The purpose of this course is to arm students with a thorough understanding of the basic concepts behind organic chemistry and how these concepts are employed in chemical reactions. This course relies on a strong background in general chemistry, 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 will apply themselves to daily studying.

**After completing General Chemistry courses, students should be familiar with concepts below:**
- Able to describe atomic theory and structure and relate electronic structure to the periodic table.
- Able to determine electronic structure and relate it to chemical and physical properties.
- Able to draw Lewis structures and resonance forms.
- Able to predict molecular geometries using VSEPR and describe bonding in terms of hybrid orbitals.
- Able to draw simple MO diagrams and use them to predict relative stabilities and physical properties.
- Able to rank compounds by physical properties (bp, mp,…) by looking at structures and determining IMF’s.

  Able to calculate stoichiometric relationships: mole ratios, limiting reagents, percent composition…
  Able to solve thermochemical problems involving the concepts of enthalpy, calorimetry.
- *Indicates importance in CHM 231 lecture.

*We will have an overview of some of important topics but as stated above please review material independently.*

**After completing CHM 231 students should be able to:**
- Describe atomic theory and structure and relate electronic structure to the periodic table.
- Determine electronic structure and relate it to chemical and physical properties.
- Draw Lewis structures and resonance forms and electron-pushing mechanisms for reactions.
- Understand and predict equilibria in Bronsted Acid-Base reactions.
- Predict and draw molecular and simple MO diagrams and use them to predict relative stabilities and physical properties.
• Rank compounds by physical properties (bp, fp, …) by looking at structures and determining IMF’s.
• Draw reaction coordinates/E diagrams based on data and relate the diagrams to reaction outcomes and rates.
• Identify conformational and stereochemical relationships in molecules.
• Use spectroscopic data (IR, MS, NMR) to identify structures.
• Predict the products and be able to draw free response reaction mechanisms for reactions of alkyl halides, alkenes, alkynes and radicals.
• Be able to utilize stereochemistry and conformational understanding to predict the outcome of chemical reactions of these same functional groups.
• Be able to use reactions of these functional groups in multi-step syntheses.

Grading: Assessment will occur through the following mechanisms, and grades will be assigned according to the scale below.

Exam 1 15%
Exam 2 15%
Exam 3 15%
Exam 4 15%
Final Exam 10%
Homework 20%
Quizzes 10%
Extra Point quizzes

Grading scale
A 93-100 %    B- 80-82%    D+ 67-69%
A- 90-92 %    C+ 77-79 %    D 63-66%
B+ 87-89 %    C 73-76 %    D- 60-62%
B 83-86 %    C- 70-76 %    F <60%

Grades will be posted on our Oaks website

extra point quizzes will be given to aid in the normalization of our class average exam grades. The quizzes can help your grade if you fall below the class average exam grade. Quizzes will be given on https://my.cofc.edu/cp/home/displaylogin: MyCharleston, click Oaks (acorn symbol).

Homework is a necessity in passing this course. I will give you homework through our Oaks website. Please check your syllabus and oak calendar for due dates and times. One homework grade will be dropped.

Quizzes are used to aid you in preparation for your upcoming exam(s). One quiz grade will be dropped.

Exams will be given at our normal class schedule. There will be three exams. An extra credit quiz will be given before each exam on Oaks.
Final Exam: A standardized first-semester ACS Organic Chemistry Exam will be given. This exam will be administered to all sections of first-semester organic chemistry.

