

Rationale: Chemistry is the *molecular* science. Chemists believe that the best understanding of the properties of matter comes from study at the *molecular level*.

For example, boiling points, acidity, chemical reactivity, taste, smell, drug efficacy, colour, toxicity, etc., can all be understood/predicted/explained by a consideration of the relevant atoms and bonds connecting them. Organic chemistry provides the basic principles that govern the structure (and therefore the behaviour and reactivity) of molecules.

Course Objective: Upon successful completion, students will understand the direct connection between the properties and behavior of a substance, and its *molecular structure*.

Learning Goals: Students will be familiar with the below subject matter, and be able to apply these concepts and principles to any molecule or chemical process. **Detailed goals are listed within Canvas for each Chapter/Module.**

Chapter 1 deals with trends within the periodic table; electrons and electron configuration; the octet rule; ionic and covalent bonding; Lewis structures; electronegativity and polar covalent bonding; resonance structures; structural formulae; stick figure (line angle) diagrams; definitions of acids; pH, pKa; anion stability; Lewis acids and bases; nucleophiles, electrophiles and leaving groups.

Chapter 2 deals with electrons as waves; wavefunction and ψ^2 ; LCAO, σ and σ^* ; σ and π bonds; hybridization; geometry; bond rotation, isomers.

Chapter 3 deals with alkanes; IUPAC naming; different conformations; cycloalkanes; ring strain; chair and boat of cyclohexane; axial and equatorial positions; bicyclic alkanes.

Chapter 4 deals with the study of chemical reactions; the mechanism of free radical chain halogenation of alkanes; thermodynamics and the relationship between equilibrium constant and ΔG ; $\Delta G = \Delta H - T\Delta S$; kinetics and the relationship between rate of reaction and activation energy and temperature; transition states; energy level diagrams; rate determining steps; selectivity; the Hammond postulate; properties and stabilities of cations, radicals, anions and carbenes.

Chapter 5 deals with Chirality; chiral centres, enantiomers, assignment of R and S; other types of chirality; Fischer projections; diastereomers; 2 or more chiral centers, *meso* and *dl* diastereomers; enantiomeric resolution, and stereochemical outcomes.

Chapter 6 deals with alkyl halides; IUPAC naming; preparation; nucleophilic substitution, the S_N1 and S_N2 reactions; eliminations; the E1 and E2 reactions; carbocation rearrangements; Zaitsev's rule; elimination versus substitution.

Chapter 7 deals with alkenes; π bonds; unsaturation; IUPAC of alkenes; E and Z stereodescriptors; alkene stability; Bredt's rule.

Chapter 8 deals with reactions of alkenes; electrophilic addition; Markovnikov and Anti-Markovnikov regiochemistry; syn and anti stereochemistry; reagents and mechanisms of electrophilic additions; carbene additions, epoxidation, oxidation and oxidative cleavage reactions.

Chapter 9 deals with terminal and internal alkynes; the acidic C-H; addition reactions and oxidative cleavage.

Chapter 10 deals with the properties and preparation of alcohols; IUPAC naming; organometallic reactions with carbonyl compounds; hydride reductions; thiols.

Chapter 11 deals with reactions of alcohols; oxidation of primary, secondary and tertiary alcohols; conversion of poor leaving group OH to good leaving group, tosylates, protic and Lewis acids; bimolecular dehydration; formation of esters; Williamson ether synthesis.

Full Timetable of Events

Week starting Monday	TUES	THURS	WEEKLY ACTIVITY
Sep 2	Recitation 8am Lecture 9.35am	Lecture 9.35am	Ch1
Sep 9	Recitation 8am Lecture 9.35am	Lecture 9.35am	Ch2
Sep 16	Recitation 8am Lecture 9.35am	Lecture 9.35am	Ch3
Sep 23	Recitation 8am Lecture 9.35am	Lecture 9.35am	Ch4 HW Quiz1 due Friday
Sep 30	Recitation 8am EXAM 1 (9.35am)	Ex1 Post-mortem & Lecture 9.35am	Start Ch5
Oct 7	Recitation 8am Lecture 9.35am	Lecture 9.35am	Finish Ch5 and Start Ch6
Oct 14	Recitation 8am Lecture 9.35am	Lecture 9.35am	Finish Ch6
Oct 21	Recitation 8am Lecture 9.35am	Lecture 9.35am	Ch7 & Start Ch8
Oct 28	Recitation 8am Lecture 9.35am	Lecture 9.35am	Ch8
Nov 4	Recitation 8am Lecture 9.35am	Lecture 9.35am	Finish Ch8 HW Quiz2 due Friday
Nov 11	Recitation 8am EXAM 2 (9.35am)	Ex2 Post-mortem & Lecture 9.35am	Start Ch9

Nov 18	Recitation 8am Lecture 9.35am	Lecture 9.35am	Finish Ch9 and Start Ch10
Nov 25	Lecture 9.35am (RU "Thursday")	Thanksgiving	Ch 10 and Start Ch11
Dec 2	Recitation 8am Lecture 9.35am	Lecture 9.35am	Finish Ch11 HW Quiz3 due Friday
Dec 9	Recitation 8am EXAM 3 (9.35am)	X	Study for Exam 3, and then FINAL
Dec 16	FINAL (8-11am)		

TUESDAYS and THURSDAYS 9.35-10.55am will be formal LECTURE classes as i present the (provided) Lecture Notes.

