

Classes Friday 1pm @ <https://cuboulder.zoom.us/j/97686887719>

**Instructor:** Scot Rowe, [scott.rowe@colorado.edu](mailto:scott.rowe@colorado.edu)

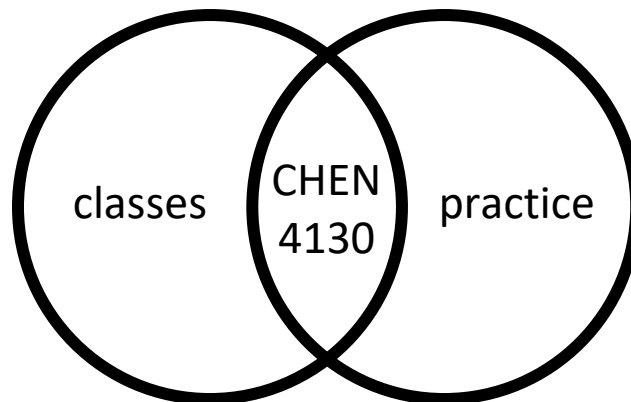
Office hours online & in JSCBB B171 till 6pm most Fridays.\*

Students are welcome onsite after Feb 15<sup>th</sup> to inspect and run equipment.

**Required PPE:** acquire and *use* safety glasses onsite alongside long pants and closed toed shoes. *Use* gloves and material safety datasheets as appropriate onsite.

**Prohibitions (may trigger disenrollment):** Plagiarism, cheating & resubmission.

**Course Objective:**  
bridge engineering classwork  
and engineering practice.



**Certification:**

I \_\_\_\_\_ (printed name) acknowledge the expectations described within this syllabus and pledge to act in a safest and most judicious manner reasonable onsite.

Signed:

Date:

\* office hours occur unless there's a cancellation announcement.

**Learning Outcomes:**

- To work in a simulated industrial environment, with emphases on teamwork, open-ended problem solving, project-style report writing, and effective oral communications.
- To provide hands-on operating experience with typical chemical engineering equipment and to obtain experience with heat transfer, fluid flow, separations, thermodynamics and reacting systems.
- To provide experience with planning and implementing experiments.
- To review and practice chemical engineering principles.
- To provide an understanding of, and practice with, the use of statistics and data interpretation with real experimental data.

**ABET Accreditation Outcomes:**

Course-Outcomes Matrix	1	2	3	4	5	6	7
CHEN 4130 (3). Chemical Engineering Lab.			X		X	X	

- (1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- (2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- (3) an ability to communicate effectively with a range of audiences
- (4) an ability to 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
- (5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- (6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- (7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

**Onsite Attendance:**

Pending any changes in university protocols, after Feb 15<sup>th</sup> students are welcome onsite from 1-6pm in the JSCBB B171 chemical engineering lab if space permits. This is Room capacity is limited and interested students should signup @:

<https://docs.google.com/spreadsheets/d/1qsQG1F9OJJFaFqkhjn-NsSSxALpRMOJUDION7vRjffs/>

Onsite students may run and inspect equipment, receive onsite lecture, and seek class assistance after lecture.

**Schedule:**  
**(deadlines)**

	group 1	group 2	group 3	group 4	group 5	group 6	group 7	group 8	group 9	group 10	
Jan 22	Lecture, lab: Writing										Executive Summary
Jan 29	Stats Wrkshp										Calculations
Feb 5	Regress Wrkshp										Executive Summaries
Feb 12	γ Wrkshp										
Feb 19	Rxn Wrkshp										
Feb 26	Fluids Wrkshp										Executive Rewrites COMSOL Sheet & Sim
Mar 5	#1: changers rxn										lab 1
Mar 12	#2: rxn rxn										lab 2 & peer evals
Mar 19	Report Intro, #3: heater heater										lab 3
Mar 26	#4: seps seps										lab 4
Apr 2	#5: pressure pressure										lab 5
Apr 9	FVM Wrkshp										report draft
Apr 16											peer edits
Apr 23											report submission
Apr 30											report presentation
May 7											peer evals

**Labs:**

**The Operator:** Your instructor is your “operator.” Due to COVID he will provide engineering data for workup by running lab equipment remotely on your behalf. Unless announced, after Feb 15<sup>th</sup> your operator is always onsite afterclass in JSCBB B171 until 6pm for equipment tours.