**Required Textbook:** Klein 4th Edition
- Loose-leaf (purchase): ISBN 9781119659594, $97 net to the bookstore

A molecular modeling kit is recommended and can be purchased on amazon.com for around twenty dollars. There is a better kit for the cycloalkane chapter; however, it is around fifty dollars. **Chemdraw** is recommended. I will use it quite often. It can be downloaded for free from [http://chemistry.cofc.edu/current-students/resources/index.php](http://chemistry.cofc.edu/current-students/resources/index.php) with CofC email. There are also useful apps on: [https://appsanywhere.cofc.edu/login](https://appsanywhere.cofc.edu/login)

**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](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](http://chemistry.cofc.edu/about/policies/index.php).
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-up in class, we will quarantine for 10 days or indefinitely, depending on the number of infected students and have class virtually.
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 (MWF)</th>
<th>Subject Matter</th>
<th>Textbook Reading</th>
<th>Weekly quizzes on-line due dates @11:59 PM</th>
<th>Homework due dates at 11:59 PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aug. 25, 27</td>
<td>introductions, review goals of class and syllabus; Review: electron configuration, lewis dot structures, VSEPR &amp; MO Theory, polarity and IMF’s</td>
<td>Chap. 1 Sections 1.2-1.13</td>
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<tr>
<td>Aug. 30, Sept. 1 &amp; 3</td>
<td>Review: electron configuration, lewis dot structures, VSEPR &amp; MO Theory, polarity and IMF’s; Drawing Structures &amp; Fx Groups, Resonance &amp; Curve arrows electron flow</td>
<td>Chap. 1 Sections 1.2-1.13; Chap. 2; 2.1-2.13</td>
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<tr>
<td>Sept. 6, 8 &amp; 10</td>
<td>Resonance &amp; Curve arrows electron; Intro IR</td>
<td>Chap. 2.11-2.13; Chap. 14; 14.1-14.7</td>
<td>9.5</td>
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<tr>
<td>Sept. 13, 15 &amp; 17</td>
<td>Intro IR &amp; MS</td>
<td>Chap. 14; 14.4-14.10</td>
<td>9.12</td>
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<tr>
<td>Sept. 20, 22 &amp; 24</td>
<td>MS, Catch-up &amp; Review</td>
<td>Chap. 14; 14.11-14.12, 14.14</td>
<td>extra point quiz due date; 9.26 @ 6 pm</td>
<td>9.26</td>
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<tr>
<td>Sept. 27</td>
<td>Exam 1</td>
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<tr>
<td>Sept. 29, Oct. 1</td>
<td>Bronsted and Lewis Acids &amp; Bases, pH, predicting strength of acidity &amp; basicity, equilibrium</td>
<td>Chap. 3; 3.1-3.6, 3.10</td>
<td>Oct. 3</td>
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<tr>
<td>Oct. 4, 6 &amp; 8</td>
<td>equilibrium, Nomenclature of Alkanes &amp; stability of alkanes</td>
<td>Chap. 3; 3.10; Chap. 4; 4.1-4.4, 4.6</td>
<td>Oct. 15</td>
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<tr>
<td>Oct. 11</td>
<td>Cyclic Alkanes &amp; conformation, Cyclohexane conformation; mono and di substituted cis/trans cyclohexane</td>
<td>Chap. 4; 4.9-4.11</td>
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<tr>
<td>Oct. 13 &amp; 15</td>
<td>chirality/enantiomers/optical activity</td>
<td>Chap. 5; 5.1-5.3</td>
<td>Oct. 17</td>
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<tr>
<td>Oct. 20</td>
<td>chirality/enantiomers/optical activity &amp; Review</td>
<td>Chap. 5; 5.5-5.6, 5.11</td>
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<tr>
<td>FALL BREAK</td>
<td>NO CLASSES OCT. 18-19</td>
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<tr>
<td>Oct. 22</td>
<td>Exam 2</td>
<td>extra point quiz due date; 10.21 @ 6 pm</td>
<td>10.21</td>
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<tr>
<td>Nov. 1, 3 &amp; 5</td>
<td>SN2, SN1, E1 &amp; E2; radical chemistry 10.2-10.3, 10.6-10.7, 10.11: 10.12 (if time permits)</td>
<td>Chap. 7; 7.1-7.12</td>
<td>Nov. 9</td>
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<tr>
<td>Nov. 8, 10 &amp; 12</td>
<td>Intro NMR Spectroscopy, H-NMR splitting and integration</td>
<td>Chap. 15; 15.1-15.7</td>
<td>Nov. 16</td>
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<td>Nov. 15</td>
<td>C-NMR</td>
<td>Chap. 15; 15.9-15.12</td>
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<td>Nov. 19</td>
<td>Exam 3</td>
<td>extra point quiz due date; 11.18 @ 6 pm</td>
<td>11.18</td>
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<tr>
<td>Nov. 22 &amp; 24</td>
<td>alkenes cis/trans or E/Z; addition Reaction with Alkenes</td>
<td>Chap. 8; 8.1, 8.5-8.6, 8.8-8.10, 8.13</td>
<td>*12.5</td>
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<tr>
<td>Nov. 25 &amp; 26</td>
<td>Thanksgiving no classes</td>
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<tr>
<td>Nov. 29 &amp; Dec. 1</td>
<td>Alkylne Reaction; Chap. 11: review chapter 11.4-11.6 (if time permits)</td>
<td>9.3-9.5, 9.7, 9.9-9.10;</td>
<td>*12.5</td>
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<tr>
<td>Dec. 3</td>
<td>Exam 4</td>
<td>extra point quiz due date; 12.02 @ 6 pm</td>
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<tr>
<td>Dec. 6</td>
<td>Reading Day</td>
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<td>Dec. 10 (8-10 am)</td>
<td>MWF (10-1050 am)</td>
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<tr>
<td>Dec. 8 (1-3 pm)</td>
<td>MWF (11-1150 am)</td>
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</table>

