

Spring, 2022 Syllabus
CHEN 4530: Chemical Engineering Design Project

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Department of Chemical and Biological Engineering
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Meeting Times/Dates:

Tuesday & Thursday (8:30 a.m. - 9:45 a.m.; 001; 10:05 to 11:20 a.m.; 002)
Remote first two weeks per CU, then in – person is planned (JSCBB A108)
Students are expected to attend class via Zoom when class is held remotely.
Students are required to attend class during the day of their team presentations.
See attached schedule (there are only 2 classes (estimated) required for attendance in addition to the first 3 days). Note: due to issues relating to CV-19, we are requiring the teams presenting on certain days to be present, rather than the whole class. Students must only attend the section that they are enrolled in.

Zoom Link for Class:

The zoom link will be assigned soon for class during the first three days.

Team Office Hours:

Prof. Weimer will provide a schedule for individual team meetings to be held during the semester - during scheduled class time. The meetings will take place in person, or zoom if CU deems additional remote classes. Several open meetings will be scheduled during class times when there are no prior scheduled team meetings.

Course Communication:

Canvas and the Class Email List will be used for class communications.

Prerequisites:

CHEN 4520 Chemical Process Synthesis (C- or higher)

Simulation, Design, Costing, and Economics Software:

Microsoft Excel™, AspenHYSYS™, Visio™, ASPENPLUS™, Super Pro Designer™, and MatLab are available.

Text: Product & Process Design Principles (4th Edition)
W. D. Seider, et al., 2017 (John Wiley)

Course Learning Goals

Able to complete a major externally sponsored chemical process/product design project, including process/product conceptualization, process material and energy balances, equipment specifications, and economic analysis. The project has both oral and written components. Communication skill building goals include:

- hone team building skills (very important)
- hone oral technical presentation skills
- hone written technical presentation skills
- interact with outside world

Relationship of this course to ABET Program Objectives:

- a) an ability to apply knowledge of mathematics, science, and engineering
 - b) an ability to design and conduct experiments as well as to analyze and interpret data
 - c) an ability to design a system, component, or process to meet desired needs
 - e) an ability to identify, formulate, and solve engineering problems
 - f) an understanding of professional and ethical responsibility
 - g) an ability to communicate effectively
 - h) the broad education necessary to understand the impact of engineering solutions in a global and societal context
 - i) a recognition of the need for, and an ability to engage in life-long learning
 - j) a knowledge of contemporary issues/engineering challenges
 - k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
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- b) material and energy balances applied to chemical processes
 - f) continuous and stage-wise separation operations
 - h) process design
 - j) appropriate modern computing techniques
 - k) safety and environmental aspects

Academic Dishonesty, Ethics, and Discipline

Any discovered act of academic dishonesty by a student in this course will be reported to the Boulder Campus Honor Code Council. Additionally, the course instructor will report the incident to the Academic Ethics Committee of the Department of Chemical and Biological Engineering. This Committee will recommend to the instructor whether a sanction should be applied to the student. Typical sanctions may range from a zero on an assignment in question to an F in the course. Whether or not the student has admitted the act, in light of the preponderance of the evidence, may factor into the recommendation of the Committee.

Group activities (team projects) in which a student asks another student in their work group for a helpful suggestion on the group project is encouraged and should be done as a priority. Student teams asking a CU faculty member for insightful considerations is not an unethical incident and is encouraged. Student teams searching the Web of Science, library reference texts, or search engines is encouraged, but requires proper referencing in reports. Student teams asking their team liaisons about the project is encouraged. With the exception of liaisons and other CU faculty members, student teams seeking help from outside people without first clearing it with Prof. Weimer, is an unethical act (e.g.. going to the network Reddit and seeking answers from

individuals or entities is considered an unethical act; certainly paying for any support is an unethical act – this was actually attempted a few years back). All students are advised to review the Engineering College rules on “Academic Dishonesty”.

