The purpose of this course is to arm students with a thorough understanding of the concepts of organic chemistry and how these concepts are employed in chemical reactions and biological settings. This course relies on a strong background in general chemistry and Organic Chemistry I (CHM 231), and students will be expected to work outside of class to build on these skills as the course progresses. The course is fast-paced, and successful students should apply themselves to daily studying.

Students who finish CHM 231/232 should be able to:

- Draw (using straight line, wedge-dashed line, and Lewis structures) organic compounds and name them.
- Predict structures of molecules using first principles (octet rule) and nomenclature.
- Predict chemical reactivity based on your knowledge of bond strength, electronegativity, and acid-base chemistry.
- Relate chemical structure to its thermodynamic and kinetic stability.
- Utilize physical data (solid, liquid, gas, pKa, etc.) to explain chemical behavior.
- Illustrate and explain reaction outcomes using electron-pushing mechanisms (double headed arrows) to show how bonds are most likely made and broken over the course of a reaction.
- Analyze and Interpret NMR, IR, and Mass Spectra to determine molecular structure.
- Design and evaluate syntheses of organic compounds.

Required Textbook: Klein 4th Edition

- Loose-leaf (purchase): ISBN 9781119659594, $97 net to the bookstore

WileyPlus is mandatory for our course. This semester Wiley has given us free access. On Wileyplus, adaptive homework and regular homework assignments will be posted. Wileyplus is an essential tool for preparing you for upcoming exams. Please view the website to take advantage of all the learning tools. Wileyplus has an online textbook, study tools, practice problems and solutions. A link to a flyer is posted on Oaks under the tab ‘Getting Started’. Inside the pdf you will obtain the class code and instructions. A video is also posted on Oaks to illustrate how wileyplus works.

Molecular modeling kit is recommended for stereochemistry and can be purchased on amazon.com for around twenty dollars.

Chemdraw is recommended. Chemdraw helps you name functional groups, introduces you to molecular representation, 3-D imaging, and fragmentation for MS, to name a few. Chemdraw can be downloaded for free from Chemistry website; https://chemistry.cofc.edu/current-students/resources/index.php or appsanywhere: https://appsanywhere.cofc.edu/login

Marvin Sketch is a software that Wiley uses. In wileyplus you will need to draw structures and mechanisms, for more practice please download Marvin Sketch: https://docs.chemaxon.com/display/Iltseuropium/marvinsketch-downloads.md
Grading: Assessment will occur through the following mechanisms, and grades will be assigned according to the scale below.

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Grade Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weekly Quizzes</td>
<td>10%</td>
<td>A = 93-100, A- = 90-92, B+ = 87-89, B = 83-86, B- = 80-82</td>
</tr>
<tr>
<td>Homework (Adaptive/Regular)</td>
<td>20%</td>
<td>C+ = 77-79, C = 73-76, C- = 70-72, D+ = 67-69</td>
</tr>
<tr>
<td>Exam 1</td>
<td>15%</td>
<td>D = 63-66, D- = 60-62, F&lt;60</td>
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<tr>
<td>Exam 2</td>
<td>15%</td>
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<tr>
<td>Exam 3</td>
<td>15%</td>
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<tr>
<td>Exam 4</td>
<td>15%</td>
<td></td>
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<tr>
<td>ACS Final</td>
<td>10%</td>
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</tr>
</tbody>
</table>

Extra point quizzes

Grades will be posted on our Oaks page

Attendance is strongly encouraged! This class is often labeled ‘the thorn in your flesh’. However, if you study daily and work as hard as I plan to work for you, you will do awesome in the course!

Laptops may be used in class as I will post on Oaks the lecture notes via PowerPoint.

E-mail- please check often

Make-up:
Extra credit quizzes, there are no make-ups. If you miss a quiz or exam a legal document from a doctor must be presented. If you have death in your family, you must provide an obituary.

