Instructor: F.J. Heldrich  
Room: SSMB 320 office, SSMB 343 lab  
Phone: 953-5515  
Email: heldrichr@cofc.edu

Office Hours: Available by email, by appointment or during designated period, as indicated below

FJH Schedule:  
MWF, 9 – 9:50 am, CHEM 231 Lecture, Room 252 RSS  
MWF, 10-10:50 am, CHEM 231 Lecture, Room 252 RSS  
T, 12:00 – 3:00 pm, CHEM 231 Laboratory, Room 109 SSMB

Office Hours: MWF, 11:15 am – 12:15 pm; TR 10:15 – 11:15 am  
If not in lecture or lab, I’ll be generally available between 10 am and 4:30 pm.  
If I am not in my office (Room 320), please check my lab (Room 343).  
I am also available by email. No chemistry related questions will be answered after 5 pm the weekday before a test or exam.

Final Exam:  
Section 001, MWF 9 am: Friday, April 29th, 8 – 11 am  
Section 002, MWF 10 am: Monday, April 25th, 8 – 11 am

Required Text: Smith, 4e, Organic Chemistry, McGraw Hill.  
The link to the publisher’s e-access for this course is provided below:  
https://connect.mheducation.com/class/heldrich-spring-2016-231

Instructional Objectives: The goal of this course is to help you learn fundamental principles of organic chemistry to serve as the basis for further study in Chemistry 232/232L. The topical coverage will include materials and concepts as described in Chapters 1-13, and 15 of the required text and materials and concepts from the CHEM 111-112 sequence.

The successful student is expected to:

- Interpret and analyze structural formula and resonance characteristics of common functional groups
- Draw and interpret general features of curved arrow notations that illustrate mechanistic processes for common organic reactions
- Use IUPAC and common nomenclature for alkanes, alkenes, alkynes, alkyl halides and alcohols
- Draw and interpret three dimensional structures for all types of isomers of organic compounds
- Define and use fundamental concepts associated with acid-base, thermodynamic, kinetic and structural theories as they relate to processes associated with organic chemistry
- Evaluate knowledge and principles about organic reactions and reactivities to make reasonable predictions about likely outcomes when presented with related chemistry
- Deduce, design and evaluate retrosynthetic schemes including functional group transformations
**Co-Pre-requisite Policy:** Both Chemistry 112 and 112L are pre-requisites of this course, but the knowledge from Chemistry 111/111L is equally or even perhaps more essential. Chemistry 231L is a co- or prerequisite of this course. If you choose to withdraw from either Chemistry 231 or 231L, you must withdraw from both courses. If you are repeating the lecture and have previously passed the laboratory course, you do not need to retake the laboratory.

**Attendance Policy:** Attendance is required.

**Grade Scale:**

100-93, A; 92-90, A\(^{+}\); 89-87, B\(^{+}\); 86-83, B; 82-80, B\(^{-}\); 79-77, C\(^{+}\); 76-73, C; 72-70, C; 69-67, D\(^{+}\). 66-63, D; 62-60, D\(^{-}\); <60, F

**Grade Scheme:** There will be four in class tests covering new material and all previously covered material, i.e., all tests are cumulative. The final exam will be the nationally standardized ACS examination for the first semester of the year-long introductory organic chemistry lecture/lab sequence. Tentative test dates, which are subject to change, are listed in the schedule. Each test will count 20% and the final exam 20% of the course grade. No late or make-up test will be given. In the event of an absence from a test, you will receive a grade of 0 for that missed test. Your exam grade will replace your lowest test grade for one test if doing so will improve your average. It is recommended that you immediately acquire the ACS study guide if you are interested in using it to prepare for the final examination. [http://chemexams.chem.iastate.edu](http://chemexams.chem.iastate.edu)

**Testing Policy:** The tests will be timed and lack of time may be a factor on the test performance for some individuals. Students who qualify for extra time through the SNAP office must follow the SNAP office procedures. The tests may include multiple choice, short answer, matching, transformation, mechanism and synthesis type questions. No electronic devices will be allowed when taking the tests. **Please use a PENCIL when taking the tests.**

**Honor Code:** The standards of the College of Charleston Student Honor Code and Code of Conduct apply to this course. The Departmental Policy on Scientific Integrity, which each student is required to sign in the CHEM 231L course, also applies to this course.

For the Student Code of Conduct: [http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php](http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php)

For the Departmental Policy on Scientific Integrity: [http://www.cofc.edu/~chem](http://www.cofc.edu/~chem) (see link on departmental website)

**Tips for Success:** Introductory Organic Chemistry is a challenging course. One challenge will be your ability to recall and use your knowledge of Chem. 111-112. Your success in this course will ultimately depend upon your efficiency and effectiveness in how you study. Even if you have exceptional study skills, you should expect to spend about 2 hours each day M-R and about 8 hours on the weekend studying for this course. You should test your understanding by working problems. A general rule of thumb is that you should use an idea or concept at least seven
times in order to master it. Reading the text in this course is essentially the same as completing the Learn Smart assignments in advance of each lecture. After that, you should re-read sections of the text only as needed in order to figure out how to solve problems. Most students should expect to spend about 80% of the study time working problem, and only about 20% of the time on reading.