Prior Projects: It is extremely important for the learning value of this class that no one attempts to obtain prior year design projects that may have similarity to current projects. Such activity will be considered unethical and dishonest. Any plagiarism from the web, prior reports, journal articles, or elsewhere is considered academic dishonesty. Plagiarism will be monitored with available software, includes published papers, web sites, and prior team reports for CU and other universities. Student teams submitting final reports with plagiarized information in them will receive reduced grades up to and including an F for the team.

Overall Course Grading/Schedule

Oral Presentations- February 15, 17, 22, 24 (1st Orals); April 12, 14, 19, 21 (2nd Orals)

7.5% - First Oral Project Review (February 15, 17, 22; 24); ppt slides electronic; Prof. Weimer needs the slide decks to be uploaded to Canvas prior to 7:30 am on the day of the talk (for both sections). We are doing 3 to 5 talks per day in order to minimize everyone’s time, but this needs to be well-orchestrated and everyone needs to be on time – starts at 8:30 am and 10:05 am, respectively. It is anticipated that grading input will be obtained from all liaisons and students present, but Prof. Weimer determines the final grade.

7.5% - Second Oral Project Review (April 12, 14, 19, 21)

20% - Peer/Instructor Review: Allocation of the total points given to the team (20% of the grade in this class for each student) for the design project will be distributed individually based upon a confidential peer reviewed written evaluation from the team members themselves and the instructor’s input based on the evaluation of what each team member contributed to the project. There will be three peer-reviews with points split as 5%, 5%, and 10% at approximately the 1/3, 2/3 and end of the project time frames. Each team member will evaluate each team member’s contribution, including their own and describe in writing why the points should be distributed as they indicate. The instructor can modify these scores on the basis of positive or negative contribution of their work to the team project. The total team percent will be divided based upon this method. All team members are encouraged to work hard together towards a common goal and to allocate work evenly. It is important for students to recognize the importance of teamwork as this is the primary mode of operation in industry today. Many companies have actually eliminated individual performance awards in lieu of team awards.

15% -Bi-weekly Progress Reports and PowerPoint Slide Decks (due Thursday, February 4th, February 19th, March 4th; March 18th, and April 8th at 11:59 pm; 1 electronic pdf file submitted to Canvas and liaison (this is important); size limited to 2 pages, 12 pt Times New Roman font, single space, pdf; Appendices attachments as desired as part of file). Teams need to organize ppt slide decks for these liaison meetings to present to their liaisons and to organize discussion. These slide decks will also be submitted to Canvas - along with the biweekly reports and attached files. The biweekly progress reports and the ppt slide decks to the liaisons and Canvas (Prof. Weimer), per the above schedule, need to include: (1) progress made over the prior 2 weeks – “Progress” section, (2) a plan of activities for the subsequent 2 weeks – “Plan” section, and (3) questions to the liaison – “Questions” section. These bi-weekly reports will be graded and commented on. Note

that student-liaison interaction will be included in the grading in the overall Final Report Grade (this will be 10% of the final report grade, i.e. the team's interaction with liaison, bi-weekly progress reports and remote meetings are the major part of that) as well. So, the bi-weekly reports and ppt slide decks should have three sections: 1) Progress, 2) Plan, 3) Question.

50% - Final Report (submitted to Canvas, due Thursday, April 28th; at 11:59 pm); the team is required to receive a passing grade on the final report in order to pass the class, independent of peer reviews. Also, note that the team is required to do a final oral presentation using Zoom (or other software provided by liaison), to their liaison's group, but this must be done some time between Monday, April 25th, and Wednesday, May 4th. There is no final exam in this class. Input will be solicited from the liaison, but Prof. Weimer determines the final grade. ***Important: a passing team final report grade is required for all team members to pass the class - independent of peer-review, orals, or bi-weekly reporting. Consider that you are a consulting company that is providing a report to a paying client – it's all about the report for your consulting company and th client.***

Again, Prof. Weimer will arrange for spiral bound copies of the design report for each student.

The overall course letter grades will be assigned in accordance with overall numerical grades. Breakpoints between letter grades will be determined by the instructor, but are anticipated to be straight grading.

NO LATE SUBMISSIONS TO CANVAS WILL BE ACCEPTED FOR ANY REASON because you are on a team; make sure to have a backup and a backup of the backup. When Canvas "times out", no additional submissions can be made regardless of the reason (for instance, it was done but not turned in; our submitter got sick; turned in the wrong file; missed one file by accident).