Academic Integrity: Many instances of academic dishonesty arise from students feeling overwhelmed in a course or by external pressures. College can be an overwhelming time, and if you are feeling this way about my class, please contact me! I would much rather work with a student at office hours and/or by appointment than see them compromise their academic values. The results are upsetting for all involved. As such, I will strictly enforce academic honesty and integrity in all facets of this course. The course is conducted under the Honor Code of the College of Charleston. You are responsible for reading, understanding, and strictly adhering to this policy, as am I. For more information, please see the College’s policy information at http://deanofstudents.cofc.edu/policies-and-procedures/honor-code-and-code-of-conduct.php and the Department of Chemistry and Biochemistry’s policy at http://chemistry.cofc.edu/about/policies/index.php.

Quizzes (extra points for exam) = these quizzes will be given before each exam and will be used as extra points added to your final exam score. The quizzes will be posted on our Oak page.

Weekly Quizzes
Weekly quizzes will be given as an indicator. The quizzes will determine if your study methods are working before test time. At least one quiz will be dropped. The quizzes will be posted on our Oak page.

Homework
Homework, please use it as an additional study tool. You will have two types of homework style. One, is adaptive geared for individual learning. Adaptive learning will be due after lecture section discussions in each chapter. Two, regular homework, this homework will be due the night before the exam. You will have two attempts to complete this set of homework. Please pay attention to due dates for homework assignments. One homework assignment will be dropped.

Exams
We will have four (seated) exams for the semester during our scheduled class time. Each exam will approximately cover two to three chapters. Chapter 23, our organometallic chapter, you will turn in a short 1-2 pp document or no more than 5 slides PowerPoint for a drug that is designed through olefin metathesis. What is the mechanism of action (target) and what disease(s) does it treat.

Final Exam
A cumulative American Chemical Society National Standardized final exam (ACS) is given at the end of semester and can be used as a replacement score for a low-test grade.
TENTATIVE SCHEDULE

Schedule and content for the course are tentative and may be changed at the instructor's discretion. If there is a covid-19 break-out in class, we will quarantine for 5 days, depending on the number of infected students and have class virtually. Please follow guidelines that are associated with your vaccination status, as indicated on page 4. If campus closes due to campus wide covid-19, we will have classes online. You will need a laptop and high-speed internet to be a part of the virtual class setting. Lecture videos will be uploaded, synchronized problem/review session will be conducted weekly and virtual office hours.

