

CME 432: Chemical Engineering Laboratory I Course Syllabus

CME 432 Chemical Engineering Laboratory I

Semester/Term: Spring 2022

Credit Hours: 2 credits

Meeting Days, Time and Location:

Lecture:	Mon	9:00 AM to 9:50 AM	Whitehall Classroom Building 102
Section 1:	Mon/Wed	1:00 PM to 4:50 PM	59A FPAT/Student Commons
Section 2:	Tues/Thurs	1:00 PM to 4:50 PM	59A FPAT/Student Commons

Lead Instructor

Instructor: Sarah A. Wilson

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Lab Managers

Academic Lab Manager: Nancy Miller

Office: 59C FPAT

Email: nancy.miller@uky.edu

Technical Lab Manager: Nick Cprek

Office: 61 FPAT

Email: nick.cprek@uky.edu

Teaching Assistants

Name:

Email:

Name:

Email:

Name:

Email:

Additional Faculty Assignments

Experiment	Lead Faculty	Email Address
Batch reactor	Dr. Rankin	stephen.rankin@uky.edu
Cross flow heat exchanger	Ms. Miller/Dr. Wilson	
Dissolution	Dr. Wilson	s.wilson@uky.edu
Distillation	Dr. Dziubla	thomas.dziubla@uky.edu
Technovate	Ms. Miller	nancy.miller@uky.edu
VIPER pumps and valves	Dr. Escobar	isabel.escobar@uky.edu

Course Description

A laboratory course emphasizing experimental work in fluid flow, separations, heat transfer, and mass transfer. A majority of this course will focus on lab report writing, experimental design and safety in the laboratory.

Course Prerequisites

The prerequisites and concurrent requirements for CME 432 are as follows: CME 330, CME 415, CHE 446G; concurrent CME 420, CME 425 and engineering standing. These prerequisites will be enforced, and those not meeting them will be dropped from the class automatically. Exceptions to these prerequisites will be granted only in special circumstances.

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Student Learning Outcomes

At the end of this course, students should be able to:

1. Develop and conduct appropriate experimentation for chemical engineering unit operations such as fluid flow, separations, heat transfer and batch reaction kinetics.
2. Analyze and interpret data for chemical engineering unit operations such as fluid flow, separations, heat transfer and batch reaction kinetics.
3. Use engineering judgment to draw conclusions for chemical engineering unit operations such as fluid flow, separations, heat transfer and batch reaction kinetics.
4. Communicate effectively with a range of audiences through written reports and/or oral presentations on a laboratory experiment.
5. Function effectively on a laboratory team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Use modern computational tools to analyze and visualize data to be presented in written and oral reports.
7. Acquire and apply new knowledge as needed by incorporating technical literature and utilizing outside resources as part of written and oral reports.
8. Recognize ethical and professional responsibilities in laboratory settings and understand and contribute to the safety culture in the laboratory.

Required Laboratory Training

Students must complete safety training and receive required certificates of completion before working in the lab. **You must complete the on-line safety training by your first day in the lab.** Additionally, a copy of your certificates must be uploaded to Canvas by your first day in lab. Students who fail to complete their safety training prior to their first day in lab will not be allowed to participate in the lab and will be marked as absent.

The following three courses will need to be taken online at: <http://ehs.uky.edu/classes/>

- Chemical Hygiene Plan/Laboratory Safety – General Awareness
- Emergency Eyewash and Shower Station
- Fire Extinguisher Training

Students will need their Link Blue Account Name and UK ID number for the online training. The department is 8H200 Chemical and Materials Engineering. The building is 0046 F Paul Anderson Tower. The Lab/Room is 59A.

Students who previously completed safety training for CME 395 or other research activities must present a copy of your certificates to Ms. Miller on Canvas. The Chemical Hygiene Refresher course must be completed every year. If it has been one year since your Online Safety Quiz, please complete the Chemical Hygiene Plan/Laboratory Safety – Annual Refresher.

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Technology Information and Requirements

Course Structure

Lectures: Lectures on laboratory and process safety, identifying sources of error, teamwork and communication are scheduled for Mondays at 9:00 AM in Whitehall Classroom Building Room 102. **If necessary, a Zoom link will be provided for students to participate in the lecture virtually.** Attendance at Monday lectures is mandatory and attendance will be recorded.

The lab portion of CME 432 consists of a total of three experiments. Each experiment (data collection and data analysis) is to be completed in teams of three or four, assigned at the beginning of the semester. Data collection for each experiment takes place during four laboratory periods in FPAT 59A. Data collection will be split across team members, with two team members attending lab each day. Data analysis is then completed during three four-hour data analysis sessions which will take place in the FPAT student commons. If necessary, virtual attendance will be permitted for data analysis sessions.

Pre-lab Preparations: Lab instructions and videos are available on Canvas, along with any additional reference materials. Students are expected to read the instructions and review any available videos prior to the first day in the lab. Groups will then prepare a two-page briefing memo, a job safety analysis (JSA) and their lab notebooks prior to the first lab day. The briefing memo and JSA can be used as the first pages of your laboratory notebook. Additionally, the plan for the day should be detailed and any data tables created. Course instructors will periodically check the lab notebook to ensure that they are being maintained. A copy of the lab notebook will also be included and graded with the submission of all experimental reports. Details and a rubric for the pre-lab prep can be found on Canvas.

Lab Briefing: On the first two days in the lab, each group will have a briefing meeting with Ms. Miller or Dr. Wilson. These meetings will take place at the beginning of lab session. Before the meeting, each group will submit their briefing memo, JSA and scanned lab notebook pages to Canvas. The lab notebook should contain a summary of experimental goals and objectives, procedures and safety concerns. At the briefing meeting, each team will present their experimental objectives, data collection plan, potential safety concerns and sources of error for their experiment. This is the group's opportunity to ask questions regarding the procedures prior to getting started in the lab. For the second team in the lab, it will be expected that you have communicated with your teammates about the work they completed in the lab.

