CHEM:2230 Organic Chemistry I for Majors Fall, 2021

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**Web Site:** Online content will be managed using the course ICON site (http://icon.uiowa.edu/index.shtml). The site will be used to post copies of the slides used in class, as well as practice exams, exam keys, lists of suggested text problems, this syllabus, and occasional announcements.

**Textbook:** The text for this course is "Organic Chemistry", 12th Edition, 2016, by Solomons, Fryhle, & Snyder (ISBN-13: 978-1118875766), Wiley & Sons. The sequence of material and suggested problems will be taken from this text. Copies are available in the bookstore; soft-cover, ring-bound, used, and e-versions of the book are available online, as are rentals. This book is also used in Chem 2240 (Organic Chem II for Majors). An available Study Guide (ISBN-13: 978-1119077329) contains answers to all the text problems and some other resources, although we plan to post answers to suggested end-of-chapter problems on ICON.

**Optional Materials:** Students are advised to obtain a set of molecular models. Models are helpful in learning to visualize the 3D-structures of organic compounds, but they cannot be used during exams. They are available from a variety of sources, including the bookstore and online. In the past, kits have been sold by the UI Chemistry fraternity near the Chem Center (E225 CB) during the first few weeks of the semester.

**Course Notes:** Copies of the Powerpoint slides used in class will be made available on the course ICON site as PDF files. These notes will offer concise, complementary coverage of the topics in the text. They are intended to be helpful—not to alleviate the need for attending class. Sets of notes will be posted at least three days before they are covered in class. It is recommended that you read them over before class and add highlights, further notes, and/or answers to questions you may raise about them during lecture.

**Lectures:** MWF, 10:30-11:20 AM. Lectures will be in-person and are scheduled in W128 CB.

The Wednesday 6:30 PM slot is reserved in your schedule for the three mid-term exam dates - no other meetings are planned for that time period. However, if a class has to be cancelled due to some unexpected circumstance, a make-up lecture could be scheduled during one of these available 6:30 PM time slots. Advance notice will be given in class if this becomes necessary. Also, please note that extended office hours will be held in lieu of the regularly scheduled lecture on exam dates.

**Covid-related UI Policies:** At present, the UI strongly encourages everyone to be vaccinated against covid-19, and to wear a face mask in all classroom settings and during in-person office hours. If UI policy on in-person exams, classes, or office hours is changed during the semester, a mechanism for moving to remote/virtual delivery will be publicized in class and via ICON.

**Office Hours:** Mondays 1:00-2:30 PM, Tuesdays 11:00 AM-12:00 PM, Wednesdays, 11:30 AM-12:30 PM. Expanded office hours (to be announced) will be offered during exam weeks. Questions will be answered during class, immediately after class (as permitted by time between classes), in discussion sections, or during office hours. If a meeting is needed outside of these times, please make an appointment. Zoom meetings are possible, but tend to be less useful for this class, since structures often need to be drawn or models built. Your TA will announce his office hours at your first discussion section meeting.
Student Rights and Responsibilities: For UI policies on academic misconduct, plagiarism and cheating, forgery, student complaints concerning faculty actions, and procedures for complaints, see the Student Academic Handbook: http://www.clas.uiowa.edu/students/academic_handbook.

Exams: There will be three regular midterm exams and a final. Each regular exam will be given on a Wednesday at 6:30 PM and will last 90 minutes. The dates and locations of these exams are listed below. Any changes will be announced in class before the exams and on ICON. The final exam will be held during the UI-scheduled time (date, time, and place to be announced mid-semester) and will last two hours. All exams will be comprehensive since understanding of material encountered later in the course will require application of concepts learned previously. However, each regular exam will emphasize material covered since the previous exam. Announcements will be made in class regarding the material to be covered on each exam. Generally, topics to be covered on a midterm exam will conclude with the material presented on the Friday before the exam. Class time on the Monday prior to exams will be used as a review session.