**The Team:** You and maximally two coworkers will execute all deliverables. You may choose your coworkers, who you evaluate twice this semester for 20% of your overall class grade.

**Qualitative:** All labs have a qualitative component.

**Quantitative:** All labs have “Technical Sheets.”

LABS ARE DUE AS SCHEDULED (**prior page**).

*One lab can be “dropped” without grade penalty.*

**Reports:**

This class teaches writing and presentation atop teamwork and engineering because communication is essential to both engineering and CHEN 4130 success. *Your engineering proficiency is irrelevant without fluent communication!*

**Executive Summary:** describes a founding chemical process.

The executive summary can be rewritten after initial grading for maximally 90% full credit.

**Scaleup Report:** uses actual lab data for scaleup engineering.

**Scaleup Presentation:** present a powerpoint on scaleup findings.

**Workshops**

Activities assigned and due in class (prior page).

**Peer Evaluation**

Grades your coworker gives you, wholly at their discretion.

**Punctuality**

Late assignments are unaccepted. However, one lab and two workshops can be “dropped” without grade penalty.

**Individual grades:**

- 1) **Executive Summary** of an assigned Aspen HYSYS simulation.
- 2) **Workshops**.
- 3) Edits on your coworker's writing in the **Scaleup Report**.
- 4) Performance on the **Scaleup Presentation**.
- 5) **Peer evaluations**.

**Group grades:**

- 1) The **Scaleup Report**.
- 2) **COMSOL sheet and Simulation**.
- 3) **Lab** deliverables.

**Grading:**

	you	partner	partner	Due:
Workshops	5%	5%	5%	see schedule
Executive Summary Spreadsheet & Simulation	5%	5%	5%	Feb 5 <sup>th</sup>
Executive Summary	10%	10%	10%	Feb 19 <sup>th</sup>
COMSOL Technical Sheet & Simulation	10%	10%	10%	Mar 5 <sup>th</sup>
Lab	5%			see schedule
Lab	5%			
Lab	5%			
Lab	5%			
Scaleup Report Draft	5%			Apr 16 <sup>th</sup>
Scaleup Report Peer Edits	5%	5%	5%	Apr 23 <sup>rd</sup>
Scaleup Report Submission	10%			Apr 30 <sup>th</sup>
Scaleup Report Presentation	10%	10%	10%	May 7 <sup>th</sup>
Midterm Peer Evaluation	10%	10%	10%	Mar 19 <sup>th</sup>
Final Peer Evaluation	10%	10%	10%	May 7 <sup>th</sup>

**Ethical Standards Adhere to University Bylaws:**

<https://www.colorado.edu/sccr/honor-code>

**Classroom Behavior Policies Adhere to University Bylaws:**

<https://www.colorado.edu/policies/student-classroom-and-course-related-behavior>

**Religious Holidays Adhere to University Bylaws:**

<https://www.colorado.edu/policies/observance-religious-holidays-and-absences-classes-andor-exams>

**Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation**

The University of Colorado Boulder (CU Boulder) is committed to fostering a positive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (including sexual assault, exploitation, harassment, dating or domestic violence, and stalking), discrimination, and harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or [cureport@colorado.edu](mailto:cureport@colorado.edu). Information about the OIEC, university policies, anonymous reporting, and the campus resources can be found on the OIEC website:

<https://www.colorado.edu/oiec/>

Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.

**Accommodation for Disabilities**

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website:

<https://www.colorado.edu/disabilityservices/>

Contact Disability Services at 303-492-8671 or [dsinfo@colorado.edu](mailto:dsinfo@colorado.edu) for further assistance. If you have a temporary medical condition or injury, see Temporary Medical Conditions under the Students tab on the Disability Services website and discuss your needs with your professor.

**This Syllabus rearticulates CU Boulder Required Syllabus Statements online:**

<https://www.colorado.edu/academicaffairs/policies-customs-guidelines/required-syllabus-statements>