Lab Period One: On the first and second day in the lab, the two group members in the lab should take the first 15 minutes to orient themselves in the lab, review the laboratory equipment and set up their lab station and individual duties for their experiment. They can then begin completing the first day of laboratory duties, which typically consists of creating calibration curves and initial solution preparations. Once this is completed, experimental data can be collected for the remainder of the laboratory period. As you complete your work in the lab, procedures, observations and data should be recorded in the laboratory notebook. Each station has at least one computer with internet access, a web cam and speaker to allow you to communicate with group members through Zoom or Teams and pull up lab notebook and/or shared data files. At the end of the lab period, it is recommended that you check in with your labmates through Zoom and update them on what you were able to complete through the lab period.

Lab Periods Two through Four: On the remaining days in the lab, additional data will be collected. If necessary, teams should check in with each other through Zoom to ensure that they have a plan for the day. In addition, it is beneficial for teams to check in with each other at the end of each lab period. Working as a team, you should collect as much data analysis as possible through the lab period. This means that you should not be leaving laboratory periods early – if you think you have collected all of the data necessary, decide as a team how best to further your knowledge of the equipment and potential

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sources of error through further data collection. As you complete your work in the lab, procedures, observations and data should be recorded in the laboratory notebook.

Data Analysis: After completion of the experimental work, each team is allocated three four-hour laboratory periods for data analysis. Data analysis is considered a team activity and attendance at these sessions is required. If you are on quarantine, you will be expected to be present for the session through Zoom. It is expected that students will complete their data analysis sessions in the FPAT Student Commons (FPAT 160) and attendance will be taken. As you complete your work during data analysis, procedures, observations and sample calculations should be recorded in the laboratory notebook. These procedures will be graded as your sample calculations for your laboratory notebook appendices, which are submitted with each assignment. If necessary, you can take pictures of hand calculations that can be integrated into your notebook.

Course Assignments

Graded Course Assignments

The graded course elements will be as follows:

Experiment # 1: Results, discussion and conclusions	25%
Experiment # 2: Full report with letter to the editor	25%
Experiment # 3: Poster presentation (team)	20%
Experiment # 3: Abstract	5%
Lecture-based assignments (safety quiz, peer revision, etc.)	10%
Laboratory-based assignments (briefings, memos, JSAs, lab notebook, teamwork, etc.)	15%

The teamwork evaluation will be based on both peer assessments by fellow team members, as well as faculty input. In addition to the attendance penalties detailed later in the syllabus, the course instructors and lab manager reserve the right to assess penalties for unsafe or unprofessional conduct in the laboratory (**including following campus rules for mask wearing and social distancing**). The maximum penalty for a single infraction is 5 percentage points off the final course grade, although serious safety-related violations may result in suspension from the laboratory or dismissal from the class.

Description of Course Elements

Experimental Briefing Memo and Job Safety Analysis (JSA) (One per team per lab)

Prior to each experiment, each team will be responsible for creating a two-page memo outlining the information that will be discussed in the experimental briefing on the first day in the lab. Additionally, a job safety analysis will be performed on each experiment and submitted on Canvas. Details for the preparation of the memo and JSA, as well as a template for the assignment can be found on Canvas. A job safety analysis will be performed on each experiment and submitted on Canvas. Details for the preparation of the memo and JSA, as well as a template for the assignment can be found on Canvas.

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Experimental Briefing Presentation (One for each first day in lab)

On the first day in lab, each group will complete a 10-minute briefing presentation to a Ms. Miller or Dr. Wilson. A rubric for grading of the memo, JSA and briefing can be found on Canvas.

Notebook (maintained in both lab and data analysis)

The laboratory notebook is a record of the planning and execution of all laboratory work. In addition to acting as the permanent record for raw experimental data, the notebook forms the basis for project planning and organization. It should be the primary record for the development of data reduction methods, sample calculations, error analysis, and preliminary design calculations. The lab notebook should be shared as a team and used throughout the data collection and data analysis process. Copies of notebook pages are to be submitted by each team member as an appendix in each communication assignment. Grading (as part of all major assignments) will be based on content, organization, technical accuracy, and completeness.

Teamwork

Teamwork is a very important aspect of CME 432, and teams will be required to establish their own internal procedures for preparation of the experimental plan, operation of equipment, project notebook entries, data analysis, design calculations and all other work. Data acquisition and analysis are crucial components of the laboratory learning experience, and all members of each team are required to be in attendance during all sessions. At the conclusion of each experiment, all students will have an opportunity to evaluate the performance of their team members relative to their technical contributions, participation and overall commitment to the team effort. The final team performance grade for each individual will be based on input provided by the participating faculty, lab manager, and the team evaluations.

Laboratory incident reporting

At the end of each lab period, each group will be required to submit an incident report detailing any safety incidents that occurred throughout the laboratory period. If there are no safety incidents, a positive safety-related observation can be recorded.

Lab One: Results, Discussion and Conclusions

Upon completion of the first experiment, each team member will submit a written results, discussion and conclusions paper (six pages, plus figures and appendix – raw and manipulated data and laboratory notebook pages) detailing the experiment. While the team must work together to complete the data analysis, the preparation of the written report (presentation of all results and interpretation) is to be completed individually. A signed statement of originality must be included as a cover page to every report. Reports that are submitted without a statement of originality will not be graded and will be marked as late. Specific details with regards to preparation of the report can be found on Canvas. Assignments are due on the date indicated in the course schedule. See below for the late policy for writing assignments.