Exam Schedule:
Exam 1: Wednesday, Sept. 22 at 6:30 PM in room LR2 VAN
Exam 2: Wednesday, Oct. 20 at 6:30 PM in room LR2 VAN
Exam 3: Wednesday, Nov. 17 at 6:30 PM in room LR2 VAN
Final Exam: To be announced

Please note: Midterm scheduling conflicts between courses can occur and it is your responsibility to review your exam schedule and report conflicts early in the semester. Specific policies regarding midterm conflicts can be found here: https://registrar.uiowa.edu/midterm-exam-policies

Exams will be closed-book. Prior to the start of each exam, all extraneous materials (e.g., models, texts, notebooks, papers, backpacks, etc.) should be left at home or brought to the front of the room. Calculators will not generally be needed, but will be allowed for exam 3 and the final. The use of any other electronic devices during exams is strictly prohibited. The exams will include some short-answer type questions wherein you will need to write out answers and/or draw appropriate chemical structures or add key features in spaces provided on the exam. Current plans are to use Gradescope to scan, grade, and return the exams online, and we will do so as promptly as possible. Any changes in this plan will be announced in class and on ICON. Exam results and answers will be posted on the course ICON site.

Exam regrades: Exams in this class are graded by humans and partial credit is given where possible. If you feel that a mistake has been made in grading your exam, you will be able to request a regrade. At present, we plan to do this online via Gradescope. There will be a mechanism to indicate the number of the question to be checked, and if it is not obvious, to provide a (brief) explanation of what you believe was done incorrectly. The entire exam will be reviewed - if points were incorrectly awarded, the corresponding score change will also be made. Regrade requests must be submitted within one week of the time the graded exams are made available to you (within 24 hours for the final exam). No regrades will be possible after that. This process is intended to apply to situations where your answer matches the key, but was misgraded, or an error was made when totaling your score. If you disagree with an answer on the key, please discuss the issue with your instructor during office hours.

Make-up Exams: Permission to take a make-up exam will require a valid, written excuse (e.g., from student health services). If you miss a regular exam, you must take the make-up, which will be given on the Friday after the regular exam at 6:00-7:30 PM in W290 CB. You must register for the make-up and provide an acceptable reason before the scheduled time of the regular exam that you miss. Registration for make-up exams is done online at https://forms.office.com/r/EjWUMU1Abu Under no
circumstances will a make-up be given in place of a regular exam taken earlier. Please approach me regarding such registration only if the Chemistry Center has rejected your request. You may contact the Chemistry Center at 319-335-1341 or chemistry-center@uiowa.edu. See also http://www.chem.uiowa.edu/undergraduate/for-current-students/course-information/chemistry-center.

**Course Grades:** Grades will be based on performance on the three regular exams (300 points) and the final exam (140 points). Total points possible = 440. No scores will be dropped in calculating the final grade for the course, and everyone must take the final exam. No letter grades will be *formally* assigned for midterms, but an approximate letter grade curve for each exam will be provided during class so that students will know where they stand grade-wise. At the end of the semester, exam scores of each student will be totaled, and the resulting sums will be fitted to a grading curve in order to assign final grades. The grading curve will be based strictly on the class performance this semester. College guidelines will be followed as closely as possible in establishing the final grade distribution, and +/- grading will be used for final grades.

**Drop-Add:** For information on making any changes in registration, please visit the UI Registrar’s site at https://registrar.uiowa.edu/changes-registration. If any special permission is deemed necessary, it can be obtained at the Chemistry Center. The deadline this semester for undergraduates to drop a course is Monday, November 1. The last day to drop without receiving a “W” is Friday, September 3. Students wishing to add or drop this course after the latter deadline must receive the approval of the Dean of the College of Liberal Arts and Sciences.

**Discussion Sections:** Each student is signed up for one of three weekly discussion sections (listed below) conducted by the TA. CHEM:2230 is only a three-credit course, so attendance at these sessions is not required, but they are intended for your benefit. They are essentially "help sessions" that provide opportunities to ask questions about lecture material, problems from the text, practice exam questions, etc. in a smaller group setting. They may also be helpful in establishing study groups with classmates.

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<tr>
<th>Course Code</th>
<th>Time</th>
<th>Day</th>
<th>Room</th>
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<tbody>
<tr>
<td>CHEM:2230:0002</td>
<td>11:00 AM - 11:50 AM</td>
<td>Th</td>
<td>E203 CB</td>
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<tr>
<td>CHEM:2230:0003</td>
<td>11:30 AM - 12:20 PM</td>
<td>M</td>
<td>E203 CB</td>
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<tr>
<td>CHEM:2230:0004</td>
<td>3:30 PM - 4:20 PM</td>
<td>W</td>
<td>E224 CB</td>
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**Other Course Information:** General inquiries about times and places of exams, discussion sessions, TA office hours, etc. can be taken to the Chemistry Center (E225 CB; 335-1341). This course is being offered by the College of Liberal Arts and Sciences. Thus, policies on various general matters such as final exam policies, expectations, and sanctions for academic dishonesty are governed by the College. These policies are reproduced on the last two pages of this syllabus.

