What are the basics?

Hi everyone! With the ever-changing circumstances surrounding the COVID19 pandemic, the information below is subject to change. Should any changes be made, you will be notified on both OAKS and via your College of Charleston email account. Thank you for your understanding, I’m excited to get this semester started!

- Dr. G.

Important note: If you have any concerns regarding the course format, the acquisition of course materials, course policies, or any other matter, please reach out to me via email – I want you in my class, and I want you to succeed. That matters to me and so do you.

Instructor: Michael W. Giuliano
Office: 320 School of Sciences and Mathematics Building (SSMB)
Email: giulianomw@cofc.edu
Office Phone: (843) 953-8099

Student hours: Monday and Wednesday from 11:00am-12:00pm, Tuesday from 12:30pm to 1:30pm. Student hours take place at my office and please know – they are for you! Please take advantage of them. Bring problems you’ve been working on, ask questions about lectures and in-class exercises, and we’ll go over it all.

Lecture: Chemistry 231, Section 01. CRN: 20157. Class meets Monday, Wednesday, and Friday from 10:00-10:50am in the School of Science and Mathematics Building, Room 127. This is the classroom whose door is outside the main atrium.

Co-requisite: You must be concurrently registered for or have previously taken Chemistry 231 laboratory (231L) and taken and received passing grades in Chemistry 112 and 112L.

Important dates during the semester: Monday, January 17th, 2022 – no class due to Martin Luther King Jr. holiday. Tuesday, January 18th, 2022 – last day to drop/add; Saturday, January 29th, Sunday, January 30th, Saturday February 12th, 2022 – storm makeup days; Monday, March 7th through Friday, March 11th, 2022 – no class due to Spring Break; Friday, March 25th, 2022 – last day for students to Withdraw with a grade of “W”; Monday, April 25th, 2022 – last day of classes; Tuesday, April 26th, 2022 – Reading Day.

Exams: All exams are taken as written tests in our normal classroom

Exam 1: Wednesday, February 2nd, 2022
Exam 2: Wednesday, February 25th, 2022
Exam 3: Monday, March 28th, 2022
Exam 4: Friday, April 22nd, 2022

Final Exam: Saturday, April 30th, 2022 from 1:00 pm to 3:00pm, in our normal classroom.


Optional texts:


ACS Organic Chemistry Study Guide (http://shopping.na1.netsuite.com/s.nl/c.3773982/sc.11/category.191/f) This is a highly recommended resource for both final exam preparation and cumulative study throughout the semester.
How do you earn your points in organic chemistry and what will you be learning?

In this course we begin your journey and training in organic chemistry, starting with fundamental concepts and molecular structure, building toward reactions of increasing mechanistic complexity and increasing usefulness in the context of building organic molecules. You may ask, as my best friend once did in college “I want to be a surgeon, why in the world do I need this?” Just as we consider first semester organic chemistry to be training for your mind, so then is this semester. A good surgeon must be able to make the proper incisions with the proper tools and in the proper order; a successful organic chemist makes the right bonds with the right reactions and in the right sequence to yield a target molecule. This course will also introduce you to various techniques in spectroscopy. These techniques changed the way science and medicine are carried out forever and every one of us has had our lives impacted positively by them. Quite literally you will learn to “see” molecules the way an organic chemist does!

Broadly speaking, organic chemistry itself forever transformed science and medicine. As soon as the field because a science of synthesis, organic chemists appreciated that they could begin attempting to build the molecules that compose and are produced by living organisms. They looked at the molecular space within the continuum that spans atoms all the way up to populations of organisms and ecosystems, and asked “What are living things made of? Can we make those substances? Can we make substances like them? How might we use such molecules?” By the early 20th century, Emil Fischer won the Nobel Prize for his work with nucleobases, carbohydrates, and stereochemistry, less than 80 short years after the field as we know it began. Less than a century later, Percy Julian was working out how to convert biomass into therapeutic steroids on industrial scales, Dorothy Crowfoot Hodgkin was uncovering the atomic structures of penicillin, vitamin B12, and insulin, and Linus Pauling was using the same logic that controls organic conformers to propose and describe secondary structure in polypeptides. Today, organic chemistry is at the root of every major pharmaceutical drug, it permeates daily life in the form of medicines, technology, and human biology. We will explore as much of it as we can, learning how to build molecules and why it matters. Welcome!

