Chemistry 3330L Course Syllabus

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Instructor Office Hours M, W 2:15-3:15 pm or by appointment

CHEM 3310 and 3330L are co-requisite courses, i.e., students in CHEM 3330L are required to take CHEM 3310 at the same time or to have already received credit in CHEM 3310. 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 3310 will be required to drop CHEM 3330L.

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.

Lab coat: A mid-thigh length or longer lab coat must be purchased. These are available at the bookstore, chemstores, Amazon, etc.

Additional PPE: gloves (provided), and closed-toe, closed-heel shoes are required.

Course Materials

You will be using digital Signals Lab Notebook provided by the chemistry department. Your TA will show you how to use this during the first prelab discussion.

All required lab readings and supplemental information are posted on Canvas.

Assessments

Safety

- Signed Safety Contract (5 pts)
- EHS Safety Courses (5 pts ea)

Lab Reports (40 pts ea)

- For each experiment, you will create an experiment in your Signals Lab Notebook using templates as instructed. Each experiment will have Pre-lab, In-lab, Data and Analysis, and sometimes Evaluation sections. Your TA will give details on your first day of class.

Projects

- Technique Project
  - Proposal (40 pts)
  - Report (40 pts)
- Synthesis Project
  - Proposal (40 pts)

- Report (40 pts)

Detailed information can be found on Canvas in the corresponding modules.

Drops

At the end of the semester two Lab Report 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 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.

Projects, 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 Lab Reports and Project Proposals and Reports are completed on time. 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. If you choose to use your own personal device in the lab, 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.

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/.

University Required Freedom Expression Statement

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. No employee, student, applicant, or campus visitor is compelled to disclose their pronouns. Anyone may voluntarily disclose their own pronouns.

F24 CHEM 3330L		
Day	**Date**	**Experiment**
1	8/26/24	Intro to 333L
2	8/28/24	TLC and Chem Draw
3	9/2/24	Holiday
4	9/4/24	Recrystallization
5	9/9/24	Distillation and IR
6	9/11/24	NMR
7	9/16/24	mNova
8	9/18/24	Extraction
9	9/23/24	Column Chromatography New
10	9/25/24	Column Chromatography
11	9/30/24	Intro to Synthesis (Substitution)
12	10/2/24	Primary vs Secondary Substrate
13	10/7/24	Primary vs Secondary Substrate, cont.
14	10/9/24	Technique Project Workshop
15	10/14/24	Technique Project (proposal due 9/26)
16	10/16/24	Technique Project
17	10/21/24	Acid-Catalyzed Dehydration of 3,3-Dimethyl-2-butanol
18	10/23/24	SN1: Reaction of 3,3-dimethyl-2-butanol with HBr
19	10/28/24	NMR Coupling Constants
20	10/30/24	NaBH4 reduction of Butylcyclohexanone
21	11/4/24	SciFinder Workshop

22	11/6/24	Reaction of Dichlorocarbene with Cyclohexene
23	11/11/24	Bromination of Cinnamic Acid
24	11/13/24	Indene Bromohydrin Synthesis
25	11/18/24	Epoxidation Chalcone
26	11/20/24	Catchup
27	11/25/24	Thanksgiving Break
28	11/27/24	Thanksgiving Break
29	12/2/24	Synthesis Project (Proposal due 11/10)
30	12/4/24	Synthesis Project
31	12/9/24	check-out