**Public Health:** Authorities recommend that people with flu-like illnesses stay home and not return to public spaces until 24 hours after they have no fever. In order to prevent the spread of disease, please do not come to class, meet with other groups of students, attend office hours, or contact offices in person while you are ill with a fever.

**Special Needs:** Instructors need to hear from anyone who has a disability that may require some modification of seating or other class requirements so that appropriate arrangements may be made, but students must go through Student Disability Services (SDS) office for accommodations. The SDS office is moving to 141 University Capitol Centre in September, and is currently operating virtually (335-1462, sds-info@uiowa.edu). Students for whom SDS approves alternative testing arrangements should contact the Chemistry Center (E225 CB, 335-1341) to schedule their exams.
Course Outline: The material to be covered this semester is summarized below. We will directly follow the sequence in the textbook, covering Chapters 1–12. The continuation of the two-semester organic chemistry sequence (Organic Chemistry II for Majors, CHEM:2240) begins with Chapter 13.

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<thead>
<tr>
<th>Chapter</th>
<th>Pages</th>
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<tr>
<td>1</td>
<td>1-54</td>
<td>Bonding and Molecular Structure</td>
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<tr>
<td>2</td>
<td>55-103</td>
<td>Functional Groups, Intermolecular Forces, and IR Spectroscopy</td>
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<tr>
<td>3</td>
<td>104-143</td>
<td>Acids and Bases</td>
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<td>4</td>
<td>144-192</td>
<td>Alkanes and Cycloalkanes– Nomenclature and Conformation</td>
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<td>5</td>
<td>193-239</td>
<td>Stereochemistry</td>
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<tr>
<td>6</td>
<td>240-281</td>
<td>Nucleophilic Substitution Reactions and Alkyl Halides</td>
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<tr>
<td>7</td>
<td>282-336</td>
<td>Alkenes and Alkynes I – Properties and Synthesis via Elimination</td>
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<tr>
<td>8</td>
<td>337-390</td>
<td>Alkenes and Alkynes II – Addition Reactions</td>
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<tr>
<td>9</td>
<td>391-447</td>
<td>NMR and Mass Spectrometry—Structure Determination</td>
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<tr>
<td>10</td>
<td>448-488</td>
<td>Radical reactions</td>
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<tr>
<td>11</td>
<td>489-533</td>
<td>Alcohols and Ethers</td>
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<tr>
<td>12</td>
<td>534-571</td>
<td>Alcohols from Carbonyl Compounds</td>
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Schedule and work assignments: A schedule for the semester including weekly assigned chapter content and homework problems from the text will be provided as a separate document on ICON to help keep students on pace. A subset of the end-of-chapter problems is suggested to provide students with practice and concept reinforcement. These were selected to keep the number manageable and to focus on concepts most relevant to course objectives and exam content, but will not be graded. Coverage and discussion of these problems will be a feature of discussion sections.

Online homework is not offered in this course in part because of the need for students to practice drawing structures and illustrating processes by hand. Artistic talent is not required, but learning to show such things legibly is an important part of the culture of organic chemistry.
Some Study Suggestions for Organic Chemistry

- A major difference between organic and general chemistry is that there is little or no math involved in introductory organic chemistry courses - topics tend to be presented in a qualitative way. Thus, you will be most successful in this course if you strive to understand the concepts presented, how they relate to one another, and how they can be applied to new situations that you encounter.

- Our exams are only partially constructed in a multiple choice format--some problems will require you to draw chemical structures, list necessary reagents, show details of a process, etc. To prepare for exams, it is important to become proficient in understanding and drawing chemical structures. Practice writing the answers to suggested problems that ask you to draw structures. You may find yourself short on time in exams if you have not become proficient in drawing and visualizing structures. Molecular models are useful in helping to understand structural organic chemistry concepts, but they cannot be used during exams.

- We must cover a lot of new material in this course, so it is critical to keep up. Adherence to the schedule of chapter coverage and assigned problems provided on ICON should help. Unfortunately, if you fall behind, it will be very difficult to catch up. This is not a course in which you can cram the night before an exam and expect to do well - ask anyone you know who has taken organic chemistry.