Student Learning Outcomes:

- Demonstrate basic communication skills within organic chemistry for example structure, nomenclature, mechanisms, reaction schemes
- Define and use fundamental concepts associated with physical organic chemistry
- Use foundational skills of organic reactions to predict organic reaction outcomes

Course Topics Outline:

- Chapter 1: Electrons, Bonds, and Molecular Properties
- Chapter 2 (part 1): Representations and Functional Groups
- Chapter 14: Infrared Spectroscopy and Mass Spectrometry
- Chapter 2 (part 2): Curved Arrows and Resonance
- Chapter 3: Acids and Bases
- Exam 1
- Chapter 4: Alkanes and Cycloalkanes
- Chapter 5: Stereoisomerism
- Chapter 6: Chemical Reactivity and Mechanisms
- Chapter 7: Alkyl Halides: Nucleophilic Substitution and Elimination Reactions
- Exam 2
- Chapter 7: Alkyl Halides: Nucleophilic Substitution and Elimination Reactions
- Chapter 15: Nuclear Magnetic Resonance Spectroscopy
- Chapter 8: Addition Reactions of Alkenes
- Exam 3
- Chapter 9: Alkynes
- Chapter 10: Radical Reactions
- Chapter 11: Synthesis (a very cumulative unit)
- Exam 4
**Graded Components:**

- **Exams:** Students will be given four midterm exams. Each midterm will be graded out of 100 points. If a student completes all of the midterm exams, then the final exam grade may replace their lowest exam score.

- **Graded Problem Homework and Book Problems:** In order to familiarize students with exam format and question types, written problem sets will be given out and collected approximately one week after they are assigned at the beginning of class. There will also be a weekly recap worksheet to be completed over each weekend to help summarize the week’s work and provide a warm up for working book problems. It is to be uploaded into each week’s dropbox.

  Book problems within each chapter and at the end of each chapter will be recommended. I encourage you all to have a separate notebook in which you solve problems during and after your reading of the text. Problem-solving this semester should be a continuous, almost daily exercise. The most successful students typically work through nearly all of the book problems. Students who do not work large numbers of problems are historically less successful. Your work on book problems will be uploaded into a weekly dropbox.

- **Final Exam:** The final is the American Chemical Society Organic Chemistry Exam and all sections will take it at the end of the semester. It will be weighted to 150 points (one and a half midterm exams). This means, even if things have gone up and down, you have a huge opportunity to improve your overall grade, made even bigger if you replace your lowest grade with your final exam score. It’s a full year, cumulative test of 70 multiple choice questions that you have 110 minutes to complete, and it is graded using a normalized to national statistics (this

- **Quizzes:** I may administer quizzes in a manner I feel necessary to gauge students’ grasp of the material, to track attendance, etc. If they happen, expect quizzes to be more common early in the semester. Quizzes will be incorporated into the homework grade.

- **Extra Credit:** Good news – there is extra credit on every single exam! I put about ~120 points of problems on your tests, only grade out of 100, and you can get up to a 105 on each test. Our course covers a lot of material, and does so in a lot of depth – writing a longer test lets a student show that they really know material while not having to be perfect.

