Chemistry 333L Course Syllabus

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Instructor Office Hours Please email and we'll set up a time that works for you.

CHEM 331 and 333L are co-requisite courses, i.e., students in CHEM 333L are required to take CHEM 331 at the same time or to have already received credit in CHEM 331. Co-requisite course requirements are strictly enforced: Students who do not meet the co-requisite should drop the course or **they will receive an F in the course.** Students who drop or audit CHEM 331 will be required to drop CHEM 333L. To add lab sections during the first week of class, use AccessPlus. After the first week, please go to the Undergraduate Chemistry Office in 1608 Gilman.

Learning Objectives

At the end of this course, you will be able to

Understand and follow current lawful and safe chemical handling practices (e.g., personal protective devices) and the hazards associated with the use of common organic reagents.

Carry out and understand many common organic chemistry tasks, including percent yield calculations, thin layer chromatography, recrystallization, distillation, extractions, solvent removal, and temperature control of reactions (reflux, ice-baths, etc.).

Carry out key organic syntheses along with purifying and characterizing obtained product.

Understand the mechanism for each synthesis performed as well as underlying fundamental patterns.

Required Personal Protective Equipment (PPE)

Safety Eyewear: UVEX — Model S040C Safety Glasses or Jones & Co. Visorgogs or Magid Glove and Safety Manufacturing "Sapphire" safety glasses. Safety eyewear may be purchased at the bookstore. Other styles or types of protective eyewear require approval from the department safety officer or course instructor. ***Safety eyewear is required in the laboratory at all times.***

Lab coat: A mid-thigh length or longer lab coat must be purchased. These are available at the bookstore. Avoid synthetic lab wear since synthetics melt if exposed to fire.

Additional PPE: gloves (provided), and closed-toe, closed-heel shoes are important components for lab safety.

PPE is required in the laboratory at all times.

Laboratory Text: Provided on Canvas

Laboratory Notebook

You are provided a hardbound laboratory notebook. Pre-lab notes as well as In-lab notes are required for each experiment. Details are given in the Intro to 333L Organic Chemistry Lab reading on Canvas.

Analysis Questions

After completing the experiment, the goals are for you to carefully analyze what you did, how what you did ties into what you have done previously and what you are learning in lecture, and what your data means. In order to assess the accomplishment of these goals, you must submit Analysis Questions after each experiment. The due date is 11:59 PM one week from completing the experiment. Details are given on Canvas.

Projects

You will have two projects: Techniques and Synthesis. Details will be provided on Canvas. You will not have a final exam. There are not make-ups for projects.

Drops

At the end of the semester two Lab Notes scores and two Analysis Questions scores will be dropped. These drops are provided to account for such things for conflicting evening exams, required performances, class trips, extracurricular activity conflicts, and illness. If you miss two lab classes due to required academic events (e.g. evening exam) or a documented health/family issue, and find you have an additional conflict with your lab class, email your course instructor as soon as possible and before missing a third lab to discuss alternatives.

Project, and the required lab check-out will not be dropped. If you have a conflict due to an academically required event or documented health/ family issue, email your course instructor as soon as humanly possible to discuss alternatives.

Missed Experiments

T**here are generally NO MAKE-UP experiments.** See above for information about drops.

The remaining scores after your two drops will be used to calculate the final grade.

Grading

Grading scale for final grades: A > 93%, A– > 90%, B+ > 87%, B > 83%, B– > 80%, C+ > 77%, C > 73%, C– > 70%, D+ > 67%, D > 63%, and D– > 60%, and F < 60%.

Important Course Policies:

1. **It is the student's responsibility to make sure that Analysis Questions, etc. are properly uploaded/submitted by the deadline. In case of technical problems, please email your TA IMMEDIATELY. This should be either before or very shortly after the deadline. Do not wait until the deadline has long passed otherwise your work will not be graded.**
2. It is the student's responsibility to check grades on Canvas on a weekly basis.
3. **Any complaint on a grade MUST be brought up within 1 week of receiving the returned graded work to have the grade corrected. No exceptions.**
4. Use of personal electronic devices of any type (e.g., laptops and cell phones) is strongly discouraged in the lab unless instructed to do so by the TA. (for example, taking photos of experimental set-ups with cell phones). If you choose to use your own laptop, you do so at your own risk since it is a lab environment.
5. Presence at Lab Check-out is mandatory. Lab Check-out must be done on the scheduled day at the scheduled time. **Failure to check-out will result in 0 points on your last submitted and graded Analysis Questions.**

