Department of Chemistry: E331 CB, 335-1350

Instructors:  
Dr. David Martin -- E433 CB, 319-467-1673, david-martin@uiowa.edu  
*Office Hours:* E433 CB, Tu 1:00–2:00 pm, W 2–3 pm, or by appointment  
Office hours will be held via Zoom (see Zoom link on ICON)

Dr. Shuvendu Das -- Oakdale MTF B160, 319-467-4559, shuvendu-das@uiowa.edu  
*Office Hours:* E359 CB, W 5:30–6:30 pm, Th 4:15–5:15 pm, or by appointment  
Office hours will be held via Zoom (see Zoom link on ICON)

Scheduled Lectures:  
Section A Friday 11:30-12:20, World Wide Web (see Zoom link on ICON)  
Section B: Wednesday 4:30–5:20, World Wide Web (see Zoom link on ICON)

Laboratory Sections:  
01 & 12 Mon and Wed, 9:30 am–12:20 pm, W468 CB, hybrid in-person/online  
04 & 15 Mon and Wed, 1:30–4:20 pm, W468 CB, hybrid in-person/online  
05 & 16 Mon and Wed, 1:30–4:20 pm, E464 CB, hybrid in-person/online  
08 & 19 Mon and Wed, 5:30–8:20 pm, W468 CB, hybrid in-person/online  
09 & 20 Mon and Wed, 5:30–8:20 pm, E464 CB, hybrid in-person/online  
02 & 13 Tue and Thu, 9:30 am–12:20 pm, W468 CB, hybrid in-person/online  
03 & 14 Tue and Thu, 9:30 am–12:20 pm, E464 CB, hybrid in-person/online  
06 & 17 Tue and Thu, 2:00–4:50 pm, W468 CB, hybrid in-person/online  
07 & 18 Tue and Thu, 2:00–4:50 pm, E464 CB, hybrid in-person/online  
10 & 21 Tue and Thu, 5:00–7:50 pm, W468 CB, hybrid in-person/online  
11 & 22 Tue and Thu, 5:00–7:50 pm, E464 CB, hybrid in-person/online

The hybrid in-person/online meetings of laboratory sections will be handled in accordance with health and safety policies of the College of Liberal Arts and Sciences, and of the University of Iowa.

Face coverings (mask with or without shield) are required to enter the Chemistry Building, and during in-person meetings for this course.

Specific measures in place for this course are as follows:
1. The lab section meetings are designed to 50% capacity.
2. Each lab section will alternate between in-person lab work and online instructional activities (online video and questions posted on the ICON). Thus, each student will meet in-person in the lab once per week. These are specified in the attached schedule.
3. Before entering the lab, each student will be asked to provide a signed verification that (a) they do not currently have an active COVID-19 infection, (b) that they are not experiencing fever (temperature 38°C/100.4°F or greater) or other flu-like symptoms, and (c) that they have not been in close contact (within 6 feet for 10 minutes or more) with someone who has a diagnosis of COVID-19 or is awaiting results of diagnostic testing prompted by symptoms of or exposure to COVID-19.

Course Goals

- become familiar with standard organic chemistry laboratory operations
- gain experience in conducting organic reactions
- learn and apply methods of separation and identification of organic compounds
Prerequisites: CHEM:1120 and CHEM:2210 (or CHEM:2230)
Co- or Prerequisite: CHEM:2220 (or CHEM:2240)

Course Materials
Course Website (ICON): icon.uiowa.edu -- For assistance go to icon.uiowa.edu/help/students/
Required Text: “Techniques and Experiments in Organic Chemistry: Biological Perspectives and Sustainability” -- Electronic (PDF file), download from ICON.
To avoid exposing devices to lab hazards, you may print the text and put it in a 3-ring binder.
Required Equipment: laboratory goggles, laboratory notebook (with duplicate carbonless pages), internet access, access to technology for videoconferencing via the Zoom application, access to scanner or smartphone for submitting assignments

Course Administration at the Chemistry Center
A majority of course business can be accomplished via the Chemistry Center.
Contact: chemistry-center@uiowa.edu, 335-1341, E225 CB.
Hours: 8–12 noon & 1–5 pm on M–Th (close at 4:30 PM on Friday)

The following SHOULD be accomplished at the Center: drop/add forms, section changes, inquiries about TA office hours, submission of late lab reports. Please do not ask the instructor or TAs to do these; they can be handled directly by the Chem Center.

Teaching Assistant Office Hours
Your teaching assistant (TA) will announce their office hours, and will provide details on the modality of office hours and how students can participate in them.

Grading
There will be one final exam, 11 laboratory experiment modules (including prelab quiz, online assignment, and lab report), and two assessments of in-class laboratory performance (midterm and final). Plus and minus grades will be given. An A+ is only awarded for exceptional (i.e., near perfect) performance.

