

Welcome to ECH 80: Chemical Engineering Profession!

A Course at the University of California, Davis in the Department of Chemical Engineering

Updated for Fall Quarter 2026

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INSTRUCTION TEAM INFORMATION

Instructor:

Jason R. White, Ph.D.

Office: 3098 Bainer Hall

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Course Reader:

Joaquin Santiana

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COURSE MEETING INFORMATION & CATALOG DESCRIPTION

Class Time: Tuesdays, 9am – 9:50am

Class Location: 66 Roessler Hall

Catalog Description: Introduction to the professional opportunities and professional responsibilities of chemical engineers. Opportunities and needs for post-baccalaureate education. Relationship of chemical engineering to contemporary issues.

COURSE PURPOSE & LEARNING OUTCOMES

Course Purpose: This course is designed to develop an awareness of the role of chemical and biochemical engineers in society. Students should become familiar with the breadth of potential careers in (bio)chemical engineering, and the professional and ethical responsibilities associated with those careers. Students should develop an appreciation of the need for life-long learning and the tools and opportunities for such learning. Students are expected to demonstrate knowledge of contemporary issues and their relationship to the profession.

Associated ABET Learning Outcomes: Upon successfully finishing this course, the students are expected to acquire or improve upon the ability...

- to communicate effectively with a range of audiences
- to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- to acquire and apply new knowledge as needed, using appropriate learning strategies

OFFICE HOURS

Office hours are time that I have reserved to be specifically available to ECH 80 students to answer questions on anything related to the course (i.e. something we talked about in class, an assignment, an accessibility concern, etc). I also welcome other questions and discussions around the major, work/life balance, hobbies, or pretty much anything else. In short, this is your time for personal or small group conversations with the instructor. Attendance at office hours is optional, but I encourage you to take advantage of this time. If you are not available to attend office hours but have a question or would like to discuss something, you may also talk to me before or after class (if it is quick), send an email, or make an appointment to meet with me at a different time.

ECH 80 Office Hours with Professor White (location = 3098 Bainer Hall):

Tuesdays 3pm - 4pm

Thursdays 9am - 10am

Additional in-person or virtual meeting times available on request

LEARNING RESOURCES

AICHe Student Membership: All students must sign up for a national AICHE (American Institute of Chemical Engineers) student membership, which is free! (Note: this is different from a student chapter membership for the UCD group). Visit [this site](#) to sign up. This will allow you to access, among other things, required reading in the Chemical Engineering Progress (CEP) magazine, which will help you prepare for class and complete some of the assignments.

Packback: Packback is an online learning platform that helps students become curious, critical thinkers with strong writing skills. Students who have used Packback have reported that they have become a more confident writer after using it. Packback has also been shown to help students earn better grades on their assignments and in courses. I will be using the Packback platform in this course to facilitate class preparation and discussion around current topics in chemical/biochemical engineering (namely the “Grand Challenges”) as well as around engineering ethics. Additionally, you will be using Packback to prepare and submit the two major essays for this course (the “Ethics and Professionalism” essay and the “Contemporary Issue” essay).

Pre-Class Packback Discussion Preparation: The Packback Questions platform will be used for online discussion about class topics. Packback Questions is an online community where you can ask open-ended questions to build on top of what we are covering in class and relate topics to real-world applications. For a brief introduction to Packback Questions and why we are using it in class, watch this [video](#). Packback discussion assignments will be worth a total of 15% of your final course grade (3% * 5 weeks of discussion assignments). For each “Packback week”, you will be required to read a few articles in preparation for the next class session (links will be on the Packback guide post for the week), submit one question, and submit two responses to the current course discussion. To earn full credit for the question or response, you will be required to achieve a minimum Packback “Curiosity Score” of 55 (out of 100). You will be allowed to modify your submission as many times as you’d like before the deadline in order to achieve the minimum score.