Lab Two: Written Full Lab Report

Upon completion of the second experiment, each team member will submit a written full lab report (ten pages, plus figures and appendix – raw and manipulated data and laboratory notebook pages) detailing the experiment. While the team must work together to complete the data analysis, the preparation of the written report (presentation of all results and interpretation) is to be completed individually. A signed

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statement of originality must be included as a cover page to every report. Reports that are submitted without a statement of originality will not be graded and will be marked as late. Specific details with regards to preparation of the full lab report can be found on Canvas. Assignments are due on the date indicated in the course schedule. See below for the late policy for writing assignments.

Lab Two: Peer Revision

Full reports will undergo a peer-review process. After the initial submission, reports will be distributed to another student from your class. Students will review the assignment using the guidelines provided on Canvas. Reviews will be submitted one lab period after the initial submission of the report. You will then have one additional lab period to revise your work and write a “Letter to the editor” explaining how you implemented the suggestions provided by your peers (or why you chose not to implement a suggestion). Additional information can be found on Canvas.

Lab Three: Poster Presentation

Each team will be responsible for ten minute group poster presentation; the specific dates for this activity are provided in the course schedule. An appendix will be submitted with the oral report that includes a written summary of the data analysis and design process, raw and manipulated data tables and copies of the laboratory notebook. Additionally, a summary of the peer feedback must be included. This can be submitted as a team-based assignment and must be submitted by 10:00 PM on the day before the presentation. Additional information on the oral presentation can be found on Canvas.

Lab Three: Abstract

As part of the oral presentation, each student will be required to submit an accompanying abstract, submitted to Canvas portal on the date listed on the course schedule. The purpose of the abstract is to summarize the entire poster presentation including objective, techniques, results and conclusions. The abstract should stand alone independent of the report and should communicate the essential elements and findings of the project. To improve your abstracts prior to submission, you will be required to complete a rough draft of your abstract for the presentation peer review session. Your rough draft will be submitted to Canvas and you will receive a grade for completion of the rough draft.

Lab Three: Peer Review

Teams will participate in a peer review process of the poster presentations and abstracts during the class period prior to the presentations to faculty. Each round of students will be divided into two groups of 3-4 teams. Presentation feedback from the peer review session will be compiled by each team and must be submitted by 10:00 PM on the day before the presentation. Abstracts will be peer reviewed in teams of two. Each student will get a grade associated with the quality of their peer review.

Course Grading

Course Grading Scale

Grading will be based on each student’s composite (raw) score; scores in the range > 90% will be guaranteed a grade of “A”, 80% or above at least a “B”, 70% or above at least a “C”, and 60% or above at least a “D”. For students with grades near the endpoints in the above distribution, consideration may be given to attendance and writing workshop participation, as well as to performance trends over the course of the semester. The last day to withdraw from a class for the spring term with a “W” on your transcript can be found in the [Academic Calendar](#).

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Mid-term Grade

Mid-term grades will be posted in myUK by the deadline established in the [Academic Calendar](#).

Grading Disputes

All grading disputes must be brought to the attention of Dr. Wilson within one week of the grade being posted to Canvas.

Minimum Course Requirements

In order to pass the course, students must receive a minimum passing grade ($\geq 60\%$) on each of the two written assignments and the oral presentation, independent of any penalties assessed for late submission. Each student will have one opportunity to resubmit a revised assignment if their grade falls between a 40 and 60%. This resubmission will be graded and a passing grade ($\geq 60\%$) will be required for the student to continue on in the course. The grade of the initial submission will be averaged with the grade of the resubmission to count towards the final grade on the assignment, with a maximum average grade of 60%. Those students scoring lower than 40% on their initial submission will not be permitted to resubmit a revised assignment. A failing grade on a major assignment will result in failing the course.

Major Assignment Grading Scale

In scientific communication, there is always room for improvement. The grading scale that is used for each element of your major assignment is as follows:

- 0 Has not been included in the assignment.
- 1 Mostly incomplete or addressed incorrectly; significant errors.
- 2 Somewhat complete or correctly addressed, significant errors present.
- 3 Mostly complete or correctly addressed; some small errors present.
- 4 Mostly complete or correctly addressed; no errors present.
- 5 Excellently addressed; no errors present.

Late assignment policy

Major assignments for each laboratory experiment are due on the date indicated in the course schedule. If there is a disagreement between the schedule provided and the assignment due date on Canvas, please let Dr. Wilson know. All major assignments are due by 10:00 PM on the date indicated and should be submitted digitally as a single file in PDF format to the appropriate Canvas assignment. Late major assignments will be assessed a penalty of 10% per day (weekend counts as one day). No reports will be accepted more than three days after the published due date. Minor assignments (memos, lecture assignments, etc.) will not be accepted after the deadline indicated on Canvas.

Excused late assignment policy

Each student will be allowed one opportunity to submit a major writing assignment (Results and Discussion or Full Lab Report) up to 48 hours late. To receive this accommodation, a letter of explanation must be uploaded to the assignment on Canvas by the original deadline for the assignment. The assignment must then be submitted within 48 hours of the deadline. If the assignment is not submitted within 48 hours of the original deadline, a late penalty of 10% per day (weekend counts as one day) from the original deadline will be applied. No reports will be accepted more than three days after the published due date.