CLAS Recommended Grade Distribution (% of class): A 18%, B 36%, C 39%, D 5%, F 2%
CLAS Recommended Grade Average = 2.63 / 4.0
Typical Grade Average in this course = about 3.0

A total of 700 points is possible:
• Laboratory experiment modules (quiz, online assignment, lab report) = 450 points
• In-lab performance assessments (2 x 50) = 100 points
• Final Exam = 150 points

Lab Reports: There will be FIVE formal lab reports (format as instructed in the lab manual) and SIX short lab reports (format as discussed in class). As indicated below, Experiments 5 and 8 will be short lab reports. For the other experiments, formal or short lab reports will be assigned by an in-class announcement the next lecture after the experimental work is completed. Only Experiments 5 and 8 have reduced credit for the short lab reports; credit for all other lab reports will remain as shown below.
The short reports are intended to relieve some of the writing workload so you can focus more on understanding the chemistry. *Expect exam questions on material which might normally be included in a formal lab report (as indicated in the lab manual), even if you only wrote a short lab report.*

<table>
<thead>
<tr>
<th>Expmt #</th>
<th>Title</th>
<th>Prelab Quiz</th>
<th>Online Assignment</th>
<th>Report</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Literature</td>
<td></td>
<td></td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>Safety</td>
<td>5</td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Extraction</td>
<td>10</td>
<td>10</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td>3</td>
<td>Nucleophilic Substitution</td>
<td>10</td>
<td>10</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td>4</td>
<td>Adipic Acid (2 weeks)</td>
<td>2 x 10</td>
<td>10</td>
<td>15 (short)</td>
<td>45</td>
</tr>
<tr>
<td>5</td>
<td>NMR Spectroscopy</td>
<td></td>
<td></td>
<td></td>
<td>35</td>
</tr>
<tr>
<td>6</td>
<td>Furoin Condensation (2 weeks)</td>
<td>2 x 10</td>
<td>2 x 10</td>
<td>15 (short)</td>
<td>55</td>
</tr>
<tr>
<td>7</td>
<td>TPP Synthesis (2 weeks)</td>
<td>10</td>
<td>10</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td>8</td>
<td>Suzuki Coupling</td>
<td>10</td>
<td>10</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td>9</td>
<td>Molecular Modeling</td>
<td>10</td>
<td></td>
<td>25</td>
<td>35</td>
</tr>
<tr>
<td>10</td>
<td>Unknowns (2 weeks)</td>
<td>10</td>
<td>10</td>
<td>25 (short)</td>
<td>45</td>
</tr>
<tr>
<td>11</td>
<td>Solventless Aldol Reaction</td>
<td>10</td>
<td>10</td>
<td></td>
<td>20</td>
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<td></td>
<td>Total</td>
<td>115</td>
<td>90</td>
<td>245</td>
<td>450</td>
</tr>
</tbody>
</table>

**Submitting Lab Reports:** Lab reports are due on Fridays at 5pm via online submission. Details on the submission procedure will be discussed in class.

**Lab Reports:** For late reports, within one week of due date, these should be submitted in the usual way. A penalty of 10% of the available points per day will be assessed. Reports that are a week or more late will only be accepted/graded with special permission from the instructor.

**Regrades of Lab Reports:** Lab reports can only be submitted for regrade within a week after they were returned to you. A written request indicating the reason for the regrade must be included. The ENTIRE report will be re-evaluated. Scoring addition errors or ungraded sections are valid reasons for regrade. Negotiating for points on a report which has been correctly graded is not a valid reason for regrade.

**In-Class Performance Assessments:** These will be based on the TAs observations of performance in the lab. Some subjectivity is inherent in this assessment. TAs will assess understanding and mastery of practical lab techniques on the basis of their daily observations of your work, including efficiency, safety, organization, and ability to follow the procedures without excessive direction. The assessments will be normalized to a constant average across all sections, so that students are treated fairly regardless of section.

**Examination**
There is one exam, the Final Exam: *time and location to be announced later*

**Exams will ONLY be given at the designated times.** A makeup exam will only be given in the case of an excused absence for University-approved reasons. Personal or family travel is NOT an excused absence.

**Academic Misconduct:** Representing scientific or professional work of others as your own is unethical, dishonest, and unacceptable. The University has specific policies which govern academic
misconduct. Students who are found to be engaging in academic misconduct will be given an F in the course and the case will be reported to the Office of Academic Affairs.

**How to Avoid Academic Misconduct in This Course:**

*Exams and Quizzes:* Individuals must work alone. There must not be any communication about the content until all students have completed the exam or quiz.

*Laboratory experiments:* All work in the lab must be conducted independently by each student, except in those cases when the TA specifically instructs the class to work in pairs or groups. Open discussion before, during and after the lab is encouraged.

*Laboratory reports:* Individuals must write their own lab reports, using their own words. Discussion is encouraged while preparing to write, but all students must ultimately do their own writing. Copying the work of others, whether they are current or prior students in this course, is plagiarism, and such academic misconduct will not be tolerated.