Talk with the instructor AHEAD OF THE DEADLINE if there are extenuating circumstances warranting a deadline push.

Attendance and late Excuses

Classroom (or Zoom, if remote) attendance during the student team presentations is important for the learning value of the class (to see and understand all of the projects taking place) and for having input in the presentation evaluations. All team members must be present for the oral presentations of their team and must take part in the actual presentations. The only excuses accepted are medical, immediate family death, specific religious, or some pre-scheduled acceptable reason. **Interviews are anticipated and encouraged; however, they need to be scheduled around the specific dates of the oral presentations.** Plan accordingly. Team oral presentation scores will be decreased by 20% for each person not in attendance, for a 5 person team. Do not let your teammates down. All team members are expected to be in-class for all of the presentations done on the day of your team presentation. We are limiting this to only those teams presenting due to CV-19.

Major – Design Project

There are different major design projects with corporate or government labs organized for each class section. Design project teams of preferably 4 or 5 students will collectively do the project. The primary contact for direction concerning the project itself will be the sponsor project liaison. Most communication with the project liaison will be done via E-mail **and weekly/bi-weekly Zoom/TEAMS Presentations that should accompany the bi-weekly progress reports.**

Team Selection: Design projects will be outlined on Thursday a.m., January 13th, and teams of preferably 4 or 5 students will be organized by the students themselves (note that the number of allowed teams is based on the number of available projects). Student teams will be organized prior to class on Tuesday, January 18th and will then go through the process to select their Final Design Project assignment in class on Tuesday, January 18th. Teams are organized to select projects. Professor Weimer does not intend/desire to place students on teams, but will be required to do so if students are left without a team. In that case, students without a team will be randomly placed on teams, or, placed on a new team. Every design project has been screened in order to ensure that the project has sufficient difficulty to provide effort for up to 5 students. Prof. Weimer has rejected some project submissions for this reason. Since it is anticipated that some projects will be more highly sought after than others, a fair method will be used in deciding final team/project selection. **IMPORTANT – *An attempt has been made to ensure that all projects require comparable effort. In reality, this is difficult to achieve, and, in the end, some projects will most likely be considered more difficult than others (individual perception). All teams will have identical class deliverables. Student teams will have an opportunity to modify and tune the final report rubric for grading to make it as fair as possible reflecting their effort. This will be done 3 weeks before the final report is due.***

Tuesday/Thursday, January 11th /13th

On Tuesday and Thursday, January 11th and 13th, we will review class expectations, the Syllabus and project descriptions/liaisons. More detail will be provided on the 13th. A substantial amount of time will be allocated to teams trying to self-form at the end of class (last 30 minutes or more). It is preferable that teams self-organize to teams of preferably 5, some 4, prior to Tuesday, January 18th (use Canvas, only onto teams where team membership is agreed to) - see below for random procedure to fill out teams. Teams will self-organize using Canvas.

Tuesday, January 18th

Project Selection – 8 teams of 5, and 5 teams of 4 will have formed prior to class for section 1 (13 teams total); and 8 teams of 5, and 3 teams of 4 for section 2 (11 teams total). If there are any individuals without teams, they will be randomly assigned to teams. Information will be sent out to those looking for teams or to organize new teams.

Project Selection (this method is based on years of experience, it is not perfect, but nobody, including students, has been able to come up with something better) - The method of project selection will be as follows: (1) each project will be available for selection except those pre-assigned (every student had an opportunity to bring in a project for their team; we have several pre-assigned for this year); (2) each team will identify their 1st choice of project; (3) each team will draw a number (generated randomly) that will indicate the order in which that team's highest priority project will be selected (i.e. their 1st choice project will be determined); (4) if no one else has placed a 1st choice on

that particular project, that team will be assigned that project, if others also have this as a 1st choice, there will be a coin flip to decide which team will be assigned that project; (5) once the project is assigned, all teams that were not assigned that project, but had it as their 1st choice as well will be able to move their 1st choice somewhere else; (6) the team with the next number drawn will then have their highest priority project determined by coin flip if need be, and the process will be repeated; Note – teams will be selected prior to the coin flips so have your teams organized by Tuesday, 18th, 8:30/10:05 am; or, students will be randomly placed on teams prior to project selection.