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Resources

Presentation U! Peer Tutoring

Come see us if you need help with any of the following: brainstorming project topics, creating outlines, essay writing, research papers, effectively using APA/MLA style, practicing oral presentations, designing and constructing effective visual aids, including PowerPoint, Prezi, websites, videos, and digital projects. Bring your multimodal projects to one of our two conveniently located centers, at the Hub in W. T. Young Library and our center at eStudio located in the Student Commons of the R.G. Anderson Building. We open early and stay open late! Visit www.uky.edu/UGE/pres-u for our complete hours. Our tutoring services are available on a drop-in basis as well as a scheduled face-to-face or online appointment. For questions about this service, please contact Rachael Deel at Rachael.deel@uky.edu.

Presentation U! Academic Coaching

Academic Coaching is an opportunity for students to work with an undergraduate peer or graduate student to identify strengths and weaknesses related to their learning and study strategies. Our CRLA certified trained coaches will collaboratively work with you on an ongoing basis to develop an action plan, fill in the gaps, and support you to meet your goals. You can schedule an individual coaching appointment or drop-in. Please visit <http://www.uky.edu/UGE/pres-u-acad-coach> to view our drop-in schedule or make an appointment. For questions about this service, please contact Julie Bradley at julie.bradley@uky.edu.

Attendance Policy

Attendance

Attendance at all scheduled in-person laboratory sessions and data analysis sessions is mandatory. Laboratory sessions start promptly at 1 PM. Students arriving more than 15 minutes late to any session (including data analysis) will receive a penalty of one percentage point off the overall course grade. Students who miss a Monday lecture period will receive a penalty of one percentage point off the overall course grade. Students who miss a scheduled laboratory or data analysis session (i.e., greater than 60 minutes late) without a valid excuse will receive a penalty of four percentage points. Regardless of the excused or unexcused status of an absence, the Laboratory Manager can require the student to complete a make-up session, depending on the circumstances. A make-up session is considered class time. Being late or missing a make-up session is equivalent to being late or missing a regular class time.

Students with two or more unexcused absences may be required to drop the course or may be assigned a grade of "0" on the specific laboratory impacted by the absence(s). Such actions are at the discretion of the course instructor.

For students who miss a scheduled lab period, an email or Teams message should be sent to your teammates, the laboratory manager (nancy.miller@uky.edu) and the course instructor (s.wilson@uky.edu) prior to the start of the laboratory period. All students who are not scheduled for an in-person laboratory session should be available to step in for a lab partner that may be sick or on quarantine. It is also the student's responsibility to arrange a schedule to make up missed effort. Failure to properly inform or coordinate with your team will be reflected in the team scores.

Excused Absences

Because illness or emergencies may occur across the semester that will not easily be documented, a Flexibility Request Form has been included in Canvas. If you need to be excused from a class or an assignment, the Instructors ask that you complete the Flexibility Request Form. Completion of the Flexibility Request Form does not guarantee that you will be excused or granted an extension.

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Excused Absences: Senate Rules 5.2.5.2.1 defines the following as acceptable reasons for excused absences: 1. significant illness; 2. death of a family member; 3. trips for members of student organizations sponsored by an educational unit, trips for University classes, and trips for participation in intercollegiate athletic events; 4. major religious holidays; 5. interviews for graduate/professional school or full-time employment post-graduation; and 6. other circumstances found to fit “reasonable cause for nonattendance” by the instructor of record. Students should notify the professor of absences prior to class when possible.

University Senate has adapted the excused absence policy to absence from **in-person interactions** if the student has been directed to self-quarantine by the University (including its app), a medical professional, public health professional, or government official.

If a course syllabus requires specific interactions (e.g., with the instructor or other students), in situations where a student’s total EXCUSED absences exceed 1/5 (or 20%) of the required interactions for the course, the student shall have the right to request and receive a "W," or the Instructor of Record may award an “I” for the course if the student declines a “W.” (Senate Rules 5.2.5.2.3.1)

Religious Observances: Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays. *Senate Rules 5.2.5.2.1(4)* requires faculty to include any notification requirements within the syllabus. If no requirement is specified, two weeks prior to the absence is reasonable and should not be given any later. Information regarding major religious holidays may be obtained through [the Ombud’s website](#) or calling 859-257-3737.

Verification of Excused Absence: Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.5.2.1 states that faculty have the right to request appropriate verification when students claim an excused absence due to: significant illness; death in the household, trips for classes, trips sponsored by an educational unit and trips for participation related to intercollegiate athletic events; and interviews for full-time job opportunities after graduation and interviews for graduate and professional school. Appropriate notification of absences due to University-related trips is required prior to the absence when feasible and in no case more than one week after the absence.

Make-Up Work: Students missing any graded work due to an excused absence are responsible: for informing the Instructor of Record about their excused absence within one week following the period of the excused absence (except where prior notification is required); and for making up the missed work. The instructor must give the student an opportunity to make up the work and/or the exams missed due to the excused absence, and shall do so, if feasible, during the semester in which the absence occurred. The instructor shall provide the student with an opportunity to make up the graded work and may not simply calculate the student's grade on the basis of the other course requirements, unless the student agrees in writing. According to *SR 5.2.5.2.2*, if a student adds a class after the first day of classes and misses graded work, the instructor must provide the student with an opportunity to make up any graded work.

Excused Absences for Military Duties: If a student is required to be absent for one-fifth or less of the required course interactions (e.g., class meetings) due to military duties, the following procedure (per *SR 5.2.5.2.3.2*) shall apply:

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1. Once a student is aware of a call to duty, the student shall provide a copy of the military orders to the Director of the Veterans Resource Center. The student shall also provide the Director with a list of his/her courses and instructors.
2. The Director will verify the orders with the appropriate military authority, and on behalf of the military student, notify each Instructor of Record via Department Letterhead as to the known extent of the absence.
3. The Instructor of Record shall not penalize the student's absence in any way and shall provide accommodations and timeframes so that the student can make up missed assignments, quizzes, and tests in a mutually agreed upon manner.