Writing Assignments (Essays) on Packback: Packback Deep Dives will be used to assess independent research skills and improve academic communication through long-form writing assignments (e.g. essays). While writing your assignment in Packback, you will interact with a virtual Research Assistant that will help you gather your notes and cite your sources and a digital Writing Assistant for in-the-moment feedback and guidance on your writing.

How to Register on Packback:

Importantly: Only access Packback through Canvas in order to ensure your grades sync properly.

1. Click "Packback" within Canvas to access the ECH 80 Packback community.
2. Follow the instructions on your screen to finish your registration.
3. In order for your grade to be visible in Canvas, make sure to only access Packback via Canvas.

How to Get Help from the Packback Team: If you have any questions or concerns about Packback, please read their Help articles at help.packback.co. If you need more help, contact their customer support team directly at help@packback.co.

COURSE SCHEDULE AND IMPORTANT DATES

Date	Topic
9/29/26	Course Introduction, Overview of (Bio)Chemical Engineering
10/6/26	Introduction to Chemical Engineering Ethics & Discussion on the Use of AI Tools
10/13/26	Grand Challenges in (Chemical) Engineering: Developing Carbon Sequestration Methods + Making Solar Energy More Economical
10/20/26	Biotechnology & Grand Challenges in (Chemical) Engineering: Engineering Better Medicines and Advance Health Informatics
10/27/26	(Bio)Chemical Engineering Professional Guest Presentation and Q&A #1 – Niko Kingi, E&J Gallo Winery
11/3/26	(Bio)Chemical Engineering Ethics and Professionalism Part 1, Chemical Process Safety
11/10/26	Career Center Presentation
11/17/26	(Bio)Chemical Engineering Ethics and Professionalism Part 2 & Final Assignments Discussion
11/24/26	No Class - Thanksgiving Week
12/1/26	(Bio)Chemical Engineering Professional Guest Presentation and Q&A #2 – Muzhda Ferouz, CA Dept of Toxic Substances Control

EVALUATION OF STUDENT PERFORMANCE

Grading: Your final grade will be based on the following weighting system.

Assignment	% of Grade	Due Date (due by 11:59pm via Canvas unless otherwise noted)
Reading and Acknowledging the Course Syllabus and UCD Code of Conduct	3%	Sunday October 4 th

Completion of Instructor Course Pre Survey	3%	Sunday October 4 th
Pre-Class Packback Discussion Participation	15%	Sundays (by 11:59pm) before Weeks 2, 3, 4, 6, and 8
Wellness Activity	6%	Sunday October 25 th
Ethics & Professionalism Essay: Analysis of a Process Safety Incident (Packback)	20%	Sunday November 15 th
Drafting Your Resume	5%	Wednesday November 25 th
Final Essay – Analysis & Ethics of a Contemporary Issue in ChE/BChE (Packback)	25%	Wednesday December 9 th by 11:59pm
Completion of Instructor Post-Course Survey	3%	Wednesday December 9 th by 11:59pm
Regular Lecture Participation	10%	Weeks 1, 2, 3, 4, 6, and 8
Guest Lecture Participation	10%	Weeks 5, 7, and 10. See Course Schedule for Guest Presenters

Here is a week by week view of what you should be working on:

Week (of)	Assignment(s)	Deadline
1 (9/29)	Reading and Acknowledging the Course Syllabus and UC Davis Code of Conduct Course Pre-Survey Week 2 Pre-Class Reading & Packback Discussion	Sunday October 4 th , 11:59pm
2 (10/6)	Week 3 Pre-Class Reading & Packback Discussion	Sunday October 11 th , 11:59pm
3 (10/13)	Week 4 Pre-Class Reading & Packback Discussion	Sunday October 18 th , 11:59pm
4 (10/20)	Wellness Activity	Sunday October 25 th , 11:59pm
5 (10/27)	Week 6 Pre-Class Reading & Packback Discussion	Sunday November 1 st , 11:59pm
6 (11/3)	Start work on Ethics & Professionalism Essay	N/A
7 (11/10)	Week 8 Pre-Class Reading & Packback Discussion Complete work on Ethics & Professionalism Essay	Sunday November 15 th , 11:59pm

