

Chemistry 164 - Spring 2022 - Honors General Chemistry II

COURSE INFORMATION

Course website: via Canvas at <https://canvas.rutgers.edu>

Lecture Instructor:

Dr. Kate Waldie, kate.waldie@rutgers.edu

Office: CCB 3220

Office hours: Friday 3:00-5:00pm via Zoom, and by appointment

Recitation Instructor:

Dr. Marc Muñiz, mnm111@chem.rutgers.edu

Office: WR A206

Office hours: TBD

Lectures:

Monday & Thursday 10:20-11:40am

January 20th, 24th, and 27th: Virtual via Zoom

January 31st and beyond: In-person in CCB 1303

Recitations:

Section H1 - Thursday 12:10-1:05pm

Section H2 - Thursday 2:00-2:55pm

January 20th and 27th: Virtual via Zoom

January 31st and beyond: In-person in CCB 1209

COURSE REQUIREMENTS

Pre-Requisite:

01:160:163 Honors General Chemistry I, or permission from the instructor

Pre- or Co-Requisites:

01:640:136 Calculus II for the Life and Social Sciences

or 01:640:152 Calculus II for the Mathematical and Physical Sciences

or permission from the instructor

Required Materials:

Chemistry: Structure and Properties, 2nd Edition. Nivaldo J. Tro,
ISBN-13: 978-0-13-429393-6

Scientific Calculator. Calculators with memory are not permitted

Laptop, smart phone, or other mobile device

A properly worn face mask, in accordance with CDC guidelines

COVID-19 INFORMATION

Until January 30th, all aspects of the course will be delivered remotely. Our goal remains to provide you with the same standard of instruction and to continue to meet the learning outcomes for the course.

After January 30th, lectures and recitations will be delivered in-person. In order to protect all members of our community, face coverings must be worn by all persons on campus when in the presence of others (within six feet) and in all University buildings in non-private enclosed settings (e.g., common workspaces, workstations, meeting rooms, classrooms, etc.). This means that masks must be worn PROPERLY during class meetings. Any student not wearing a mask will be asked to leave.

Masks must conform to CDC guidelines and must **COMPLETELY COVER** the wearer's mouth and nose. Please refer to CDC guidance for further information:

<https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/about-face-coverings.html>

This class involves a high degree of collaborative interaction - it is **IMPERATIVE** that students strictly adhere to all COVID-19 guidelines both within and outside the classroom environment. Failure to adhere to the guidelines puts students, faculty, and their families at increased risk of illness and jeopardizes our ability to continue with in-person learning.

In the event of illness or quarantine requirements, students should immediately inform Prof. Waldie. Students will have access to course materials online. In the event a student is ill or under quarantine during a quiz or an exam, an alternative quiz or exam will be administered electronically. Further accommodations will be made on a case-by-case basis if the student is too ill to take the assessment within the allotted timeframe.

Each day before you arrive on campus or leave your residence hall, remember to complete the brief survey on the [My Campus Pass](#) symptom checker self-screening app.

LEARNING GOALS

This one-semester course serves as a continuation of Honors General Chemistry I. This course is intended to educate students going on to take higher-level chemistry courses such as organic or physical chemistry, or to major in chemistry or a related field in science, engineering, pharmacy, or medicine. In addition to the specific topics listed in the schedule below, the goals of this course include (1) for students to develop a deep understanding of chemistry concepts to apply them to practical problems, and (2) for students to advance their capacities for scientific argumentation.

SAS Core Curriculum Learning Goals Met by this Course (Natural Sciences):

- Understand and apply basic principles and concepts in the physical or biological sciences
- Explain and be able to assess the relationship among assumptions, methods, evidence, arguments, and theory in scientific analysis

Department Learning Goals Met by this Course:

- Apply relevant scientific models and qualitative & quantitative reasoning

- Understand representations at the macroscopic, submicroscopic, and symbolic levels, including mathematical formulae
 - Understand, at an honors level, the specific topics listed in the schedule below
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COURSE FORMAT

This course will consist of two lectures on Monday and Thursday mornings, and two recitation sections on Thursdays (Sections H1 and H2). The recitation sections will include various group active learning activities. No attendance will be taken during the lecture periods, but attendance will be recorded in the recitation. No un-excused absences are allowed (see below Attendance section).