Prof. Weimer maintains the option to change this entire procedure, particularly number on a team, depending on how many students register for the class. So, it is best to have your teams organized ahead of time. This will be done over zoom.

All about teams

Final Notes: this semester is all about teams, we will be using the AIChE rules with the exception that each team will have a liaison and will have 13-1/3 weeks to complete the project, not 30 days as stipulated by AIChE. There will be no outside help, except the liaison and discussions with CU faculty members, unless specifically allowed by Prof. Weimer. Teams are required to use the team for all of the Q&A. Teams are encouraged to meet at class time since everyone is available. Liaisons are instructed to only take questions from the team and NOT individuals on the team (in order to ensure that teams have thought together about the issues). Liaisons will be instructed to try to meet with the teams via Zoom which CU licenses, or some other media format – once a week or two. Communication between the liaison and the team is important; bi-weekly reports and slide decks are a big part of this. Liaisons will take questions during the weekly team meetings and so teams are encouraged to organize questions and submit them to the liaisons prior to the weekly meetings. Teams will need to determine on their own how to organize the workload.

Dysfunctional Teams or Team Members: Finally, if there is any severe dysfunction on teams, Prof. Weimer is prepared to bring in campus mediators (not the CHBE department), human resources (HR) personnel, or professionals from Faculty Affairs, to deal with it.

Breaking up Teams: If it is deemed necessary because of “slacking” or internal severe team dysfunction, Prof. Weimer will step in and break up teams and assign new teams, or even have individuals do projects themselves or on smaller (even two person) newly formed teams. This has happened in the past, hopefully, not this semester. A lot of potential issues are resolved by allowing students to self-form and by the fact that peer/instructor review is 20% of the total grade in this class.

Teams will introduce themselves via an e-mail to their industrial liaisons (Prof. Weimer copied) by 11:59 pm Wednesday, January 19th. A written bi-weekly project progress report (2 page limit pdf file) for the design project is due to the industrial liaison as an e-mail attachment by 11:59 pm on the Thursdays identified above; and submitted to Canvas. Two oral project reviews will be made by the teams during the specific days identified above in February and April. An electronic file (Word) and all supporting project files (Excel, Visio, MatLab, Aspen, HYSYS, Project) are due Prof. Weimer (via Canvas) and the liaison by Thursday, April 28th at 11:59 pm.

Process Simulation / MatLab Support

- The workshops from last semester and some tutorials will be available for viewing. Unlike 4520, there will NOT be any organized support for simulation or programming. This is similar to the AIChE guidelines.
- Workshops for HYSYS, PLUS, Super Pro, and MatLab are available on Canvas from 4520 and will be uploaded to 4530 if need be.

Student-Liaison Interaction

It is critical to understand that the performance and interaction of our teams with our liaisons is paramount to the external perceived quality of our program and the decision of companies to hire our students. *This course with all of these external projects/liaisons is unique and provides for an incredible opportunity that is not available elsewhere.* Please take advantage of it and do your best to honor our tradition of providing well-trained students to employers.

The professional liaisons are providing input in their free time without remuneration and expect the student project team to work independently to find data, generate assumptions, and prepare models. The liaison(s) will provide weekly or bi-weekly “office hours” (times TBD, possibly using ZOOM or TEAMS) to provide background information, answer questions, and resolve ambiguities. The student project team should come well prepared to these meetings to make the most of their time with the liaisons and should send 1-2p of prepared questions to the liaisons at least one day prior to office hours (Note office hours can be changed based on students and industry advisor’s schedules). It is advised that the team first have discussed the submitted questions internally within the team (first). The liaisons realize that, during the discussions, additional questions may come up and they should be asked. The liaison for this problem will work with the students to ensure that appropriate “facetime” is available but the students need to plan ahead as well. Liaisons have jobs and often travel and so students need to not delay in preparing questions (do not delay until the last minute) as liaisons may not be available. The students should discuss issues internally first and then seek outside verification. The industry liaison looks forward to efficient and effective communication with the students.

