, especially in the assessment and reporting of environmental conditions. Also, in most cases, it is necessary to work in teams to develop and design optimal solutions to problems and challenges, and it is essential that each team member contribute to the productivity of the team. In this course, I strongly recommend that you complete assignments in teams; in many cases, you will help each other through the solution of difficult problems. Every student is accountable for *understanding* the concepts, analysis, and solution. Each student is accountable for understanding and *contributing* (equitably) to the team projects. Any student committing plagiarism (e.g., copying another’s work without understanding) or any other form of academic dishonesty will be reported to the Dean of Students for disciplinary action (which may include expulsion from the University). For a concise summary of engineering ethics, I have provided here the Fundamental Canons within the [Code of Ethics](#) of the American Society of Civil Engineers (ASCE):

1. *Engineers shall hold paramount the safety, health and welfare of the public and shall strive to comply with the principles of sustainable development³ in the performance of their professional duties.*
2. *Engineers shall perform services only in areas of their competence.*
3. *Engineers shall issue public statements only in an objective and truthful manner.*
4. *Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.*
5. *Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.*
6. *Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession and shall act with zero-tolerance for bribery, fraud, and corruption.*
7. *Engineers shall continue their professional development throughout their careers, and shall provide opportunities for the professional development of those engineers under their supervision.*

Course Grade

Assessment of your performance in this course will be determined by lab reports, quizzes, and tour attendance. (No makeup assignments will be offered.) Handwritten homework calculations must be submitted on engineering paper. The course average will be computed according to the following grading schemes:

| Evaluation | Fraction (%) |
|-------------------|---------------------|
| Lab Report Avg | 50 |
| Quiz Avg | 20 |
| Lab Exam Avg | 30 |
| <i>Total</i> | <i>100</i> |

Attendance

One absence will be allowed for the semester; a ten-point deduction will be assessed on your final course average for each absence after the first. Three late arrivals will count as an absence; you will be considered late if you arrive after five minutes after the beginning of the lab.

The final course grade will be determined according to the following:

| Course Average (%) | Grade |
|---------------------------|--------------|
| ≥ 90 | A |
| 80-89 | B |
| 70-79 | C |
| 60-69 | D |
| < 60 | F |

I reserve the right to modify or augment this grading scheme for the sake of improving the educational effectiveness of this course.

Special Accommodations

The University of Texas at El Paso provides, upon request, appropriate academic accommodation for students with disabilities. For more information, contact the Center for Accommodations and Support Services (<https://www.utep.edu/student-affairs/cass/>).

Lab Schedule

| Lab | Week | Description |
|-----|--------|--|
| - | Jan 20 | No labs this week (MLK Jr. Holiday on Monday) |
| 1 | Jan 27 | Safety Briefing, Documentary: Last Call at the Oasis (2011) |
| 2 | Feb 03 | pH and alkalinity |
| 3 | Feb 10 | Turbidity, conductivity, TSS, & TDS |
| 4 | Feb 17 | Tour: Canal Street Drinking Water Treatment Plant |
| 5 | Feb 24 | Titrations: hardness, chloride, & sulfate |
| 6 | Mar 02 | Spectrophotometers (chlorine); IDEXX Most Probable Number (Coliforms & <i>E. coli</i>) |
| 7 | Mar 09 | Tour: Parkhill, Smith, & Cooper Engineering Office |
| - | Mar 16 | No classes this week (Spring Break) |
| - | Mar 23 | No labs this week (Cesar Chavez Holiday on Friday) |
| 8 | Mar 30 | Tour: Kay Bailey Hutchison Plant Desalination Plant |
| - | Apr 06 | No labs this week (Spring Study Day on Friday) |
| 9 | Apr 13 | DO, BOD, COD |
| 10 | Apr 20 | Tour: Hickerson Wastewater Treatment Plant |
| 11 | Apr 27 | Tour: Fred Hervey Wastewater Reuse Plant |
| - | May 04 | No labs this week (Dead Day on Friday) |