- Many students use the course notes as a core resource for learning the material, with the text serving as a supplement/reference that offers additional detail and provides relevant problems for practice.

- Come to class. The availability of course notes may tempt you to skip class. The notes are intended to help you learn, and to enable you to listen in class and make a few extra notes of your own, rather than focus on frantically copying everything. However, they are incomplete without the explanations, emphasis, model demonstrations, and highlighting that will be provided during class. Many organic chemistry concepts are truly new to most people, and it is unlikely that you can simply read the notes or the book and understand everything (or be sure what your instructor considers most important…). Most students find that more explanation of this material is needed - not less.

- Take the practice exams that will be provided for you before each regular exam. These exams will look much like the regular exams and will be of similar length, so if you take them seriously and impose a time limit on yourself, you can get a feel for the time it will take you to finish the actual exam. Check your answers with the key and investigate the ones you get wrong. Suggested problems from the text and practice exams are not graded assignments, and you should feel free to collaborate with others in studying this material.

- Take advantage of discussion sections. Discussion sections in this course are optional, so no graded materials will arise from them. These discussions are weekly help sessions for you. Attendance in discussions tends to rise right before exams, but they cannot magically catch you up in one sitting. On the other hand, for those who attend regularly, and participate, these sessions offer an opportunity for getting additional help and concept reinforcement in a smaller, less formal class setting. They can also facilitate formation of study groups with classmates.

- Take advantage of office hours offered by your instructor and your TA. Office hours are held throughout the semester. They are there for your benefit and all questions are welcome. Don’t hesitate to ask a question again if an explanation is not clear. Extra office hours will be added during exam week in an effort to accommodate everyone.
ATTENDANCE AND CLASSROOM EXPECTATIONS
Students are responsible for attending class and for knowing an instructor’s attendance policies, which vary by course and content area. All students are expected to attend class and to contribute to its learning environment in part by complying with UI policies and directives regarding appropriate classroom behavior or other matters.

ABSENCES
Students are responsible for communicating with instructors as soon they know that an absence might occur or as soon as possible in the case of an illness or an unavoidable circumstance. Students can use the CLAS absence form to help communicate with instructors who will decide if the absence is excused or unexcused; the form is located on ICON within the top banner under ”Student Tools.” Delays by students in communication with an instructor could result in a forfeit of what otherwise might be an excused absence (https://clas.uiowa.edu/students/handbook/attendance-absences).

ABSENCES: ILLNESS, UNAVOIDABLE CIRCUMSTANCES, AND UNIVERSITY SPONSORED ACTIVITIES
Students who are ill, in an unavoidable circumstance affecting academic work, or who miss class because of a University sponsored activity are allowed by UI policy to make up a missed exam. Documentation is required by the instructor except in the case of a brief illness. Students are responsible for communicating with instructors as soon as the absence is known (https://opsmanual.uiowa.edu/students/absences-class#8.1).

ABSENCES: HOLY DAYS
Reasonable accommodations are allowed for students whose religious holy days coincide with their classroom assignments, tests, and attendance if the student notifies the instructor in writing of any such religious Holy Day conflicts within the first days of the semester and no later than the third week. (See the UI Operations Manual, https://opsmanual.uiowa.edu/students/absences-class#8.2).

ABSENCES: MILITARY SERVICE OBLIGATIONS
Students absent from class due to U.S. veteran or U.S. military service obligations (including military service-related medical appointments, military orders, and National Guard Service obligations) must be excused without penalty. Instructors must make reasonable accommodations to allow students to make-up exams or other work. Students must communicate with their instructors about the expected possibility of missing class as soon as possible. (For more information, see https://opsmanual.uiowa.edu/iv-8-absences-class%C2%A0-0).

ACADEMIC MISCONDUCT
All undergraduates enrolled in courses offered by CLAS have in essence agreed to the College’s Code of Academic Honesty. Academic misconduct affects a student’s grade and is reported to the College which applies an additional sanction, such as suspension. Outcomes about misconduct are communicated through UI email (https://clas.uiowa.edu/students/handbook/academic-fraud-honor-code).