Unexcused Absences: If an attendance/interaction policy is not stated in the course syllabus or the policy does not include a penalty to the student, the instructor cannot penalize a student for any unexcused absences. (SR 5.2.5.2.3.3)

Prep Week and Reading Days: Per *Senate Rules 5.2.5.6*, the last week of instruction of a regular semester is termed "Prep Week." This phrase also refers to the last three days of instruction of the summer session and winter intersession. The Prep Week rule applies to ALL courses taught in the fall semester, spring semester, and summer session, including those taught by distance learning or in a format that has been compressed into less than one semester or session. This rule does not apply to courses in professional programs in colleges that have University Senate approval to have their own calendar.

Make-up exams and quizzes are allowed during Prep Week. In cases of "Take Home" final examinations, students shall not be required to return the completed examination before the regularly scheduled examination period for that course. No written examinations, including final examinations, may be scheduled during the Prep Week. No quizzes may be given during Prep Week. No project/lab practicals/paper/presentation deadlines or oral/listening examinations may fall during the Prep Week unless it was scheduled in the syllabus AND the course has no final examination (or assignment that acts as a final examination) scheduled during finals week. (A course with a lab component may schedule the lab practical of the course during Prep Week if the lab portion does not also require a Final Examination during finals week.) Class participation and attendance grades are permitted during Prep Week. The *Senate Rules* permit continuing into Prep Week regularly assigned graded homework that was announced in the class syllabus.

For fall and spring semester, the Thursday and Friday of Prep Week are study days (i.e. "Reading Days"). There cannot be any required "interactions" on a Reading Day. "Interactions" include participation in an in-class or online discussion, attendance at a guest lecture, or uploading an assignment. See *Senate Rules 9.1* for a more complete description of required interactions.

Attendance policy for oral presentations

If you know about an excused absence prior to the day of your presentation, please contact Dr. Wilson to discuss the possibility of rescheduling your presentation. If you have an emergency that results in a last-minute excused absence, your team will be expected to complete the presentation in your absence. A make-up presentation will be scheduled for you to complete as an individual within one week of the excused absence. The individual poster presentation will be 5 minutes followed by a 5-minute question and answer session. Two faculty will be present for grading of your oral presentation. Your grade will be based solely on the individual presentation.

Unexcused Absences: If your absence is unexcused, you will receive a 0 on the assignment and there will be no option for rescheduling.

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Sharing of Course Resources

For CME 432, all laboratory notebooks, data acquisition, data analysis, and calculations completed during the laboratory period as a team is considered common property of the team. However, the preparation of oral presentations and written reports (including the generation of data plots and all other report elements) is considered to be an individual activity. All writing and related elements included in formal CME 432 reports are to be the work of the individual student. The only exception in this regard would be spreadsheets included as part of a report appendix, which can be considered to be a component of the laboratory notebook, and therefore team property.

In CME 432, students are prohibited from:

- Accessing in any form laboratory reports from previous semesters; such activity will be considered cheating.
- Accessing or sharing laboratory reports from the current semester with other students enrolled in CME 432. This includes sharing lab reports (or drafts) with students from your lab team.
- Utilizing another person or services either in person or online to aid in the writing of an assignment.

Sharing data with other CME 432 laboratory groups

It is understood that students may confer with other laboratory groups regarding general operational aspects of the individual experiments. This is acceptable. However, students are expressly prohibited from sharing data sets, design results, etc. with other lab groups. If there are issues or questions regarding experimental methods or design, students should confer with the teaching assistants, laboratory manager, or individual faculty members.

CME 432 Specific Plagiarism Policies

Plagiarism in CME 432 is a serious offense. To ensure that all students understand the importance of submitting original work, a signed cover letter will be attached to each submitted major assignment. A template for this cover letter can be found on the course Canvas site.

Consistent with the University of Kentucky's efforts to enhance student learning, foster honesty, and maintain integrity in our academic processes, the Turnitin plagiarism software will be used to compare your written assignments with multiple sources. The tool will compare each paper you submit to an extensive database of prior publications, papers and websites, providing links to possible matches and a 'similarity score.' The tool does not determine whether or not plagiarism has occurred. Instead, course faculty will make a complete assessment and judge the originality of your work. All submissions to this course may be checked using this tool. Your submissions will be retained in the Global Turnitin repository.

Laboratory Safety

CME432 Safety Rules, Procedures and Responsibilities

- No experimental apparatus is to be operated without the presence of a faculty instructor, lab manager or teaching assistant (TA).
- No experimental equipment is to be operated outside of regular laboratory class hours without the explicit permission of the Laboratory Manager (Ms. Miller). In such cases, appropriate instructional personnel must be present.
- Students must use or wear all prescribed protective equipment. Appropriate attire is required for entering the laboratory.

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- Be aware of the location of all exits, showers, eye wash stations, first aid kits, fire extinguishers, spill kits, and fire alarm pull boxes.
- Be aware of the activity of those working around you at all times.
- Students must be familiar with the specific safety requirements of an experimental apparatus prior to operation.
- Do not operate equipment outside of the procedures and limitations established by the TA, lab manager and/or instructor responsible for that equipment. Ask for assistance if you are uncertain as to the safe operation of any equipment, controllers, etc.
- Report any broken or improperly functioning equipment to the lab manager, instructor or TA.
- Report any hazardous conditions immediately to the lab manager, instructor or TA.
- Inform the lab manager, instructor or TA if you have used the last of any laboratory consumables.
- Keep the lab area clean. Everyone who uses the lab needs to clean up after themselves. Please properly dispose of waste, put away equipment that belongs in cabinets, and keep the floor, counter space and fume hoods clean and clear.