TUESDAYS 8-9am will be a RECITATION where i review the previous week's content on the chalkboard, and address any questions or issues from the students.

Grade Scheme: There are 3 (homework) Quizzes, 3 Exams and 1 cumulative Final: If you score an A (44.5 or above /50) on each of the 3 exams, you do NOT need to take the final (and will get an A). (The homework assignments do not feature in this generous and motivational offering). This is usually referred to as “*achieving the dream*”.

QUIZZES are taken online within Canvas, whereas **EXAMS** are taken in person.

Grade Scheme	% Score and Letter Grade
Homework Quizzes are 10pts	90% + = A
Exams are 50pts	85% = B+
Final is 150pts	80% = B
Total is (3x10) + (3x50) + 150 = 330	75% = C+
Total your scores and divide by 3.30 to get a % score.	70% = C
(9% + 45.5% + 45.5% = 100%)	60% = D
	60% = F
There is no curve / extra credit / favours, your grade is your grade.	

Required Textbook: There is no REQUIRED textbook or materials, although the lecture materials are based on the excellent books “*Organic Chemistry*” by L.G. Wade, Jr., 4th...9th eds.

Communication Guidelines: I want to help you succeed in this course and do the best that you can! Please don't hesitate to reach out to me throughout the semester with any questions or concerns you may have. It's a good thing to ask for help—it means you're paying attention and you know what you need—and you are **not** bothering me.

Please check both the Home page and syllabus **before** asking a question.

If you need to email me, be sure to include your name. Depending on when you send your email, you can expect a response:

- Monday-Friday: within a couple of hours.
- Weekend emails: I'll respond within 24 hours.
- Emails received between 8pm and 7am will likely not be addressed until the morning.

If you do not receive a response from me within the above listed time frame, please send the email again.

Office hours: I have no set time, but if my office door is open you are welcome to stop by. More office hours can be requested via email. We can also meet via web conference (using Webex). If you'd like to request an appointment, email me. Please include the reason why you'd like to meet in your email.

What you can expect from me in this course: Learning can be uncomfortable and stressful at times—I would argue that if it weren't, you might not be learning that much! However, I do want to help make sure that you make progress and persist through the course, and don't feel discouraged or overwhelmed. To do this, you can expect me to:

- Communicate with the whole class using Announcements in Canvas on a regular basis. Please make sure your [Canvas Notifications](#)
- [Links to an external site.](#) are set to alert you to new Announcements immediately.
- Grade your Examinations within 24 hours.
- Respond to all of your email communications with me based on the communication guidelines above.
- Reach out to you—multiple times if needed!—if I notice that you're falling behind or seem to be struggling. I want to help you succeed.
- Encourage you to strive for better and congratulate you on your achievements.

Academic Integrity: As a student at the University, you are expected to adhere to the [Student Code of Conduct](#) [Links to an external site.](#) and [Academic Integrity Policy](#) [Links to an external site.](#). The consequences of scholastic dishonesty are very serious. You are responsible for reading and understanding our policy on [academic integrity](#), [Links to an external site.](#) which means among other things, that all Rutgers students are required to:

- *make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of **unsanctioned materials** or **unsanctioned collaboration**. Use of electronic devices during exams such as phones, watches, ipads etc, etc is strictly prohibited.*
- *treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.*

Office of Disability Services (ODS)—Students with Disabilities: If you need academic support for your courses, accommodations can be provided once you share a Letter of Accommodation issued by the Office of Disability

Services (ODS) that specifies your accommodations indicated. If you have already registered with ODS and have your Letter of Accommodation, please share this with your instructor early in the course. If you have not registered with ODS and you have or think you have a disability (learning, sensory, physical, chronic health, mental health or attentional), please visit the [ODS website](#)

[Links to an external site.](#), [email](#), or call [\(856\) 225-6954](#).

Please Note: Accommodations will be provided only for students with a Letter of Accommodation from ODS. Accommodation Letters only provide information about the accommodation, not about the disability or diagnosis.