8 (11/17)	Prepare Resume (due week 9) Start thinking about Final (Contemporary Issue) Essay	N/A
9 (11/24)	Resume Due Start work on Final (Contemporary Issue) Essay	Wednesday November 25th, 11:59pm
10 (12/1)	Continue work on Final (Contemporary Issue) Essay Submit Course Evaluation, eval.ucdavis.edu (optional but highly encouraged!)	N/A
Finals	Complete work on on Final (Contemporary Issue) Essay Submit Instructor's Post Course Survey	Wednesday December 9th, 11:59pm

COURSE POLICIES

Late Work:

Meeting deadlines is an important professional skill. Deadlines are set to account for time needed for other assignments as well as for the time to grade assignment submissions. Therefore, it is expected that all work will be completed by the assigned deadlines. If the situation arises where an individual can not complete a major assignment by the deadline, that assignment may be submitted up to 2 days late provided that the instructor is notified that the submission will be coming in late by email and before the deadline. Major assignments for this course include the "Wellness Activity", and the "Ethics & Professionalism Essay". The final essay is eligible for a shorter grace period (before 11:59pm on Thursday 12/10) due to the end of the quarter. All other assignments, for example Packback discussion assignments, must be submitted by the deadline.

Accessibility:

Regardless of disability status, we all have access needs. Access needs are anything you require of your community or environment in order to participate fully, healthfully, and meaningfully. I value diversity in learning modalities, approaches, and access needs. To help me better foster your success, please let me know if you have access needs that are not being met and/or ideas for cultivating a learning environment more conducive to your learning. If any resources are inaccessible, please let me know and we can find alternative formats.

Contact the [UC Davis Student Disability Center](#) if you need, or suspect you may need, accommodations as soon as possible at sdcc@ucdavis.edu.

Join the [Disabled Student Union](#) or the [Aggie Neurodiversity Community](#) for community, support, and advocacy.

Here's a [map of campus](#) that shows locations of accessible and power-assist entryways in campus buildings.

Here are some accessibility tools that you might find useful:

- Canvas Immersive Reader (Chrome extension for web viewing)
- [Otter Transcription/Captioning](#)
- Text-to-speech ([Chrome extension](#))
- Speech-to-text tools: Google Docs Voice Typing feature (under File)
- [Zamzar document to audio file converter](#) (listen to your course readings while commuting!)
- [Pomodoro time/task management tool](#)

Policy on Use of AI Tools:

Successful completion of ECH 80 means that you have acquired or improved the specific abilities articulated in the Student and ABET outcomes (see above). Excessive or inappropriate use of AI-based tools can impede the development or improvement of these abilities, thereby hindering achievement of the learning objectives. For example, excessive reliance on AI to write the required essays may prevent you from improving your ability to communicate effectively. Excessive or inappropriate use of AI tools may adversely affect the evaluation of deliverables. Students should know that Packback runs both a plagiarism check and AI check on submissions. Your instructor will inform you of suspected excessive or inappropriate use of AI tools. In these cases, you will be encouraged to schedule a meeting with your instructor to discuss and, if needed, provide evidence of successful completion of the learning objectives. In severe cases, students may be referred to Student Judicial Affairs (refer to the Policy on Scholastic Conduct section).

Plagiarism and Academic Misconduct:

Plagiarism is the submission of work that is not one's own or for which other credit has been obtained. This includes (i) representing data, analysis, or writing as being your own work when it is not; and (ii) using materials taken from the web, from the literature, without giving proper attribution. While discussion of course work with your fellow students is encouraged, submitted work must clearly be your own and distinct from your classmates or online materials. If it is found that you are claiming others works as your own you will receive a 0 on the assignment and the case will be referred to SJA (Student Judicial Affairs). Refer to this document for more details on plagiarism:

<http://sja.ucdavis.edu/files/plagiarism.pdf>. The code of academic conduct can be found at this link: <http://sja.ucdavis.edu/files/cac.pdf>.