General Laboratory Rules

- There will be NO DRINKING or EATING in the laboratory.
- There will be NO SHORTS or SANDALS worn in the laboratory. Please wear LONG PANTS and CLOSED-TOED SHOES. Legs and feet must be covered.
- SAFETY GLASSES and GLOVES are to be worn at all times.
- LAB COATS are to be worn if handling chemicals.
- If you have long hair, it needs to be tied back. Long sleeve shirts must be rolled up, and all watches, rings and necklaces must be removed.
- Appropriate clothing is to be worn in the laboratory at all times. If you are not appropriately dressed, you will be asked to leave the laboratory.

COVID Safety Rules

- Mask are required. If working with chemicals please wear the disposable mask provided at the entrance, otherwise you may bring you own personal mask.
- Gloves should be worn at all times, and they are provided at each workstation.
- High touch surfaces (such as keyboards and knobs) should be wiped down before and after working at a lab station.
- The Lab Manager will clean all table surfaces before and after each lab.
- Lab Coats are only required for students working with Chemicals: Distillation, Batch Reactor and Dissolution.

Commitment to Equity and Inclusion

The Chemical and Materials Engineering Department believes that the diversity of the student body contributes to our creativity, innovation and success as scientists and engineers. To support our efforts in creating a department that is inclusive and supportive of all our student identities, we have established a communication pathway for you to express your concerns related to equity and inclusion within the department. If you do not feel comfortable reaching out to your course instructor or another faculty member within the department, please contact one of the student or faculty representatives for the Diversity, Equity and Inclusion (DEI) committee:

- ChE Undergraduate Representative: Halle Shannon, halledanielle218@uky.edu
- MSE Undergraduate Representative: Mikaila Risser, mikaila.risser@uky.edu
- CME Faculty Representative: Sarah Wilson, s.wilson@uky.edu

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Representatives will report any concerns or complaints to the DEI committee. While they will do their best to maintain anonymity when reporting to the committee, if there is a concern for your personal or psychological safety, they may reveal your name to the committee or be directed by the committee to submit a report on your behalf to the University of Kentucky Center for Support and Intervention.

In an effort to create a learning environment that supports a diversity of thoughts, perspectives and experiences, and honors one's personal identity (including race, gender, class, sexuality, religion, ability, socioeconomic status, etc.), please inform the instructor:

- If you have a name and/or set of pronouns that differ from those that appear in your official University of Kentucky records.
- If you feel like your performance in the class is being impacted by your experiences outside of class.
- If there are aspects of the design, instruction, and/or experiences within this course that result in barriers to your inclusion or accurate assessment of achievement.

For College resources related to diversity and inclusion, please visit this website: <https://www.engr.uky.edu/diversity-and-inclusivity>. For University resources related to diversity and inclusion, please visit this website: <https://www.uky.edu/inclusiveexcellence/>

Mental Health and Wellness

University life can be a demanding and stressful experience. Please know there are numerous resources offered by the counseling center to support student growth and assist students with mental health, academic and/ or other personal concerns that might interfere with academic performance or a sense of personal well-being while at UK.

- **Counseling Center:** 859-257-8701 | www.uky.edu/counselingcenter/ A free resource staffed by licensed clinicians, the UKCC is available to provide therapy services to students as well as a number of other services focused on wellbeing. You may call 859-257-8701 to schedule an appointment or schedule online at this link <https://www.uky.edu/counselingcenter/schedule-your-first-appointment>. If you would like to speak with a clinician outside of normal business hours or prefer to speak over the phone, the number below can be dialed, and option 1 can be selected to speak to a mental health clinician. 24-hour Crisis Consultation: (859) 257-8701
- **Disability Resource Center (DRC):** 859-257-2754 | <https://www.uky.edu/DisabilityResourceCenter/> Students with documented physical health, mental health, or learning disability diagnoses (chronic or temporary) may receive assistance and support from this office to ensure equal access to university programs and services inside the classroom and out. Visit website to register and request formal accommodations from the DRC.
- **Transformative Learning:** www.uky.edu/tl/ This office provides academic coaching, tutoring, study skills training, and other academic resources to students in order to enhance students' academic experience and success. Visit the website for more information, including hours, locations and to make appointments.
- **For additional resources and programs focused on mental health and wellbeing, visit:** <https://wellkentucky.uky.edu/>

When it comes to mental health, it is especially important for you to advocate for yourself and your fellow students. If you notice a change in the behavior of one of your classmates or are concerned about

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their wellbeing, please reach out to your instructor or submit a report detailing your concern to UK's Center for Support and Intervention: <https://www.uky.edu/concern/>

For a summary of College and University resources to support student mental health and wellness, please visit this website: <https://www.engr.uky.edu/students/student-success/student-resources>

Mask and Distancing Policy

In accordance with University guidelines, students must wear UK-approved face coverings in the classroom and academic buildings (e.g. faculty offices, laboratories, libraries, performance/design studios, and common study areas where students might congregate). **If UK-approved face coverings are not worn over the nose and mouth, students will be asked to leave the classroom.**

Procedure for Resolving Technical Complaints

The University of Kentucky Student Code of Conduct defines Invasion of Privacy as using electronic or other devices to make a photographic, audio, or video record of any person without their prior knowledge or consent when such a recording is likely to cause injury or distress.

Meetings of this course may be recorded. All video and audio recordings of lecturers and class meetings, provided by the instructors, are for educational use by students in this class only. They are available only through the Canvas shell for this course and are not to be copied, shared, or redistributed.

As addressed in the Student Code of Conduct, students are expected to follow appropriate university policies and maintain the security of linkblue accounts used to access recorded class materials. Recordings may not be reproduced, shared with those not enrolled in the class, or uploaded to other online environments.