CHEN 4530 Class Deliverables

- Bi-weekly written progress reports and Powerpoint slide decks as noted in the Syllabus (schedule and proposed content)
- Two Oral Project Presentations as noted in the Syllabus
- A final presentation needs to be given at the liaison’s facility and to the liaison’s department, if local; or via video teleconference if not local.
- A final written team project report is due with specifications noted below.

CHEN 4530 Final Report Deliverables – this is independent of and beyond whatever is specified by the Liaison (this is required for every project).

- A one-page Executive Summary, including a specific recommendation on the project

- Project description and scope complete with background, environmental and other relevant information (literature and patent bibliography is required).
- Background on the technology
- Safety Issues, including what is the “worst case scenario and how to defend against it ever happening”; HAZOP
- Impact of the Project (required by ABET): What short-term and long-term effects will the proposed solution to this problem/project have on the world and/or the nation? How will it affect society? How will it affect the environment? Strengths/weaknesses? Costs/benefits?
- Summary list of the initial data, assumptions made (battery limits – both process and economic) and their rationale, the proposed process configuration and a description of the approach
- Gantt Chart for Team Organization, including tasks and deliverables and a Project Management Plan (who did/is doing what)
- Process flow diagrams with complete material and energy balances; Visio PFD, or other
- Process simulation (e.g. Aspen HYSYS, AspenPLUS, Super Pro) based on model reaction and major unit operations, or, spreadsheet calculations if simulations could not be done
- Description of the process and equipment specifications design, materials of construction, etc. (note proper design employing both material and energy balances, math models for chemical reactors, methods for design per guidelines and heuristics learned in 4520); A mathematical modeling element for some aspect of the project consisting of differential or algebraic equations describing some unit operation or aspect of the process/project; solved using Matlab or some other equation solver
- Utility listing for each piece of equipment and a utility summary (consider heat integration to improve efficiency)
- Capital investment and costing comparison
- Variable and Fixed Operating cost estimate
- Profitability analysis including IRR, NPV, ROI (IRR target to be set with liaisons)
- An economic sensitivity analysis
- A self-contained Homework Problem and detailed solution developed based on the design project (thought needs to be put into this, what is the learning value for a design student in 4520; material not normally covered, but could be). Provide something that is useful for learning and specific to your design project, not an afterthought to fulfill a requirement. A tutorial type of solution is preferred.
- A complete appendix with all equipment design, utility estimates, and economic evaluation calculations summarized in detail (if not included in the report)

- An electronic copy of all files in the report to be submitted to Canvas by the due date in the class Syllabus – Word, pdf, Excel, Visio (?), AspenHYSYS, AspenPLUS, AspenBATCH, Super Pro Designer, Project if used, Matlab, etc.

Schedule

Tuesday, Jan 11: Syllabus, Course Objectives, and Design Project Descriptions (class); team organization

Thursday, Jan 13: Final team building, hopefully, if required; continued review of projects with Q & A

Tuesday, Jan 18th: Project Selection (class)

Wednesday, Jan 19 (11:59 pm): due date for sending e-mail introduction to liaison(s)

Thursdays –February 3, February 17, March 3, March 17, April 7 Bi-weekly Project Progress Reports (2 page limit, 12 pt font, single space, any appendices) and PowerPoint slide decks due at 11:59pm. Submit to Liaison and to Canvas. It is recommended that Progress Reports reflect: (1) Progress – what was done in prior 2 weeks; (2) Plan – what will be done in next 2 weeks; and (3) Issues/Questions that need resolved; Attached Appendices can include more details of deliverables, etc.