**Final Grade Calculation:**

Option 1 – All exam scores are used.  
- 4 midterm exams = 400 points  
- Final exam = 150 points  
- Problem sets = 100 points

Option 2 – Final exam score replaces lowest score.  
- 3 highest midterms = 300 points  
- Final exam = 250 points  
- Homework = 100 points

650 points total for both options

**Grading Scale:** There will be no rounding of scores. A score of 92.99 remains an A-, an 89.99 remains a B+.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>93-100 %</td>
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<tr>
<td>A-</td>
<td>90-92 %</td>
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<tr>
<td>B+</td>
<td>87-89 %</td>
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<tr>
<td>B</td>
<td>83-86 %</td>
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<tr>
<td>B-</td>
<td>80-82 %</td>
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<tr>
<td>C+</td>
<td>77-79 %</td>
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<td>C</td>
<td>73-76 %</td>
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<tr>
<td>C-</td>
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<td>D+</td>
<td>67-69 %</td>
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<td>D</td>
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<td>D-</td>
<td>60-62 %</td>
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<td>F</td>
<td>&lt; 60 %</td>
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**What does an ideal week in Chem 231 look like?**

Here is an outline of a study pattern based on what many of my past successful students have told me worked for them. This is only a suggestion and by no means the only way to effectively study organic chemistry, but it does set you on a regular schedule of working with the material.

<table>
<thead>
<tr>
<th>Day</th>
<th>Tasks</th>
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<tbody>
<tr>
<td>Sunday</td>
<td>Read the sections in the book pertaining to Monday's lecture</td>
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<td></td>
<td>Do the in-text problems as you read in your problem-solving notebook</td>
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<td></td>
<td>Highlight the topics that seem particularly tough for you so you know to pay attention to them in lecture</td>
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<td>Monday</td>
<td>After class, review material and re-check old problems you've worked, especially ones that you got wrong.</td>
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<tr>
<td></td>
<td>Try a few back-of-chapter problems pertaining to the day's lecture material (which you should have already read in the text).</td>
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<tr>
<td>Tuesday</td>
<td>Same as Sunday</td>
</tr>
<tr>
<td>Wednesday</td>
<td>Same as Monday</td>
</tr>
<tr>
<td>Thursday</td>
<td>Same as Sunday</td>
</tr>
<tr>
<td>Friday</td>
<td>Same as Monday</td>
</tr>
<tr>
<td><strong>Weekends (Fri., Sat., Sun.)</strong></td>
<td>You'll want to have ~2 2-3 hour long intensive problem solving sessions (some need less, some need more) where you organize your notes from the week, then use them and your text as the primary references to which you refer as you finish up the back-of-chapter problems for all of the material covered from the week and complete your weekly recap worksheet.</td>
</tr>
</tbody>
</table>

**Some Comments on Problem-Solving and Checking your Answers.** While the number of problems you'll be doing (all of the in-text and back of chapter problems for a given chapter in a week) is high, there is most certainly a reason for it. The more different ways in which you experience course material, the more senses you engage while doing so (e.g. writing, speaking about it, seeing it, hearing it amongst your peers), the better you'll not only commit the specific material in front of you to long-term memory, the better you'll be able to apply it to the types of problems you'll encounter on written homework assignments and exams. However, you can defeat your own efforts if you check your answers the wrong way, so here is what I recommend:

1) Check your own answer, based on your understanding of the notes and text against the notes and text

2) Decide for yourself whether you are wrong or right - make a call.

3) Check the solution, and evaluate two things. First, obviously whether the answer in front of you is right, and second, and just if not more importantly, whether or not your call on the correctness of your answer was right. This is an exercise in metacognition - the evaluation of the state of your own knowledge. If both your call and your answer are right, see if you can do another problem on the same topic with the same result and move on. If your answer and your call are both wrong, try another and if you just can't get it, now you know what to ask about at peer mentoring, office hours, or in class. If your call is wrong in any case, review the material again and see if you can identify where you went astray with the material. If you can't, again, now you know what to ask about. **Do not** simply just look up the answers - that will give you a false sense of security.

I know this seems like a lot at first, and I know you'll all work very hard to do this (I really appreciate that), but as you get into a pattern of study you'll realize that you may be able to tailor how you study to your own preferences and needs. However you decide to proceed, the answer to doing well here is continuous engagement with the material and regular problem-solving practice.
What should we expect from each other?