If the instructor or a University of Kentucky office plans any other uses for the recordings, beyond this class, students identifiable in the recordings will be notified to request consent prior to such use. In anticipation of such cases, students may be asked to complete an "authorization of use" form by a faculty member.

Video and audio recordings by students are not permitted during the class unless the student has received prior permission from the instructor. Any sharing, distribution, and or uploading of these recordings outside of the parameters of the class is prohibited. Students with specific recording accommodations approved by the Disability Resource Center should present their official documentation to the instructor. All content for this course, including handouts, assignments, and lectures are the intellectual property of the instructors and cannot be reproduced or sold without prior permission from the instructors. A student may use the material for reasonable educational and professional purposes extending beyond this class, such as studying for a comprehensive or qualifying examination in a degree program, preparing for a professional or certification examination, or to assist in fulfilling responsibilities at a job or internship

Procedure for Resolving Technical Complaints

Any technological issues should be brought to the attention of the instructor at the earliest opportunity. Technical issues related to the delivery of pre-lecture video overviews and Echo360 lectures should be brought to the attention of the instructor prior to the scheduled lecture and an alternate means of delivery will be identified. Help with Canvas related issues is available by clicking the Help icon within Canvas.

In the event of a Canvas outage, homework files should be submitted directly to the instructor via email. Exams will be administered in a proctored environment either on campus. In the event of a Canvas

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outing, the proctor will provide an electronic version of the exam to the student, collect the completed exam, and submit it directly to the instructors.

Online Behavior Policies

Student attendance of Zoom meetings will abide by the Classroom Code of Conduct. Students must not be distracting during a meeting. If a student is a distraction, they will be asked to leave the meeting and can have their Course Participation points deducted, as seen fit by the instructors.

Accommodations Due to Disability

In accordance with federal law, if you have a documented disability that requires academic accommodations, please inform your instructor as soon as possible during scheduled office hours. In order to receive accommodations in a course, you must provide your instructor with a Letter of Accommodation from the Disability Resource Center (DRC). The DRC coordinates campus disability services available to students with disabilities. It is located on the corner of Rose Street and Huguelet Drive in the Multidisciplinary Science Building, Suite 407. You can reach them via phone at (859) 257-2754, [via email \(drc@uky.edu\)](mailto:drc@uky.edu) or visit their [website \(uky.edu/DisabilityResourceCenter\)](http://uky.edu/DisabilityResourceCenter). DRC accommodations are not retroactive and should therefore be established with the DRC as early in the semester as is feasible.

Non-Discrimination Statement and Title IX Information

In accordance with federal law, UK is committed to providing a safe learning, living, and working environment for all members of the University community. The University maintains a comprehensive program which protects all members from discrimination, harassment, and sexual misconduct. For complete information about UK's prohibition on discrimination and harassment on aspects such as race, color, ethnic origin, national origin, creed, religion, political belief, sex, and sexual orientation, please see [the electronic version of UK's Administrative Regulation 6:1 \("Policy on Discrimination and Harassment"\) \(https://www.uky.edu/regs/ar6-1\)](https://www.uky.edu/regs/ar6-1). In accordance with Title IX of the Education Amendments of 1972, the University prohibits discrimination and harassment on the basis of sex in academics, employment, and all of its programs and activities. Sexual misconduct is a form of sexual harassment in which one act is severe enough to create a hostile environment based on sex and is prohibited between members of the University community and shall not be tolerated. For more details, please see [the electronic version of Administrative Regulations 6:2 \("Policy and Procedures for Addressing and Resolving Allegations of Sexual Assault, Stalking, Dating Violence, Domestic Violence, and Sexual Exploitation"\) \(https://www.uky.edu/regs/ar6-2\)](https://www.uky.edu/regs/ar6-2). Complaints regarding violations of University policies on discrimination, harassment, and sexual misconduct are handled by the Office of Institutional Equity and Equal Opportunity (Institutional Equity), which is located in 13 Main Building and can be reached by phone at (859) 257-8927. You can also visit [Institutional Equity's website \(https://www.uky.edu/eo\)](https://www.uky.edu/eo).

Faculty members are obligated to forward any report made by a student related to discrimination, harassment, and sexual misconduct to the Office of Institutional Equity. Students can confidentially report alleged incidences through the [Violence Intervention and Prevention Center \(https://www.uky.edu/vipcenter\)](https://www.uky.edu/vipcenter), [Counseling Center \(https://www.uky.edu/counselingcenter\)](https://www.uky.edu/counselingcenter), or [University Health Service \(https://ukhealthcare.uky.edu/university-health-service/student-health\)](https://ukhealthcare.uky.edu/university-health-service/student-health).

Reports of discrimination, harassment, or sexual misconduct may be made to Institutional Equity [here](#).

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Academic Integrity– Prohibition on Plagiarism (Senate Rules 6.3.1)

Per University policy, students shall not plagiarize, cheat, or falsify or misuse academic records. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the University may be imposed. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty.

Senate Rule 6.3.1 states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about a question of plagiarism involving their work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording, or content from another source without appropriate acknowledgment of the fact, the students are guilty of plagiarism.

Plagiarism includes reproducing someone else's work (including, but not limited to a published article, a book, a website, computer code, or a paper from a friend) without clear attribution. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be, except under specific circumstances (e.g. Writing Center review, peer review) allowed by the Instructor of Record or that person's designee. Plagiarism may also include double submission, self-plagiarism, or unauthorized resubmission of one's own work, as defined by the instructor.

Students may discuss assignments among themselves or with an instructor or tutor, except where prohibited by the Instructor of Record (e.g. individual take-home exams). However, the actual work must be done by the student, and the student alone, unless collaboration is allowed by the Instructor of Record (e.g. group projects).