Inclusivity: I am committed to diversity and inclusion in this course and want to include all perspectives. Please let me know if you perceive any bias in any form in this course. I'll be asking for your pronouns in the first module, and will ask all class members to respect the pronoun and name choices of each individual in this class. Rutgers does allow students to request a preferred name change on official university documents and systems, [which can be submitted](#)

[Links to an external site.](#) at this link if you're interested. However, I understand that all students may not have the ability to have their preferred name displayed officially, and I will use the preferred name you submit informally in this course.

Campus Resources (listed in Alphabetical Order)

Basic Needs Security

If you have difficulty affording groceries or accessing sufficient food to eat every day, lack a safe and stable place to live, and/or do not have regular access to technology, and believe this may affect your performance in the course, you are urged to contact the Dean of Students for support and/or can utilize the Rutgers University-Camden Food Pantry.

- **Dean of Students Office**- You can learn more about the free services by calling 856-225-6050, emailing deanofstudents@camden.rutgers.edu, or visiting the website at <http://deanofstudents.camden.rutgers.edu/Links to an external site.>
- **Rutgers-Camden Food Pantry**- You can learn more about this free service by calling 856-225-6005, emailing scarlet-raptor-foodpantry@camden.rutgers.edu or visiting the website at <https://wellnesscenter.camden.rutgers.edu/ru-camden-raptor-pantry/Links to an external site.>

Canvas Rutgers Shout Out

Within Canvas, turn on Rutgers Shout-Out to all students to type the phonetic spelling of their name, list their preferred pronouns, and pronounce their name in a video recording for your course

Chosen Name (Preferred Name)

If you have a chosen name or preferred name other than what is listed on the roster, kindly let me know.

If you would like to have your name changed officially on the Rutgers University-Camden rosters please visit: <https://deanofstudents.camden.rutgers.edu/chosen-name-applicationLinks to an external site.>

Code of Conduct and Academic Integrity

Rutgers University-Camden seeks a community that is free from violence, threats, and intimidation; is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and does not threaten the physical or mental health or safety of members of the University community, including in classroom space, and a community in which students respect academic integrity and the integrity of your own and others' work.

As a student at the University you are expected adhere to the Student Code of Conduct and Academic Integrity Policy. To review the academic integrity policy, go to <https://deanofstudents.camden.rutgers.edu/academic-integrity>Links to an external site. To review the code, go to: <https://deanofstudents.camden.rutgers.edu/student-conduct>Links to an external site.

Please Note: The conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities." Please be aware of classroom and out-of-classroom expectations by making yourself familiar with and by following the Student Code of Conduct

Complaints

Rutgers University—Camden is committed to providing quality services, a great education and an engaged and caring experience for our students. Sometimes problems arise, and students may find that they would like to file a complaint about their experience or a particular situation. To file a complaint, students can complete the form at this link and someone will connect with you to discuss your complaint, explain options and to address the issue that was raised. Students do have the option of filing a complaint anonymously, but then there will be no way for the office handling the complaint to be able to let the student know how it was addressed. Filling out a form will allow students to understand all options and the different ways an issue can be addressed. The form is located here: <https://deanofstudents.camden.rutgers.edu/reporting>Links to an external site.

Dean of Student Office- CARES Team

College is a time when you may be testing your independence and/or striving to find yourself. It's not uncommon for these journeys to have rough points. The Dean of Students Office is here to assist you by strategically and effectively handling and referring student concerns/needs across all areas of the campus and University as needed. For some students, personal, emotional, psychological, academic, or other challenges may hinder their ability to succeed both in and outside of the classroom. The Dean of Students Office serves as your initial contact if you need assistance with these challenges. You can learn more about the free services by calling 856-225-6050, emailing deanofstudents@camden.rutgers.edu, or visiting the website at <http://deanofstudents.camden.rutgers.edu/>Links to an external site.

Learning Center- Learning Specialists and Tutoring

I am committed to making course content accessible to all students. The Learning Center provides Learning Specialists who can help you build a learning plan based on your strengths and needs. Tutors, study groups and more services are available you for free. Many services are available in virtual formats and after normal business hours. In addition, if English is not your first language and this causes you concern about the course, the Learning Center can help. You can learn more about these services by calling 856-225-6442, emailing rclc@camden.rutgers.edu or learningcenter@camden.rutgers.edu, or visiting the website <https://learn.camden.rutgers.edu/>Links to an external site. You can schedule an appointment with Learning Specialist to create a plan of action using the website.

Office of Disability Services (ODS)- Students with Disabilities

If you are in need of academic support for this course, accommodations can be provided once you share your accommodations indicated in a Letter of Accommodation issued by the Office of Disability Services (ODS). If you have already registered with ODS and have your letter of accommodations, please share this with me early in the course. If you have not registered with ODS and you have or think you have a disability (learning, sensory, physical, chronic health, mental health or attentional), please contact ODS by first visiting their website <https://success.camden.rutgers.edu/disability-services>Links to an external site..The website will further direct you who to contact and how to contact them depending on the free, confidential services you are in need of.