**Safety**

The course is designed to be safe when students follow appropriate, defined procedures and use the lab materials in the designated way. Safety is enhanced when all students are properly prepared and alert:

- You must pass the safety quiz with 100% before you are allowed to work in the lab.
- Show up and leave on time. Do not enter the lab until a TA or instructor is present. Come prepared in every aspect (content preparation, goggles, clothing)
- Wear safety eye protection (goggles) at ALL times, in addition to coronavirus face covering. We strongly recommend mask with faceshield. The TA may make a few introductory comments before any equipment or materials are out. Eye protection must be worn from that point until you leave. Group discussion may be best convened in the hall. Wearing contact lenses is discouraged.
- Feet, legs, and the midriff should be covered. Shoes that expose any part of the foot are not permitted. (You can carry a pair of sweats and tennis shoes during warm weather.)
- Eating, drinking, and smoking are prohibited in the lab at ALL times. No flames are allowed in the lab. Wash your hands right before you leave.
- Report ALL injuries of any kind to the TA. You should even report a minor cut or burn to the TA before you go to the bathroom to wash it.
- Solvents, solids, and sharp items must be disposed of properly. NOTHING goes down the sink.
- An organic chemical may pose a different level of hazard to an adult than to an unborn fetus. Students who are pregnant or think that they might become pregnant during the course should discuss their enrollment in this course with their physician(s). Material safety data sheets MSDS are available and the chemical materials used are listed in the manual or via additions/corrections provided during the lecture portion.
- Safe practice in the lab requires that students be able to hear warnings or announcements. Lab computers MAY NOT be used to play music; personal music devices even with headphones (i.e., tape, CD, or MP3 players) are not appropriate for labs. You should remove them and shut off cell phones before lab starts.

A student will be asked to leave the laboratory for the entire lab period (and will receive NO credit for that day’s activities or any report or assignment derived from the work) for the following behaviors:

- Refusal to wear masks or goggles or to conform to the safe lab dresscode (i.e., covered feet, legs and midriff)
- Conducting experiments or activities using equipment and chemicals other than the assigned activities.

The course wishes to promote independent thinking; independent experiment design and performance is NOT allowed.
Improper behavior that puts oneself or another individual at risk. Egregious improper behavior is grounds for dismissal from the course.

Statements of University and/or College Policy

Administrative Home. The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS Academic Policies Handbook at https://elas.uiowa.edu/students/handbook.

Electronic Communication. University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences (Operations Manual, III.15.2, k.11).

Accommodations for Disabilities. The University of Iowa is committed to providing an educational experience that is accessible to all students. A student may request academic accommodations for a disability (which includes but is not limited to mental health, attention, learning, vision, and physical or health-related conditions). A student seeking academic accommodations should first register with Student Disability Services and then meet with the course instructor privately in the instructor's office to make particular arrangements. Reasonable accommodations are established through an interactive process between the student, instructor, and SDS.

See https://sds.studentlife.uiowa.edu/ for information.

Academic Honesty. All CLAS students or students taking classes offered by CLAS have, in essence, agreed to the College's Code of Academic Honesty: "I pledge to do my own academic work and to excel to the best of my abilities, upholding the IOWA Challenge. I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled (CLAS Academic Policies Handbook).

CLAS Final Examination Policies. The final examination schedule for each class is announced by the Registrar generally by the fifth week of classes. Final exams are offered only during the official final examination period. No exams of any kind are allowed during the last week of classes. All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar's web site and will be shared with instructors and students. It is the student's responsibility to know the date, time, and place of a final exam.

Making a Suggestion or a Complaint. Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident (CLAS Academic Policies Handbook).

Understanding Sexual Harassment. Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI Office of the Sexual Misconduct Response Coordinator for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather. In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Department of Public Safety website.

CLAS Policies Relating to Coronavirus and Hybrid F2F/Online Instruction for Spring 2021

Class Behavioral Expectations

Students are expected to comply with University policies regarding appropriate classroom behavior as outlined in the Code of Student Life. This includes the policies and procedures that all students have agreed to regarding the Steps Forward for Spring 2021 in response to the COVID-19 pandemic. Particularly, all students are required to wear a face covering when in a UI building, including a classroom. In addition, the density of seats in classrooms has been reduced. In some instances, this will allow 6 feet or more of distance while in other cases, it may be less. Regardless, wearing a face covering and maintaining as much distance as possible are vital to slowing the spread of COVID-19.
In the event that a student disrupts the classroom environment through the failure to comply with the reasonable directive of an instructor or the University, the instructor has the authority to ask that the student immediately leave the space for the remainder of the class period. Additionally, the instructor is asked to report the incident to the Office of Student Accountability for the possibility of additional follow-up.

Students who need a temporary alternative learning arrangement related to COVID-19 expectations should contact Student Disability Services arrangements; +1 319 335-1462)


Class Recordings: Privacy and Sharing

Some of the sessions of a course could be recorded or live-streamed. Such recordings/streaming will only be available to students registered for this class. These recordings are the intellectual property of the faculty, and they may not be shared or reproduced without the explicit, written consent of the faculty member. Further, students may not share these sessions with those not in the class or upload them to any other online environment. Doing so would be a breach of the Code of Student Conduct, and, in some cases, a violation of the Federal Education Rights and Privacy Act (FERPA).