CHEM 2311 Syllabus

Organic Chemistry 1 - CHEM 2311 - 3 Credits

Summer 2026

Instructor Information

Instructor: Nathan Blackburn

Email: nblackburn3@gatech.edu

General Course Information

Description

This course is a blended course that aims to provide in-depth foundation of organic chemistry and the scientific method as well as how to apply it to answer questions about authentic real-world and research problems. The goals are to provide a holistic and immersive experience to:

- Build scientific and organic chemistry literacy
- Consolidate and extend of prior chemical knowledge
- Challenge with in-depth inquiry, analysis and critical thinking
- Foster inter-personal interactions (peer-to-peer and instructors-to-peer) to support learning, retention and in-depth understanding.
- Prepare for success in organic chemistry 2, MCAT, experiential activities (undergraduate research, internship or co-op for example), and advanced courses.

Course Learning Outcomes

Upon successful completion of this course, you will be able to:

- Apprehend the crucial facts and vocabulary of organic chemistry
- Visualize and communicate about three-dimensional organic chemistry structures in a one-dimension format.
- Understand and suggest how bonding works (molecular structure, functional groups, relative bond strengths) and changes (reactivity). The reactions we will cover are acid-base reactions, additions, substitutions, eliminations and radical halogenation and polymerizations.

- Collaborate with peers and faculties in virtual and in-person settings to further understanding and proficiency.
- Apply scientific knowledge to be able to appreciate the complexity of real-world problems while breaking it down into manageable and fundamental steps toward a solution. The ability to design and construct multistep synthesis (up to 5 or 6 steps) and to suggest plausible mechanisms for chemical transformations are two important examples. Another example is using spectroscopy (NMR and IR) to gather experimental data about molecular properties and changes.

This syllabus is as accurate as possible and is a living document. If there are questions or discrepancies, please let me know. I will be happy to address and edit as needed.

Required Course Materials

Organic Chemistry by David Klein - 5th Edition.

The text is integrated with canvas and must be purchased via canvas (Wiley course resources tab). You must purchase WileyPlus access to be able to complete homework.

PointSolutions

We will make frequent use of PointSolutions for in-class PRS questions. You will be required to have a device with the capabilities to access the PointSolutions app or website.

Writing Instruments

Organic chemistry is a drawn science, relying heavily on structures, mechanisms, and diagrams. Traditional laptop keyboards are not well-suited for efficiently drawing chemical structures or reaction schemes, so laptops are not permitted for note-taking in this class. Students should instead use paper, pencils, and a good eraser, or a tablet with a stylus for all note taking purposes. These methods will best support your learning and retention of the material.

"Unlike history or philosophy, chemistry cannot profitably be read chapter by chapter but must be vigorously attacked with a dozen of sharp pencils and a ream of inexpensive paper close at hand. When information is used to solve problems, it rapidly becomes part of your knowledge." Rodger Griffin, Jr.

Optional Materials

COMPANION TEXT (optional but strongly recommended)

"Organic Chemistry as a second language" from David Klein, Wiley. Organic 1 aligns best with the first semester book.

MODEL KIT (optional but strongly recommended)

Many students find model kits useful when studying organic chemistry. You do not need an expensive kit. A small selection of atoms and bonds is useful. Model kits could certainly be shared.

Grading Policy:

Score (out of 900) = Q (100) + Three highest exam scores (E1 (100) + E2 (100) + E3 (100)) + HW (100) + PRS (100) + Studio (100) + F (200) + Bonus

Letter Grade	Point Range *
A	792 or greater
B	648-791
C	540-647
D	450-539
F	449 or below

*The points shown in column 2 must be achieved and are guaranteed to earn the corresponding letter grade. No rounding will occur. There is no curve for the course. Any percentages displayed on canvas have no meaning or relevance to the calculation of your grade.

Your grades will be posted on canvas in a timely manner all throughout the semester. At any time, you can calculate your standing in the course using the equation and information above. Please do not wait the end of semester to reach out. Contact the TA team if you have questions or concerns about your performance as early as possible-we are here to help you meet your personal goal in the course.

Assignments

Quizzes (Q)	Home/Canvas	Individual	100 points
Midterm Exams	In-class/paper	Individual	400 points
Homework (HW)	Home/Wileyplus	Individual (team work encouraged)	100 points

PRS questions (PRS)	In-class/PointSolutions	Individual (team work encouraged)	100 points
Studio (S)	In-class/paper	Individual (team work encouraged)	100 points
Final Exam (F)	In-class/paper	Individual	200 points
TOTAL			**1000 points**

Description of Graded Components

Quizzes: There are 10 quizzes, each out of 10 points. Together, the quizzes count for 100 points of the total final grade. The quizzes are all pre-scheduled (see course outline). Each quiz will be timed for 25 minutes and will include 5 multiple choice questions. There are two attempts possible, with the highest quiz score being kept. The quizzes will be administered over a 24 hours period using canvas. Quizzes are open book and open note. Quizzes will be administered and submitted on canvas.