* Optional homework
**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.

**Close Contacts and Infection**
Anyone with known contact with someone who is infected with COVID is required to follow CDC and CofC guidance, which states that unvaccinated people quarantine themselves away from others for 10-14 days after the last known contact and additionally get tested (negative test results do not eliminate the need to quarantine), while vaccinated people monitor themselves for symptoms and, if they become symptomatic, begin quarantine and testing. Additionally, per the CDC, fully vaccinated people should get tested 3-5 days after their exposure, even if they don’t have symptoms, and wear a mask indoors in public for 14 days following exposure or until receiving a negative test result.

- Students living in the same household as someone infected with COVID will need to consult Student Health on the length of their quarantine. If a new member of the household becomes sick, they will need to restart their quarantine.
- Anyone who is sick should be tested for COVID and, upon receiving a positive test result, isolate from others for at least 10 days, regardless of vaccination status. Consult Student Health for whether you can come out of isolation after 10 days.

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](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/](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/](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](http://counseling.cofc.edu) or call: 843-953-5640 or e-mail: [counseling@cofc.edu](mailto: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](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/](https://csl.cofc.edu/)

Center for Academic Performance and Persistence (CAPP): useful source for your academic questions or concerns [https://capp.cofc.edu/](https://capp.cofc.edu/)

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

Other helpful links:
Office of Diversity & Inclusion: [https://diversity.cofc.edu/](https://diversity.cofc.edu/)
LGBTQ Center: [https://safezone.cofc.edu/](https://safezone.cofc.edu/)
Multicultural Student Programs and Services: [https://msps.cofc.edu/](https://msps.cofc.edu/)
Early Child Development Center: [https://www.facebook.com/ecdccofc/?ref=aymt_homepage_panel](https://www.facebook.com/ecdccofc/?ref=aymt_homepage_panel)
Human Rights and Improper Interactions with others, etc. [https://eop.cofc.edu/](https://eop.cofc.edu/)

Tentative Academic Calendar for the semester (Covid-19 controls our destiny unfortunately) [https://registrar.cofc.edu/calendars/ac-2021fall.php](https://registrar.cofc.edu/calendars/ac-2021fall.php)
Please view for important date(s) such as the last date for Add/Drop a class. Last day to withdraw from a class.