<table>
<thead>
<tr>
<th>Dates</th>
<th>Subject Matter</th>
<th>Textbook Reading</th>
<th>WileyPlus Adaptive HW due at 11:59 PM</th>
<th>WileyPlus Regular HW due at 11:59 PM</th>
<th>Weekly Quizzes online due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 10, 12 &amp; 14</td>
<td>structures and properties of alcohols, preparation of alcohols (review) preparation of alcohols: (sub.&amp;add-Review), Preparation of alcohol: Reduction &amp; Grignard Reagents</td>
<td>sections 12.1-12.4, 12.6</td>
<td>1.16.22</td>
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<td>1.16.22</td>
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<tr>
<td>Jan. 17</td>
<td>MLK Holiday</td>
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<tr>
<td>Jan. 24, 26 &amp; 28</td>
<td>Introduction to ethers, structure &amp; properties, preparation of ethers(review), reaction of ethers, preparation of epoxides(review)</td>
<td>sections 13.1, 13.3-13.6, 13.8</td>
<td>1.30.22</td>
<td></td>
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<tr>
<td>Jan. 31, Feb. 2 &amp; 4</td>
<td>Stereoselectivity of epoxide preparation, ring opening of epoxides, thioles &amp; sulfides</td>
<td>Sections 13.9-13.12, review, (exam 1 2.4.21)</td>
<td>2.3.22</td>
<td>2.3.22 [extra pt quiz due 6 pm]</td>
<td>1.30.22</td>
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<tr>
<td>Feb. 7, 9 &amp; 11</td>
<td>Conjugated Pi Systems and Pericyclic Rxs, kinetic vs thermo (1.2 and 1.4 addition)</td>
<td>Sections 16.1-16.2, 16.4-16.5, 16.10</td>
<td>2.13.22</td>
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<tr>
<td>Fe. 14, 16 &amp; 18</td>
<td>Continue w/Pericyclics, UV-Vis Spect. Aromaticity; Nomenclature Benzene and Derivatives, synthesis with Benzene and derivatives, spectroscopy of aromatic cmpds</td>
<td>Sections 16.7-16.11, 17.1-17.5, 17.7-17.8, 17.6 (Review)</td>
<td>2.20.22</td>
<td>2.19.22</td>
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<tr>
<td>Fe. 21, 23 &amp; 25</td>
<td>Electrophilic &amp; Nucleophilic Aromatic Substitution reactions; ortho, meta and para directors, Elimination &amp; Addition to a pi system</td>
<td>Sections 18.1-18.6, 18.7-18.9</td>
<td>2.27.22</td>
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<tr>
<td>Feb. 28, Mar. 2 &amp; 4</td>
<td>Carbonyl chemistry of aldehydes and ketones, nucleophilic addition</td>
<td>continue w/ Chap. 18, sections 18.10-18.14 (review), (Exam 2 March 4)</td>
<td>3.3.22</td>
<td>3.3.22 [extra pt quiz due 6 pm]</td>
<td>3.1.22</td>
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<tr>
<td>Mar. 6-12</td>
<td>SPRING BREAK</td>
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<tr>
<td>Mar. 14, 16 &amp; 18</td>
<td>Intro to ketones &amp; aldehydes; nucleophilic addition</td>
<td>19.1-19.2, 19.3 (review); 19.4-19.6</td>
<td>3.20.22</td>
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<tr>
<td>Mar. 28, 30, Apr. 1</td>
<td>Alpha carbon chemistry, aldol reaction; synthetic strategies</td>
<td>Sections 21.3-21.7, review, (Exam 3 Apr. 1)</td>
<td>3.31.22</td>
<td>3.31.22 [extra pt quiz due 6 pm]</td>
<td>3.27.22</td>
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<tr>
<td>Apr. 4, 6 &amp; 8</td>
<td>Carboxylic Acid &amp; Derivations, properties and synthesis; preparation of esters, acid chlorides &amp; anhydrides</td>
<td>sections 20.2-20.4, 20.5-20.9, 20.1-20.12</td>
<td>4.10.22</td>
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<tr>
<td>Apr. 11, 13 &amp; 15</td>
<td>Amidation, SPPS (solid phase peptide synthesis), intro to amines, structure and properties, preparation and synthesis</td>
<td>Sections 25.1-25.3, 22.3-22.5, 22.8-22.9, 22.12, 22.13 (review)</td>
<td>4.16.22</td>
<td>4.14.22</td>
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<tr>
<td>Apr. 18, 20 &amp; 22</td>
<td>Organometallics</td>
<td>Section 23.2-23.3 (review), 23.4-23.6, 23.8-23.9 (April 18 Exam 4 CH 20 &amp; 22)</td>
<td>4.17.22</td>
<td>4.17.22 [extra pt quiz due 6 pm]</td>
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<tr>
<td>Apr. 25</td>
<td>no class</td>
<td>Literature Search: Drug Design thru Olefin Metathesis, mechanism &amp; treatment Microsoft word (1-2 pp) or 5 slides PowerPoint due by 11:59 PM</td>
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<td>Apr. 26</td>
<td>Reading Day</td>
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<td>Apr. 27</td>
<td>Section 02 1-3 pm ACS Final Exam</td>
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<tr>
<td>Apr. 30</td>
<td>Section 01 1-3 pm ACS Final Exam</td>
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COVID-19 Reminders:
Respect for Others
For the health and safety of yourself and those around you, you are required to wear a face-covering over both your nose and mouth while inside all campus buildings (you should do the same inside other public buildings). This mask should fit well; there should not be gaps anywhere between your face and the mask. Also remember that students, faculty, and staff should not come to campus when they feel unwell.