Academic Misconduct

Academic Misconduct in any form is in violation of ISU *Student Disciplinary Regulations* and will not be tolerated. This includes, but is not limited to: copying answers on lab reports, plagiarism (This refers to copying anyone else's work and claiming as your own. A common example is copying information from a website without giving a reference), submitting a lab report for an experiment not performed, or having someone else do your academic work. Depending on the act, a student could receive an F grade on the test/assignment, F grade for the course, and could be suspended or expelled from the University. See the Conduct Code at http://www.dso.iastate.edu/ja for more details and a full explanation of the ISU Academic Misconduct policies. In any case, the student will be reported to the Dean of the Students Office.

Accessibility and Mental Health Support

Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. Students requesting accommodations for a documented disability are required to work directly with staff in Student Accessibility Services (SAS) to establish eligibility and learn about related processes before accommodations will be identified. After eligibility is established, SAS staff will create and issue a Notification Letter for each course listing approved reasonable accommodations. This document will be made available to the student and instructor either electronically or in hard-copy every semester. Students and instructors are encouraged to review contents of the Notification Letters as early in the semester as possible to identify a specific, timely plan to deliver/receive the indicated accommodations. Reasonable accommodations are not retroactive in nature and are not intended to be an unfair advantage. Additional information or assistance is available online atwww.sas.dso.iastate.edu, by contacting SAS staff by email at accessibility@iastate.edu, or by calling 515-294-7220. Student Accessibility Services is a unit in the Dean of Students Office located at 1076 Student Services Building.

Student Counseling Services (SCS) provides confidential prevention, intervention, information, and referral services to Iowa State students. Assistance is available for students coping with relationship problems, low self-esteem, stress, loneliness, depression, cultural differences, sexual assault recovery, childhood abuse, trauma, eating disorders, substance abuse, career/major concerns, academic motivations, and other concerns. Students can initiate services at SCS during the walk-in hours (see SCS website) or during business hours if crisis counseling is needed. Check out their website for additional information: https://counseling.iastate.edu/.

Iowa State University supports and upholds the First Amendment protection of freedom of speech and the principle of academic freedom in order to foster a learning environment where open inquiry and the vigorous debate of a diversity of ideas are encouraged. Students will not be penalized for the content or viewpoints of their speech as long as student expression in a class context is germane to the subject matter of the class and conveyed in an appropriate manner.

F22 CHEM 333L		
Day	**Date**	**Experiment**
1	8/22/22	Intro
2	8/24/22	TLC and Chem Draw
3	8/29/22	Recrystallization
4	8/31/22	Distillation and IR
5	9/5/22	Holiday
6	9/7/22	NMR

7	9/12/22	mNova
8	9/14/22	Column Chromatography (Azulene & Imine)
9	9/19/22	Column Chromatography
10	9/21/22	Extraction
11	9/26/22	Technique Project Workshop Day
12	9/28/22	Technique Project
13	10/3/22	Technique Project
14	10/5/22	Intro to Synthesis (Substitution)
15	10/10/22	SN1: Reaction of 3,3-dimethyl-2-butanol with HBr
16	10/12/22	Ester by SN2
17	10/17/22	Acid-Catalyzed Dehydration of 3,3-Dimethyl-2-butanol
18	10/19/22	Dehydration of 2,3-Dimethyl-2,3-butanediol
19	10/24/22	SciFinder Workshop
20	10/26/22	Primary vs Secondary Substrate
21	10/31/22	NMR Coupling Constants
22	11/2/22	NaBH4 reduction of Butylcyclohexanone
23	11/7/22	Reaction of Dichlorocarbene with Cyclohexene
24	11/9/22	Bromination of Cinnamic Acid
25	11/14/22	Indene Bromohydrin Synthesis
26	11/16/22	Epoxidation Chalcone
27	11/21/22	Thanksgiving Break
28	11/23/22	Thanksgiving Break
29	11/28/22	Synthesis Project
30	11/30/22	Synthesis Project
31	12/5/22	check-out