Midterm Exams: There are four midterm exams over the course of the semester. Exams will focus primarily on newer topics, however all midterm exams are cumulative and will be administered in-person, on paper. Each exam is worth 100 points of your final grade.

Homework Wileyplus. There are 10 homework assignments. Homework counts for 100 points of your total final grade. Students are encouraged to work together on homework; the purpose of the problems is to provide practice for exams. For this reason, multiple attempts (5) are allowed. Working together means that all participants participate in the process. (The exchange of information and ideas has been found to support active learning.) However, each student must submit their own online homework. Homework assignments will be available and submitted online via WileyPLUS. ***Integrated Wiley PLUS access is <u>required</u>.***

PRS questions: In-class PRS questions will be used to promote participation, direct discussion and to assess understanding. Correct responses will be worth 5 points, incorrect responses will be worth 4 points, and no response will be worth 0 points. There will be at least 1 question per class and at least 50 across the semester. The final points will be normalized to 100. There are at least two lectures worth of "grace points" that will be applied to account for scenarios like faulty technology or thinking so deeply you forget to respond.

Students are responsible for (i) checking their PRS scores regularly and (ii) troubleshooting their device (http://www.cetl.gatech.edu/it/clicker/student). If

there are any discrepancies, students must inform the instructor within a week (please allow for a grace period of 24 hours after class for scores to update).

Responses via your electronic devices (mobile phone, computer and other devices) will only be allowed in-class. Be aware that turning technologies record student's location of their mobile device while logged in and record how many times a device has logged off during an active session.

Studio: Studio sessions will be immersive lectures in which students will work in teams to review concepts through real-world problems and instructional exercises. The goal is to work with classmates to actively prepare for examinations with instant feedback from instructors in the classroom. **In-person participation in Studio sessions will count as 100 points of your final grade.** Studio will be graded through a combination of PointSolutions and paper assignments.

Final Exam: The cumulative final exam is worth 200 points of your total course grade. It will be administered in-person and on-paper. The schedule is provided by the Institute and as a consequence, the final must be taken on the given date (see course outline). **No exceptions will be made**. The problems on the exam will be similar to those from the book, in-class questions, quizzes, recitations, and midterms. The processes by which you can solve the problems will be exactly the same. **Work as many problems from the text as practical throughout the semester**. The online student solutions manual may be helpful.

Course Policies

Attendance and/or Participation

The course is constructed as in-person delivery and participation. In-person participation (PRS) is graded and required to scaffold learning and built-up success.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review Georgia Tech's Honor Code and the student Code of Conduct.

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

GEORGIA TECH ACADEMIC HONOR CODE

For Graded Homework Assignments: You may work with others in developing approaches to solve problems, but submitted work must be your own.

For Tests: Students are reminded of the obligations and expectations associated with the Academic Honor Code and Student Code of Conduct, available online at:

http://www.deanofstudents.gatech.edu/integrity/policies/honor_code.php

http://www.deanofstudents.gatech.edu/codeofconduct Links to an external site. Links to an external site.Links to an external site..

For any questions involving these policies, please discuss them with the instructors.

Examples of honor code's violations include (but are not limited to):

- The unauthorized possession or use of notes, texts, exams, electronic devices (including, for example, computers and mobile phones), online materials or other such unauthorized materials/devices in fulfillment of course requirements.
- The unauthorized use of test materials from other sections.
- Sharing or learning what is on a test from someone who has already taken it
- Copying directly from any source, including friends, classmates, tutors, internet sources, or exams and participation in such effort.
- Allowing another person to copy your work.
- Sharing work with others.
- Taking an assessment in someone else's name, or having someone else take an assessment in your name.

- Using or accessing someone else's PointSolutions to gain PRS points

- Making unauthorized copies of graded work for future distribution.
- Sharing PointSolutions session codes to students outside of class.

Core IMPACTS

Core IMPACTS is the University System of Georgia's General Education curriculum. If you are teaching a course that counts towards Core IMPACTS, you should include a syllabus statement about the Core area and associated career competencies. This resource developed by the Center for Excellence in Teaching and Learning and Online Education at Georgia State University includes template syllabus statements for each of the Core IMPACTS areas that you may adapt for your course.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, contact the Office of Disability Services (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. The Student-Faculty Expectations articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

You should work the problems in each reading assignment as you get to them.