Students from Me

- **Trust.** I trust you to complete your own work and to figure out a way through the material that is the best for you. I trust you to complete this course with the integrity and character I know you all have. I also trust that you will not come to class if you are exhibiting any kind of symptoms. You can trust me to do the same.
- **Compassion.** Our times are anything but normal. I am expecting us to have to operate with contingencies and you can expect that I will work with you should problems arise.
- **Respect.** You are all grown and intelligent individuals, and I will treat you as such. I will treat you as students who I know have other work on their schedules as well.
- **Help.** I will be your biggest champion in your efforts to learn organic chemistry, and I will do my best to help you learn how to study and master it.
- **Communication** – this is related to the above. I will always communicate with advance notice, and I will present multiple methods for you to contact me and/or pose questions on the material.
- **Enthusiasm.** I just **LOVE** this stuff!
- **Preparedness and Communication.** I have a plan for the entirety of the semester and nearly every contingency. Rest assured I will work my hardest to make sure you get the content and learning experience you need for the course.

Me from Students

- **Trust.** Trust that I have your best interests at heart in the design and execution of this class. Trust that there is specific, vetted purpose behind each component of the course. Trust that I will, in the event of any illness or symptoms, not come to class and communicate accordingly a contingency plan for online sessions.
- **Compassion.** Please be understanding as our current pandemic circumstances affect me and my family as well. Please be understanding of your peers.
- **Respect and Understanding for my time, and for that of your peers.** I will do my best to give you as much time as I can, but please understand there are other demands on my efforts and attention. Thank you very much for this. Your peers will also need my time too, and will also be under different circumstances than you – we will get through and flourish this semester together if we give each the respect and understanding we all deserve.
- **Communication.** Please communicate your questions/concerns to me early and often. Email is far and away the preferred choice for this.
- **Preparedness.** Read your book, work through the components of the course before class sessions, do the assigned work. This is a demanding class, I will not describe it as otherwise, and your preparation and dedication to a good schedule of working with the material is key to your success.
- **Timeliness.** I expect work to be submitted at the appropriate deadlines so that I can grade it and give you the feedback necessary to improve your learning this semester. That being said, I am understanding here.
What are our policies for this course?

**Attendance:** Attendance is strongly encouraged! Lectures may include material that is not in the text and you will be responsible for all material covered in lectures and in your text on exams and problem sets. You must take each exam as scheduled. I will not be recording attendance for grading purposes and the WA grade is not operative this semester. Given the challenges of our current time, I will have makeup material available should circumstances require it, however, I want to express that your attendance is part of the experience of the course. The learning of organic chemistry is a communal process where discussion and problem-solving and yes, being wrong sometimes (or even more than sometimes!), drive mastery. Your contributions to this matter, so please prioritize being there! Should I become concerned about a lack of keeping up with the course, I will reach out to you on a case-by-case basis.

**Building an inclusive learning environment:** Chemistry is for everyone and chemistry is carried out to magnificent heights by everyone. This is a classroom environment in the same spirit. Each and every one of you matters as an individual and I am so happy to have you as a part of my class. I welcome you to email me your name and gender pronouns this semester so that I can communicate with you as best as possible. With regard to answering questions in class or when we solve problems together, I hold mistakes in high regard in problem-solving – they are how we learn. I work different kinds of problems on my own to this day and am often wrong.

**Course etiquette:** We will all be communicating via online media and in text form via email, class documents, and discussion boards. Remember to maintain some professionalism in your interactions (I will do the same). Be forgiving please (of each other and me!) if something appears to be communicated in a way that may not have been intended or in how you respond if you observe a mistake. Be sure to check and re-read what you write before sending or posting it, and try use specific examples that refer to notes or your textbook when posing questions – that way myself and your peers will be better equipped to help out. We will have a respectful, inclusive, and I think really fun learning environment, but we do all bear some responsibility in maintaining it. I know I can count on all of you.