Timeline for Work Done – Bi-weekly Progress Reports to Liaisons and Prof. Weimer (Gantt Chart based on this schedule; note that this is a recommended schedule and *each project might be different*)

February 3 – Gantt chart completed, Background Completed & Process Conceptualized with Liaison Agreement; substantial progress on battery limits/project premises;

February 17 – PFD Defined, Detailed Project Battery Limits/Premises Defined/completed & Liaison Agrees; Material and Energy Balances started; any Heat Integration started;

March 3 – Material and Energy Balances (simulation) in progress; any Heat Integration in progress; math modeling under way

March 17 – Material and Energy Balances (simulation) and any heat integration completed; Equipment Design started; Utility Use complete; Economics/Cost Methodology Defined; math modeling continued; Equipment Design Completed; Economics started and in-progress

April 7 – Economics and Project Near Completion; Write-up underway

Tuesday, Feb 15: 1st set of 1st Oral Presentations (zoom)

Thursday, Feb 17: 2nd set of 1st Oral Presentations (zoom)

Tuesday, Feb 22: 3rd set of 1st Oral Presentations (zoom)

Thursday, Feb 24: 4th set of 1st Oral Presentations (zoom)

Tuesday, Mar 1: Possible Snow Day

Tuesday, April 12: 1st set of 2nd Oral Presentations (zoom)

Thursday, April 14: 2nd set of 2nd Oral Presentations (zoom)

Tuesday, April 19: 3rd set of 2nd Oral Presentations (zoom)

Thursday, April 21: 4th set of 2nd Oral Presentations (zoom)

Tuesday, April 26: Possible Snow Day

Thursday, April 28 (11:59 pm) Electronic (all files – WordTM, ExcelTM, ASPENTM, HYSYSTM, VISIOTM, MATLABTM, etc.) files submitted to Canvas

Very Important: Monday April 26 to Wednesday, May 4 - the student teams are **required** within this 1-1/2-week period to schedule and to make a team oral presentation with the local liaison's corporate or gov't lab team.

Scheduling of 1st and 2nd Oral Presentations

The specific scheduling of the 1st and 2nd oral presentations is based on the availability of liaisons to attend. If students have issues with specific days for athletics, other reasons, they need to let Prof. Weimer know by Thursday, 5 pm, January 27th. Further, every attempt will be made to avoid a conflict of the day for a team presentation if a student has some particular issue – interview, etc. but this cannot be guaranteed. If you know you are traveling for an interview or something, Prof. Weimer needs to know prior to scheduling presentation days. Important – the intention is for in-class presentations with liaisons present. In the past, many external liaisons would travel for this. If we have an issue due to CV-19 where we cannot insure substantial liaison attendance, the presentations might be done remotely. This will be determined.

Zoom

CU licenses Zoom. Students need to follow the simple instructions on the OIT link <https://oit.colorado.edu/services/conferencing-services/web-conferencing-zoom> to create a pro account for free through CU.

Student team members will be able to schedule meetings and are to be the host for team meetings with their liaisons. Teams are required to have bi-weekly updates with their liaisons and to use Zoom or other presentations with their liaisons on at least a bi-weekly basis. Important – avoid conflicts with scheduled Professor-Team meetings.

Files for Oral Presentations

Student teams need to email attach their oral presentation files to Prof. Weimer by 7:30 am of the morning of the scheduled oral presentation (this is for both sections).

Issues/Opportunities with Industrial Liaisons

(1) the liaisons have jobs and professional responsibilities and may have their own business meetings. Do NOT plan on a liaison being available anytime you want. It is important that teams schedule meeting times far ahead! Liaisons are providing time for you beyond their own job requirements and so, please, be appreciative of their time.

(2) *liaisons have very high expectations* and operate in an industrial setting where employees are fired for not doing their jobs as expected; Prof. Weimer is very familiar with one major chemical company that fires 5% of their employees annually based on a forced evaluation system; the bar increases as employees are employed longer and are paid more

(3) the opportunities provided by 4530's industry sponsored projects and oral presentations before panels, final presentations to liaison's at their facilities, weekly meetings, etc. are among the best opportunities available to find employment (many students have found employment in this manner, including some of this year's liaisons). All of the liaisons are doing "process engineering" in one form or another, which is what this class is emphasizing.

Classroom Behavior

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the policies on [classroom behavior](#) and the [Student Conduct & Conflict Resolution policies](#).