**On Working Problems:** The first goal of working problems is to learn, which is different from getting the correct answer. The second goal of working problems is to gain confidence in your ability, and for this purpose getting the correct answer is important. The third goal of working problems is to prepare for tests, which are designed to assess your leaning of core facts and the understanding of related principles. When working problems you need to develop the discipline and ability to:

1. identify facts or principles you do not know
2. identify what you need to know in order to correctly solve the problem.

**On Note-taking:** The pace of lecture will almost always be too fast for you to write down everything that is said. You do not need to catch every word. Your purpose in taking notes in class should be to help yourself to:

1. pay attention
2. identify areas of concern for further study after class

**Electronic Devices:** The use of electronic devices (iPads, laptops, cell phones, calculators, pages, etc.) is not allowed during tests or the final exam. Please put your electronic devices on silent/vibrate during lecture; turn them OFF during tests and the final exam.

**OAKS:** The syllabus, supplemental study guides, review material, answer keys, assignments, old tests, lecture handouts and other material for this course are all posted on OAKS. You can post or respond to questions on the course OAKS discussion page, and send email questions to the instructor or other students in the class through OAKS. Suggestions for OAKS content are always welcome.
### Tentative Schedule (Subject to Change as Announced in Class):

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**Final Exams:**

- **Test 2**
- **Test 4**
- **MWF 10 am**
- **MWF 9 am**

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*Syllabus for CoC Chemistry 231, Section 001 & 002, Spring 2016*
General Education Learning Objectives (approved Sept 16, 2006 by the Faculty Senate):*

Statement of Purpose for the Common Requirements of the College of Charleston’s Undergraduate Curriculum

Graduates of the College of Charleston complete a challenging course of study that will prepare them to function intelligently, responsibly, creatively, and compassionately in a multifaceted, interconnected world. While their work in the major of their choice will give students specialized knowledge and skills in that discipline or profession, the College’s core curriculum will equip each student, regardless of major, with crucial intellectual skills in analysis, research, and communication. Their coursework in the liberal arts and sciences will offer students a broad perspective on the natural world and the human condition, and will encourage them to examine their own lives and make useful contributions to their own time and place. Over the course of their undergraduate careers, all College of Charleston students will develop the following intellectual skills, areas of knowledge, and dispositions:

I. Research and Communication in Multiple Media and Languages, including proficiency in:
   - Gathering and using information (achieved by student use of library and web resources to supplement lecture and text)
   - Effective writing and critical reading; (very limited critical writing, substantial critical reading of text is required in this course)
   - Oral and visual communication (very visual course, students use, learn and communicate knowledge in a visual manual, active listening required, proper oral communication of questions or issued required)
   - Foreign language (not in the traditional sense, but learning organic is very much like learning a foreign language based on use of symbols, new words and new ways of thinking about the world around you)

II. Analytical and Critical Reasoning, including
   - Mathematical and scientific reasoning and analysis (students must exhibit proficiency with percentages, numbers with constrained values, substantial amounts of scientific reasoning and analysis)
   - Social and cultural analysis (not normally an aspect of this course)
   - Interdisciplinary analysis and creative problem-solving (relationship of core facts and principles to other sciences, most notably the structure and function of biologically relevant compounds in biology and fundamental application of quantum properties and vector force analysis from physics)

III. Historical, Cultural, and Intellectual Perspectives, including knowledge of
   - Human history and the natural world (much of the course is a historical survey of man’s growth in understanding of structure, bonding and the limits of the physical world we live in)
   - Artistic, cultural, and intellectual achievements (applications of organic to cultural advances, most notably in the area of color and art)
• Human behavior and social interaction (students are asked to think about chemical reactions anthropomorphically)
• Perspectives and contributions of academic disciplines (students should develop an appreciation for socioeconomic and cultural impact of organic chemistry on society)

IV. International and Intercultural Perspectives, gained by
• Knowledge of international and global contexts (learn about and appreciate the global development of organic)
• Experiencing, understanding, and using multiple cultural perspectives (not normally an aspect of this course)

V. Personal and Ethical Perspectives, including experiences that promote
• Self-understanding, curiosity and creativity (students are expected to derive creative solutions to problems with multiple possible solutions by application of learned material, students appreciation for limits of their ability are examined)
• Personal, academic, and professional integrity (students must learn to accept the challenge of the course, not to give in to temptations)
• Moral and ethical responsibility; community and global citizenship (students required to abide by departmental policy on Scientific Integrity)

VI. Advanced Knowledge and Skills in Major Area of Study, consisting of Skills and knowledge of the discipline
• Sequence of coursework that fosters intellectual growth (second in a sequence of courses required in Chemistry or Biochemistry, demands intellectual growth in study habits, enhances student appreciation of science)
• Coursework that extends and builds upon knowledge and skills gained from the core curriculum (builds on principals learned in required Chem. 111-112 sequence, and Math courses)
• The ability to transfer the skills and knowledge of the major into another setting (as related to understanding biology and application of principals of physics, critical thinking skills acquired in this course are applicable to all disciplines)

*core component of this course, secondary focus of this course, tangential benefit of this course, not a normal aspect of this course.