ACADEMIC ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES
UI is committed to providing an educational experience that is accessible to all students. A student may request academic accommodations for a disability (such as a mental health, attention, learning, vision, and a physical or health-related condition) through the Student Disability Services (SDS) office. The student is responsible for discussing specific accommodations with the instructor. Note that accommodations are not granted retroactively but from the time of the student’s request to the instructor onward; additionally, accommodations must be requested at least two weeks in advance of the related assignment or exam (https://sds.studentlife.uiowa.edu/).

CLASS RECORDINGS: PRIVACY AND SHARING
Course lectures and discussions are sometimes recorded or live-streamed. These are only available to students registered for the course and the intellectual property of the faculty member. These materials may not be shared or reproduced without the explicit written consent of the instructors. Students may not share these recordings with those who are not enrolled in the course; likewise, students may not upload recordings to any other online environment. Doing so is a breach of the Code of Student Conduct and could be a violation of the Federal Education Rights and Privacy Act (FERPA); also see https://dos.uiowa.edu/policies/code-of-student-life/.
COMMUNICATION: UI EMAIL
Students are responsible for all official correspondences sent to their UI email address (uiowa.edu) and must use this address for any communication with instructors or staff in the UI community (Operations Manual, III.15.2). Emails should be respectful and brief, with complex matters addressed during the instructor’s drop-in hours, for example. Faculty are not expected to answer email after business hours or during the weekends.

COMPLAINTS ABOUT ACADEMIC MATTERS
Students with a complaint about a grade or a related academic issue should first visit with the instructor and then with the course supervisor (if one is assigned), and next with the Chair of the department or program offering the course. If not resolved, students may bring their concerns to the College of Liberal Arts and Sciences: https://clas.uiowa.edu/students/handbook/student-rights-responsibilities.

FINAL EXAMINATION POLICIES
The final exam schedule is published during the fifth week of the fall and spring semesters or on the first day of summer classes; students are responsible for knowing the date, time, and place of their final exams. Students should not make travel plans until knowing this information. A student with exams scheduled on the same day and time or who have more than two final exams on the same day should visit this page for how to resolve these problems by the given deadline: https://registrar.uiowa.edu/makeup-final-examination-policies. No exams may be scheduled the week before finals; some exceptions, however, have been made for labs, language courses, and off-cycle courses (https://registrar.uiowa.edu/final-examination-scheduling-policies).

FREE SPEECH AND EXPRESSION
The University of Iowa supports and upholds the First Amendment protection of freedom of speech and the principles of academic and artistic freedom. We are committed to open inquiry, vigorous debate, and creative expression inside and outside of the classroom. Visit Free Speech at Iowa for more information on the University’s policies on free speech and academic freedom (https://freespeech.uiowa.edu/).

HOME OF THE COURSE
The College of Liberal Arts and Sciences (CLAS) is the home of this course, and CLAS governs the course’s add and drop deadlines, the “second-grade only” option (SG0), and other undergraduate policies and procedures. Different UI colleges may have other policies or deadlines. See https://clas.uiowa.edu/students/handbook. Questions? Contact CLAS at clasps@uiowa.edu or 319-335-2633.

MENTAL HEALTH. Students are encouraged to seek help as a preventive measure or if feeling stressed or overwhelmed. Students should talk to their instructors for guidance with specific class-related concerns and are encouraged to contact University Counseling Service (UCS) at 319-335-7294 during regular business hours to schedule an appointment. UCS offers group and individual therapy as well as counseling for couples about relationships while making referrals to other resources (https://counseling.uiowa.edu/). Student Health can also address related concerns (https://studenthealth.uiowa.edu/). These visits are free to students. After hours, students are encouraged to call the Johnson County Community Crisis Line at (319) 351-0140 or dial 911 in an emergency.

NONDISCRIMINATION IN THE CLASSROOM
The University of Iowa is committed to making the classroom a respectful and inclusive space for people of all gender, sexual, racial, religious, and other identities. Toward this goal, students are invited in MyUI to optionally share the names and pronouns they would like their instructors and advisors to use to address them. The University of Iowa prohibits discrimination and harassment against individuals based on race, class, gender, sexual orientation, national origin, and other identity categories indicated by the University’s Human Rights policy. Contact the Office of Equal Opportunity and Diversity at https://diversity.uiowa.edu/division/office-equal-opportunity-and-diversity-eod.

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 are expected to conduct themselves in a manner that maintains an environment free from sexual harassment and sexual misconduct. Those experiencing sexual harassment are strongly encouraged to report the incidents and to seek help (https://osmrc.uiowa.edu/).