When a student's assignment involves research in outside sources or information, the student must carefully acknowledge exactly what, where and how he/she has employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain.

Please note: Any assignment you turn in may be submitted to an electronic database to check for plagiarism.

Academic Integrity – Prohibition on Cheating (Senate Rules 6.3.2)

Cheating is defined by its general usage. It includes, but is not limited to, the wrongfully giving, taking, or presenting any information or material by a student with the intent of aiding himself/herself or another on any academic work which is considered in any way in the determination of the final grade. The fact that a student could not have benefited from an action is not by itself proof that the action does not constitute cheating. Any question of definition shall be referred to the University Appeals Board.

Academic Integrity – Prohibition on Falsification/Misuse of Academic Records (SR 6.3.3)

Maintaining the integrity, accuracy, and appropriate privacy of student academic records is an essential administrative function of the University and a basic protection of all students. Accordingly, the actual

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or attempted falsification, theft, misrepresentation or other alteration or misuse of any official academic record of the University, specifically including knowingly having unauthorized access to such records or the unauthorized disclosure of information contained in such records, is a serious academic offense. As used in this context, "academic record" includes all paper and electronic versions of the partial or complete permanent academic record, all official and unofficial academic transcripts, application documents and admission credentials, and all academic record transaction documents. The minimum sanction for falsification, including the omission of information, or attempted falsification or other misuse of academic records as described in this section is suspension for one semester.

Bias Incident Support Services

Bias Incident Support Services (BISS) provides confidential support and advocacy for any student, staff, or faculty member impacted by bias, hatred, and/or an act of identity-based violence. BISS staff aid impacted parties in accessing campus and community resources, including the Bias Incident Response Team, the University's official reporting system for acts that negatively impact a sense of belonging. Campus and community consultation and educational opportunities centered on inclusion, diversity, equity and belonging is a resource also provided by BISS. For more detailed information please visit the [BISS website](#) or contact them [via email](#).

Counseling Center

The UK Counseling Center (UKCC) provides a range of confidential psychological services to students enrolled in 6 credit hours or more, psychoeducational outreach programming (including QPR suicide prevention), and consultation to members of the UK community (students, faculty, staff, administrators, parents, concerned others). Please visit the website <https://www.uky.edu/counselingcenter/> for more detailed information, or call 859.257.8701.

Martin Luther King Center

The Martin Luther King Center (MLKC) supports an inclusive learning environment where diversity and individual differences are understood, respected, and appreciated as a source of strength. The MLKC's year-round programs and activities that focus on the importance of cultural awareness and cross-cultural understanding support its three primary goals: 1) sponsoring cultural and educational programming; 2) offering opportunities for student support and development; and 3) through programmatic linkages with a wide variety of civic and community agencies, promoting community outreach, engagement, and collaboration. Students can reach the MLKC via phone at (859) 257-4130, by visiting them in Gatton Student Center Suite A230, [via email](#), and by visiting [the MLKC website](#).

Office of LGBTQ* Resources

UK is committed to supporting students and upholding the University's efforts to promote inclusion among our community. UK faculty and staff employees support inclusion and diversity throughout the University, including the ways in which faculty structure classroom conversations and manage those dynamics. To assist in these efforts, students are welcome to provide the names and pronouns they prefer. One easy way to do this is by using the pronoun feature of UK's Name Change Form. (More information about the form can be found on the [Office of LGBTQ's website](#).) Otherwise, students can provide this information to faculty members directly.*

Discrimination based on sexual orientation, gender expression, and gender identity is prohibited at UK. If you have questions about support, advocacy, and community-building services related to sexual orientation, gender expression, or gender identity, students are encouraged to visit the [website of the Office of LGBTQ Resources](#).*

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Veteran's Resource Center

Being both a member of the military community and a student can bring some complexities. If you are a member of the military or a military veteran or dependent, please let me know when these challenges arise. Drill schedules, calls to active duty, mandatory training exercises, issues with GI Bill disbursement, etc. can complicate your academic life. Please let me know if you experience complications and I will do my best to work with you.

If you are a military student serving in the National Guard or Reserve it is in your best interest to let all of your professors know that immediately. You might also consider sharing a copy of your training schedule as well as any orders activating you. The Veterans Resource Center (VRC) can provide a letter for your professors validating your absence but be aware that there is no current UK policy protecting military students who miss class due to short term activations such as long weekend drills, annual training or emergency activations. See the instructor or the VRC for details.

The VRC is a great resource for members of our military family. If you have questions regarding your VA benefits or other related issues, the VRC has a full complement of staff to assist you. The VRC also provides study and lounge space, as well as free printing. Please visit the [VRC website](#), [email the DRC](#), visit them in the basement of Erikson Hall, or call the director, Tony Dotson, at (859) 257-1148.

Violence Intervention and Prevention (VIP) Center

*If you experience an incident of sex- or gender-based discrimination or interpersonal violence, we encourage you to report it. While you may talk to a faculty member or TA/RA/GA, understand that as a "Responsible Employee" of the University these individuals MUST report any acts of violence (including verbal bullying and sexual harassment) to the University's Title IX Coordinator in the IEEO Office. If you would like to speak with someone who may be able to afford you confidentiality, you can visit the [Violence Intervention and Prevention \(VIP\) Center's website](#) (offices located in Frazee Hall, lower level; [email them](#); or call (859) 257-3574), [the Counseling Center's \(CC\) website](#) (106 Frazee Hall; (859)), and the [University Health Services \(UHS\) website](#); the VIP Center, CC, and UHS are confidential resources on campus. **The VIP Center accepts walk-in appointments.***