- **COVID-19 positive students, faculty and staff both on and off-campus (regardless of vaccination status):**
  - 5-day isolation away from campus required.
  - Your isolation period is determined from the date of the positive COVID-19 test. Day 1 of isolation begins the day after the positive test date.
  - If you have no symptoms after five days and you are without fever for 24 hours and not on fever-reducing medicines, you may return to campus but, **MUST** wear a mask while around others for an additional five days.

- **Students, faculty and staff that have close contact with an individual who has tested positive:**
  - For those who have received their initial COVID-19 vaccination series recently (within six months for Pfizer and Moderna and within two months for Johnson and Johnson) or who have received their booster:
    - No quarantine required.
    - Masks are required for 10 days in public spaces following exposure.
    - Monitor yourself for COVID-19 symptoms. If symptoms develop, stay home, and seek testing.
    - If asymptomatic, testing is encouraged on day 5 or after, but is not required.
  - For those who have not completed their initial COVID-19 vaccination series or for those who received their initial vaccination series some time ago (more than six months out from their second Pfizer or Moderna shot or more than 2 months after the J&J vaccine and not yet boosted):
    - Required to complete 5-day quarantine away from campus; if asymptomatic on day 5, you may return to campus and adhere to strict masking around anyone for another 5 days.
    - Monitor yourself for COVID-19 symptoms. If symptoms develop, stay home and seek testing.
    - **Quarantine expectations** will be shared with close contacts by the College’s contact tracing team.

The CDC’s guidance has changed over the course of the pandemic as new data and new variants have emerged; check the latest info for yourself: https://www.cdc.gov/coronavirus/2019-ncov/if-you-are-sick/quarantine.html and find CofC’s info here: https://cofc.edu/back-on-the-bricks/ The easiest thing to do is to contact Student Health about your particular situation to get their guidance: https://studenthealth.cofc.edu/ If you cannot attend class due to a COVID-related situation, contact your instructors for help in making up assignments.

Online Classes Only
It is safe for you to attend online classes from home during both quarantine and isolation. If you are very ill or hospitalized and cannot attend online classes, notify your instructors for help in making up assignments.

Resources
CofC Student Health requests that you inform them of positive COVID testing results and any close contact with someone who is COVID-positive, so they can monitor the campus health situation and give you personalized healthcare. CofC holds regular free testing events on campus for anyone in the campus community to get tested for COVID infection. CofC also holds free vaccination events on campus for all students. Vaccination remains the best way to protect yourself, your family, and those around you.
Resources for Students

For help with stress or anxiety that you may be experiencing, the University Counseling Center can be a valuable resource. counseling.cofc.edu or call: 843-953-5640 or e-mail: counseling@cofc.edu

Students with Disabilities: Please contact me and stop by my office hours (as early as possible in the semester) if you have been approved to receive accommodations through SNAP. Please consult the Center for Disability Services website for more information:
http://disabilityservices.cofc.edu

Center Student Learning: CLS will provide academic coaching and peer tutoring lab services. Please take advantage of your student services if you are struggling with a subject matter(s). https://csl.cofc.edu/
Center for Academic Performance and Persistence (CAPP): useful source for your academic questions or concerns https://capp.cofc.edu/

Student Instructional Technology Services: If you need help with software or IT issues.
https://blogs.cofc.edu/sits/

Other helpful links:
Office of Diversity & Inclusion: https://diversity.cofc.edu/
LGBTQ Center: https://safezone.cofc.edu/
Multicultural Student Programs and Services: https://msps.cofc.edu/
Early Child Development Center:
https://www.facebook.com/ecdccofc/?ref=aymt_homepage_panel

Human Rights and Improper Interactions with others, etc. https://eop.cofc.edu/

Tentative Academic Calendar for the semester (Covid-19 controls our destiny unfortunately)
https://registrar.cofc.edu/calendars/ac-2022spring.php
Please view for important date(s) such as the last date for Add/Drop a class. Last day to withdraw from a class.