You are responsible for all material presented in lectures, syllabus, Canvas, book chapters, piazza and announcements. You are also responsible for announcements made on Canvas. You must check your Canvas and GT email account on a regular basis. You are also responsible for announcements made in class, which will also be posted on the course web page and distributed by email.

Lecture Attendance & Class notes:

All pre-lectures notes are posted on canvas at the beginning of the term. Pre-lecture slides for each chapter should ***be downloaded from the web and printed prior to the first lecture or accessible on digital format for annotations.*** These notes are not designed to be comprehensive. In fact, they are specifically designed to be incomplete and ***be used as the basis for lecture notes***.

The use of laptop computers is not permitted during in-person lectures. If you are using a platform/tablet device for notes taking, you solely be on course material. **Individuals that are streaming, gaming, shopping, or working on other courses during classes will be asked to leave in order to not distract fellow classmates.**

Regrade policy

There is no regrade possible on homework or quizzes.

Mid-terms will be graded on Gradescope and available for regrade via Gradescope. Regrade requests must be submitted **within one week** after the assignment has been published. All regrades requests must be submitted on Gradescope with a 1-2 sentences explanation rooted in concepts covered in the course. **When submitting a regrade request, the whole exam may be regraded and your resulting grade may be lower or higher.**

Pre- &/or Co-Requisites

The pre-requisite for organic chemistry is two-semesters of general chemistry (CHEM 1211K and CHEM 1212K)

Collaboration and Group Work

Many students find that forming a study group to work through exercises is an excellent way to master organic chemistry, provided all students work. I strongly encourage working in small groups that sustain collaboration and growth for in-class PRS and for homework assignments.

Extensions, Late Assignments, and Re-Scheduled/Missed Exams

The only valid reasons for missing an assignment are illness or official Georgia Tech business (such as athletic events, GT-sponsor field trip, religious observance). Students that are unable to attend a scheduled examination for one of these reasons must inform the instructor in a ***timely manner*** and in advance when possible. Make-up assignments will only be scheduled as described below and are contingent of (1) mutual prior arrangement or (2) documentation of exceptional circumstances (official notification must be presented or confirmed by the Dean of Students office).

Please remembered that instructors are not authorized to handle private medical information. To document medical circumstances, you must contact the Dean of students office for an equitable and confidential process.

Quizzes: Late quizzes are not accepted because there is a 24 hours window to complete the quiz (25 minutes). Rescheduling quizzes must be arranged at least 2*4 hours prior to the scheduled day*.

Mid-term Exams: All midterms are pre-scheduled and dates are available on the first day of class. Missed exams will received a zero. All make-up exams must be administered ***before*** the exams are returned to the class. As a consequence, make-up midterms will be administered on **Wednesdays 11:00-11:50 AM**. Under very rare circumstances, exception will be made if unable to attend this time. Otherwise, exams not made-up by this time, for any reason, will receive a score of zero.

Homework Wileyplus. All homework assignments are open for about a week and are due by **11:59 PM** on the due date. Students are responsible for troubleshooting login and website technical issues. It is strongly recommended to not wait the last hours to submit your answers. **Late homework will not be accepted** (the online submission will be closed by the designated date/11:59 PM). No extension will be provided for homework as the solutions are automatically release by the deadline.

PRS questions and Studio participation: Students are responsible to (i) check their PRS scores regularly and (ii) troubleshoot their device (http://www.cetl.gatech.edu/it/clicker/student).

A forgiveness of at least two missed-lectures (excused or not excused) per semester will be provided class-wide. (i.e. you can miss at least two lectures without any penalty on your PRS scores.) **Do not email the instructor for less than a continuous week (3 lectures) of missed lectures**. There will be no additional forgiveness without documented medical and exceptional circumstances documented by the Dean of Students office).

Responses via your electronic devices (mobile phone, computer and other devices) will be enabled for in-class. Be aware that turning technologies record student's use of their mobile device (i.e. going onto websites) while logged in as well as your *location*.

For your participation to be recorded you must answer the questions in class (simply joining the session will not record participation). Every effort will be made download on canvas the individual session score within 24 hrs of the lecture.

Final Exam: The schedule is provided by the Institute (available on first day of class) and as a consequence, the final must be taken on the given date (see course outline). **No exception will be made**. According to GaTech policy, if a student has 3 exams scheduled on the same day, the middle exam can be rescheduled.

Student Use of Mobile Devices in the Classroom

The use of electronic devices and computers is not permitted during in-person lectures. If you are using a platform/tablet device for notes taking, you must be solely on course material. **Individuals that are streaming, gaming, shopping, or working on other courses during classes will be asked to leave in order to not distract their fellow classmates.**

Campus Resources for Students

Undergraduate Student Academic Success Resources:

- Academic Support: Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support for your courses. Students can attend scheduled supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at success.gatech.edu/tutoring, email us at tutoring@gatech.edu, or come see us at Clough Undergraduate Learning Commons, Suite 283.