**Mental Health and Wellbeing:** I take every students’ mental and physical wellbeing seriously. What follows here is official college policy but if that is any way a barrier for you, I am happy to reach out to these resources on your behalf. If you find yourself experiencing physical illnesses, please reach out to student health services (843.953.5520). And if you find yourself experiencing any mental health challenges (for example, anxiety, depression, stressful life events, sleep deprivation, and/or loneliness/homesickness) please consider contacting either the Counseling Center (professional counselors at http://counseling.cofc.edu or 843.953.5640 3- Robert Scott Small Building) or the Students 4 Support (certified volunteers through texting “4support” to 839863, visit http://counseling.cofc.edu/ct/index.php, or meet with them in person 3- Floor Stern Center). These services are there for you to help you cope with difficulties you may be experiencing and to maintain optimal physical and mental health.

**Technology:** As a matter or preparation in the event of quarantine or scenarios in which we end up online (or I end up quarantined), students must have access to a computer with to a computer equipped with a web camera, microphone, and internet access. Please consult https://it.cofc.edu/laptops/ if you have concerns about access to this equipment, as the College does have some resources available. Please communicate with me and consult the link above if this is an issue.

**Learning chemistry and being college students in a pandemic:** The COVID19 pandemic has been with us now for nearly two years, and it will likely be a part of our lives for some time to come. There are some important points to note:

- **More important than any class are your health and safety.** Do not come to class if you are feeling sick or exhibiting symptoms. I have digital notes and can work with you regarding lecture and/or zoom. I will be flexible with due dates in these situations and am here to work with you.
  - **Related to the above and very important:** If we end up in an online format, or have to record lecture/run a simultaneous zoom session, students in the course consent to the audio/video recording of synchronous online and in-person class sessions. Students consent to the audio/video recording of the general office hour sessions. If you have privacy concerns regarding your name and likeness, we can discuss how to properly adjust zoom settings, etc. so you will feel comfortable in the course.
Storm mitigation plans: Since pandemics aren’t enough during the 2021-2022 academic year, we have to also consider that storm delays and evacuations are a reality of living on the coast of the Southeastern U.S. As such, we have two separate weekends of designated as storm makeup days (see important dates on 1st page). These will be utilized in the event of the closure of our campus to cover missed class-meeting material. I have extensive lecture notes prepared for every lecture this semester and will be able to provide notes and lectures both should the need for makeup days arise. You will be notified via email as soon as such mitigation plans are put into place and, of course, given the nature of these types of delays, I will work with you to ensure that the class gets the necessary content and that exam schedules are adjusted appropriately, in a manner consistent with college policy. Should you find yourself in unusual circumstances during such an incident, please reach out to me as soon as you are able. I will work with you to make sure you get the content you need. Please trust that given the disruption such events cause, I will adjust course workload accordingly as well.

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

OAKS: OAKS gradebook will be used to communicate student assessment throughout the semester. Grades will not be communicated over email under any circumstances as it risks violation of federal law. OAKS will be used additionally to communicate with students regarding exam dates, important links for course content (Zoom, Kaltura, posted notes, etc), and any changes to the format, scheduling, and/or any other facet of the class.

Email and contact: I may need to email the class list should changes to the course be required or other circumstances arise. I will frequently email the classlist about course materials and with announcements. Email is considered an official communication method at the College of Charleston, and all students are expected to frequently if not daily check their official CoFC email account to ensure that no announcements or messages regarding this course (or any other for that matter) are not missed. With regard to extenuating circumstances, please contact me as soon as you are able, and in advance if at all possible.

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. To be more specific, it is my expectation that you will only submit your own work, and that, excepting where specified explicitly, you will have been the only person to have done that work. This means the use of websites that provide for-pay answers such as Chegg, CourseHero, and including anything remotely similar to them is expressly prohibited. The use of such services constitutes an Honor Code violation and will be strictly dealt with as such. You are not to obtain old exams from peers, or consult others during exams or the completion of graded material (excepting where explicitly specified). Should it become clear that cheating is occurring in any aspect of the course, I reserve the right to make substantial changes to the format of any component of the course, graded or otherwise, to prevent such actions from further occurring.