Please Note: Accommodations will be provided only for students with a Letter of Accommodation from ODS. Accommodation letters only provide information about the accommodation, not about the disability or diagnosis.

Office of International Students and Programs- International (F-1) Students.

If you are an international student at Rutgers University-Camden and you need assistance with documentation, travel, campus assistance and/or advising, the Office of International Students and Programs provides support services. You can find more information by calling 856-225-6832, emailing ois@camden.rutgers.edu or by visiting the website at <https://international.camden.rutgers.edu/Links to an external site.>

Office of Military and Veteran Affairs- Veteran, Active Duty and National Guard Member Services

The Office of Military and Veterans Affairs and Rutgers University-Camden supports our students who have served and their family members, including explanation of benefits, referrals to resources on and off campus, supporting students who are deployed for active duty and answering questions. If you are in need of assistance and are an active duty, National Guard or veteran (or are a family member), the Office of Military and Veteran Affairs can assist. You can find more information by calling 856-225-2791 or visiting the website at <http://veterans.camden.rutgers.edu/Links to an external site.>

Pronouns

This course affirms people of all gender expressions and gender identities. If you have a preferred gender pronoun, feel free to correct me. If you have any questions or concerns, please do not hesitate to contact me directly.

Title IX and the Violence Prevention & Victim Assistance Office

If you have experienced any form of gender or sex-based discrimination or harassment, including sexual assault, sexual harassment, relationship violence, or stalking, know that help and support are available. The Rutgers University-Camden community is committed to helping to create a safe learning environment for all students and for the university as a whole. Rutgers University-Camden has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. The University strongly encourages all students to report any such incidents to the University. If you wish to speak to a free, confidential employee who does not have this reporting responsibility, you can speak to staff in the Office of Violence Prevention & Victims Assistance. You can learn more about these resources by calling 856-225-2326 or by visiting the website <http://respect.camden.rutgers.eduLinks to an external site.> You can schedule an appointment to connect with a member of the office by using this website.

Please Note: *All Rutgers employees (other than those designated as confidential resources such as advocates, counselors, clergy and healthcare providers as listed in Appendix A to Policy 60.1.33) are required to report information about such discrimination and harassment to the University.* This means that if you tell me or any faculty member about a situation of sexual harassment or sexual violence, or other related misconduct, we must share that information with the University's Title IX Coordinator

Undocumented and DACAmented Student Services.

Undocumented students enrich our university community. Rutgers University-Camden is steadfast in its effort to protect and support all members of our community, regardless of immigration status or personal circumstance. If you are in need of resources (legal, career and support) you can find more information and schedule appointments on the website <https://undocumented.camden.rutgers.edu/Links to an external site.>

Wellness Center- Health and Wellbeing Resources

Health and well-being impact learning and academic success. Throughout your time in college, you may experience a range of concerns that can cause barriers to your academic success. These might include illnesses, strained relationships, anxiety, high levels of stress, alcohol or drug problems, feeling down, or loss of motivation. The Wellness Center Medical and Counseling staff can help with these or other issues you may experience. You

can learn about the free, confidential medical and mental health services available on campus by calling 856-225-6005, visiting the website at <https://wellnesscenter.camden.rutgers.edu/Links to an external site.> or visiting the Wellness Center on the 2nd Floor of the Campus Center.

Writing and Design Lab-Writing Support and Services.

If you need assistance with writing, audio recordings, web creation or other creating software used in class, the Writing and Design Lab can help. They provides personal tutoring, workshops and online assistance. You can learn more by emailing rutgers.wdl@rutgers.edu or visiting the website <https://wdl.camden.rutgers.edu/about-2/Links to an external site.>. On the website you can schedule an appointment.

National and State Resources for Wellbeing (Alphabetical Order)

Crisis Text Line: text HOME to 741741

Crisis Text Line for Students of Color: text STEVE to 741741

National Domestic Violence Helpline: 1-800-799-7233 or text LOVEIS to 22522

the National Substance Abuse helpline, SAMHSA's National Helpline, [1-800-662-HELP \(4357\)](https://www.samhsa.gov/1-800-662-HELP)

National Suicide Prevention Lifeline: 1-800-273-8255

NJ HOPE line- <https://njhopeline.com/Links to an external site.>

The Sexual Assault helpline at [1-800-656-HOPE \(4673\)](https://www.1-800-656-HOPE.org)

Trevor Lifeline (LGBTQ+): 1-866-488-7386

and the National Substance Abuse helpline, SAMHSA's National Helpline, [1-800-662-HELP \(4357\)](https://www.samhsa.gov/1-800-662-HELP)