Student Well-Being:

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A comprehensive list of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being (student-resource-guide (gatech.edu)

Course Strategies to succeed in the course:

1. Attend class!! Take your own notes (the slide are designed to provide skeletal information with intent for you to complete), and **actively** participate during class with PRS and Studio sessions (with your fellow classmates).
2. After each class, re-attempt the in-class questions. If you are able to complete them independently, great! If not, read through the annotated slides, your notes, and the textbook. Then give it another try.
3. Practice with the online exercises (textbook, practices published on canvas, etc.) corresponding to each topic. **Be intentional about writing all the details** (curved arrows, unshared pair of electrons, proper lewis structures etc.).
4. Attend and/or practice all recitation problem sets. If you are able, attend in person to work in groups and ask questions to instructional team. If you are unable to attend, attempt the problems (individually or in a group).
5. Ask questions!!! via Piazza, email, or office hours.
6. Embrace being stuck! You will encounter problems that you cannot solve or even start! Better that to happen during practice than on the exam (this is a good indicator you are progressing). When you encounter this, refer to your notes, the textbook, or reach out to your fellow classmates and course instructor via piazza, office hours, recitation, and email.
7. Regularly review content. To master organic chemistry, you will need to immerse yourself in a variety of problems. There is one guiding principle: practice, practice, practice, and… practice :)

Additional Resources

RECITATION (optional but strongly recommended)

There will be weekly optional recitation sessions lead by teaching assistants. Recitations are complementary to lectures. Whereas lectures cover lots of material and may give limited opportunities for individualized engagement and specific questions, recitation sessions focus on a smaller numbers of students and are aimed to address anything covered during lecture or individualized studying that is unclear. Recitations are safe platforms to ask questions for clarification on concepts covered in lectures, their applications, and specific problems. The times and locations will be posted on

Canvas. ***Recitation problem sheets and the answers key will be posted weekly on canvas*** and will align with the lecture contents. It is still possible to practice the problems on your own if you are unable to join a recitation group. All problems and solutions covered in recitation sessions will be available on canvas on weekly basis. **If you cannot attend recitations it is strongly encouraged to work out the practice problems posted.**

Why attend recitation?

- **Obtain clarification** on concepts, facts, specific problems covered in lecture or homework assignments.
- **Test your understanding** by attending recitation: help fellow classmates with questions you are able to accurately answer. If your understanding is cloudy, your explanation will reveal any lack of clarity. You can then clarify confusions during this time.

How can students most benefit from recitations?

- **Prepare:** List questions you have from lectures based off of your notes. Do the same with homework reading and problem set questions.
- **Communicate: I**f you have a great deal of questions, email your recitation leader to ask what is feasible to cover, or if you should set up 1:1 time to go over questions apart from recitation.
- **Participate:** engage actively with the material, other classmates, and the recitation leader during recitation. Don't be afraid to suggest concepts or problems to go over; don't hesitate to answer questions the recitation leader poses.
- **Follow up:** if recitation did not fully clarify understanding of some of the concepts or homework problems, get in touch with your recitation leader after class or through email to schedule 1:1 time to go over your questions.

OFFICE HOURS

Office hours are a complement to both lecture and recitation and are conducted on a 1:1 basis, and offers more opportunity to focus on students' individual needs. Nathan and the teaching assistants will hold virtual and/or in-person office hours (details will be posted on canvas).

Why attend office hours?

- **Obtain clarification** on concepts, facts, specific problems covered in lecture, recitations or homework assignments.

- **Check in on how you're doing in class:** While you should be keeping track of your grades on assignments and assessments, your recitation leader can provide feedback on your participation in lecture and recitation, and discuss any patterns they notice regarding your strengths and weaknesses on concepts.

How to structure productive office hours?

- **Bring appropriate materials:** if discussing a problem set, for instance, be sure not only to bring the problem set, your work, and answers, but also notes from class on the relevant concepts, and perhaps even the reading that pertains to it.

- **Write down questions and discussion points beforehand,** even if discussing one problem from a problem set. For instance, you might have specific questions about one aspect of the application of a concept or formula, or are unsure about one particular process in a problem. Articulating these questions beforehand will ensure a smoother process during office hours.

- **Try the questions before coming in!** My first question will always be: How did it go when you tried it the first time? Have an answer!

PIAZZA

We will use the platform piazza.com as online forum to share questions you may have about the course. Everybody can post questions and answers. We will attempt to contribute to the forum on a daily basis. Students are responsible for the material posted on canvas and piazza by instructors.