Requirements for COVID-19

As a matter of public health and safety, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements and all public health orders in place to reduce the risk of spreading infectious disease. Students who fail to adhere to these requirements will be asked to leave class, and students who do not leave class when asked or who refuse to comply with these requirements will be referred to [Student Conduct and Conflict Resolution](#). For more information, see the policy on [classroom behavior](#) and the [Student Code of Conduct](#). If you require accommodation because a disability prevents you from fulfilling these safety measures, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus.

CU Boulder currently requires masks in classrooms and laboratories regardless of vaccination status. This requirement is a precaution to supplement CU Boulder’s COVID-19 vaccine requirement. Exemptions include individuals who cannot medically tolerate a face covering, as well as those who are hearing-impaired or otherwise disabled or who are communicating with someone who is hearing-impaired or otherwise disabled and where the ability to see the mouth is essential to communication. If you qualify for a mask-related accommodation, please follow the steps in the “Accommodation for Disabilities” statement on this syllabus. In addition, vaccinated instructional faculty who are engaged in an indoor instructional activity and are separated by at least 6 feet from the nearest person are exempt from wearing masks if they so choose.

If you feel ill and think you might have COVID-19, if you have tested positive for COVID-19, or if you are unvaccinated or partially vaccinated and have been in close contact with someone who has COVID-19, you should stay home and follow the further guidance of the [Public Health Office](#) (contacttracing@colorado.edu). If you are fully vaccinated and have been in close contact with someone who has COVID-19, you do not need to stay home; rather, you should self-monitor for symptoms and follow the further guidance of the [Public Health Office](#) (contacttracing@colorado.edu). Please send Prof. Weimer and email letting me know if you will be absent due to illness.

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](#). Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition, see [Temporary Medical Conditions](#) on the Disability Services website.

Preferred Student Names and Pronouns

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

Honor Code

All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code academic integrity policy. Violations of the Honor Code may include, but are not limited to: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in

more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu; 303-492-5550). Students found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found on the [Honor Code website](#). Specific issues relating to CHEN-4530 are included above in the section “Academic Dishonesty, Ethics, and Discipline”. Students must sign and turn in the CHEN 4530 Honor Code to Canvas.

Sexual Misconduct, Discrimination, Harassment and/or Related Retaliation

CU Boulder is committed to fostering an inclusive and welcoming learning, working, and living environment. The university will not tolerate acts of sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, or protected-class discrimination or harassment by or against 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 email cureport@colorado.edu. Information about university policies, [reporting options](#), and the support resources can be found on the [OIEC website](#).

Please know that faculty and graduate instructors have a responsibility to inform OIEC when they are made aware of incidents of sexual misconduct, dating and domestic violence, stalking, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about their rights, support resources, and reporting options. To learn more about reporting and support options for a variety of concerns, visit [Don't Ignore It](#).

Religious Holidays

Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance.

See the [campus policy regarding religious observances](#) for full details.

Spring CHEN-4530 Honor Code

The required signed Honor Code should be submitted to Canvas ASAP

Spring 2022 CHEN 4530 Honor Code

On my honor, as a University of Colorado at Boulder student in the Department of Chemical and Biological Engineering, I will neither give nor receive unauthorized assistance in CHEN-4530 for the capstone design project. Specifically, I will not attempt to obtain or use any prior year's course project information that may be available to me through personal contacts or organized filing systems whether electronic or paper. I understand that course work submitted by me, if contrived/completed/written in part or in whole by someone other than myself, shall be considered to constitute fraud under the University Honor Code, and will result in the assignment of an 'F' for the entire course. I understand that plagiarism for the capstone design project report will be investigated using software available to the University of Colorado. Likewise, all aspects of the Team (typically 5 or 4 students) capstone-design project will be reviewed and discussed by all team members even though certain team members may focus on specific areas of the team mini-design project. I understand that 20% of my grade in CHEN 4530 is based on a peer/instructor - review within my team per the guidelines in the Syllabus. I understand that my team final report must receive a passing grade in order for me to pass CHEN-4530, independent of peer-review. I understand the CHEN-4530 class Honor Code as stipulated herein and understand the ramifications for breaking the code.

_____ Signed

_____ Printed Name