- Lectures: Lecture sessions on Mondays and Thursday will be a mix of traditional directed lectures, problem solving examples, and independent or small group activities. Lecture slides will be posted on Canvas prior to the class time.
- Recitations: Recitation sessions on Thursdays will emphasize the development of problem-solving skills related to course content that has been recently discussed in the lecture. Recitation activities will involve small group work designed to allow students time to collaboratively build their understanding of core chemical principles and problem-solving strategies and to allow students to refine their skills in scientific argumentation.
- Video Assignments: On most weeks, there will be one or more video assignments. These assignments will be short (< 30 minutes) and require students to watch a mini-lecture(s) on key course topics or a problem-solving video(s) and answer questions associated with the content via PlayPosit (embedded within Canvas). Students are expected to complete each video assignment by the posted due date – this will count toward their participation grade. These videos will be available for students to re-watch for the duration of the semester.
- eLearning Homework: Adaptive, mastery-based homework will be assigned online throughout the course via the eLearning webpage according to the schedule below. The eLearning homework platform uses dynamic problems to assess specific learning objectives in the course. Homework will generally be released on Mondays and will be due by 11:59pm on the following Sunday, according to the schedule below.
- Quizzes: There will be 10 quizzes throughout the course, given at the start of Monday lectures according to the schedule below. Each quiz will generally consist of three short questions. There will be no make-up quizzes for unexcused absences.
- NOTE – Quiz #1 on 01/24: This quiz will be delivered remotely. I will share the quiz questions at the start of the synchronous lecture. You do not need to turn in a copy of the quiz questions – just turn in your work. To submit your answers, make an electronic copy of your completed work (recommended: download the Genius Scan app to your smart phone) and upload it to Canvas as a PDF file. Your quiz must be uploaded to Canvas within 5 minutes of the end of the quiz period. If you experience any technical difficulties uploading your quiz, you can email me the PDF file directly.
- Midterm Exams: There will be two midterm exams held in-class during lecture, each 75 minutes duration. The midterm exams will consist of a series of multi-part, free-response

questions. There will be no multiple-choice questions. Midterm exam dates are provided in the schedule below. Students are responsible for making it to the exams prepared and on-time - there will be no make-up exams. The lecture period before each midterm exam will be set aside for additional review of the relevant material.

- Final Exam: There will be one cumulative final exam held in-person, with a 3-hour duration. The final exam will consist of a series of multi-part, free-response questions. There will be no multiple-choice questions. The final exam will be scheduled by the university and the date & time will be posted here once available. Students must be available to take the final exam during the scheduled period – the final exam date & time are immovable! Travel, family events, weddings, etc. are not valid excuses for missing an exam. Students are responsible for making it to the exams prepared and on-time - there will be no make-up exam.
- Announcements: Course-related announcement and reminders will be made frequently on Canvas. Each student is responsible for checking announcement every day and taking advantage of reminders to promptly meet deadlines.
- Uploading Work: In many cases, students will need to upload completed activities as PDF files to Canvas during and/or outside of class sessions. A convenient way of scanning files is to use the free Genius Scan App (or similar app) that converts images taken with a mobile device camera (phone, tablet, laptop) to PDF format, which can be uploaded to Canvas.

GRADING

The grading for this course will be based on your participation in the course and your performance on problem sets, recitation activities, quizzes, two midterm exams, and final exam, as follows:

eLearning Homework	15 %
Recitation Activities	5 %
Participation	5 %
Quizzes	15 %
Midterm #1	15 %
Midterm #2	15 %
Final Exam	30 %

There are no grade curves in this course, and thus students are not in competition with each other for grades. Letter grades will be assigned based on your final percentage score in the course:

A	90-100 %
B+	85-89 %
B	80-84 %

C+	75-79 %
C	65-74 %
D	55-64 %
F	below 55 %

The above grading scheme is final and non-negotiable. There is no extra credit given in this course. Any questions or concerns about a graded assignment or assessment must be brought to the attention of the instructor within one week of receiving the grade. This encourages students to promptly review their graded work. Requests for re-grading will not be considered after this one-week window.

ATTENDANCE

Attendance in all course sessions is mandatory. If a student is absent for a class or one of the midterm exams, they must fill out a self-reported absence form within 48 hours of the beginning of the missed session (<http://sims.rutgers.edu/ssra>). These forms will be reviewed and designated as either "excused" or "un-excused" in accordance with [Rutgers policies](#). Submission of the self-reported absence form within this time is required to be possibly considered an "excused" absence, but this does not guarantee the absence is excused. In select cases, missed graded work may be made up in accordance with the course and university policies where such policies exist. Under unusual or extenuating circumstances, the instructors might make special arrangements on a case-by-case basis.

ACADEMIC INTEGRITY

Rutgers University takes academic dishonesty very seriously. Students must adhere to the university policies on academic integrity and student conduct for all assignments, assessments, exams, and other matters regarding this course. By enrolling in this course, you assume responsibility for familiarizing yourself with the Academic Integrity Policy and the possible penalties (including suspension and expulsion) for violating the policy. These policies can be found [online](#). As per the policy, all suspected violations will be reported to the Office of Student Conduct. Academic dishonesty includes (but is not limited to):

- Cheating
- Plagiarism
- Aiding others in committing a violation or allowing others to use your work
- Failure to cite sources correctly
- Fabrication
- Using another person's ideas or words without attribution—re-using a previous assignment
- Unauthorized collaboration
- Sabotaging another student's work

If in doubt, please consult with Prof. Waldie.

STUDENT-WELLNESS SERVICES

Report a Bias Incident. If you experience or witness an act of bias or hate, report it to someone in authority. You may file a report online and you will be contacted within 24 hours. Bias is defined by the University as an act, verbal, written, physical, psychological, that threatens, or harms a person or group on the basis of race, religion, color, sex, age, sexual orientation, gender identity or expression, national origin, ancestry, disability, marital status, civil union status, domestic partnership status, atypical heredity or cellular blood trait, military service or veteran status.

[Click here to report a bias incident](#)

Counseling, ADAP & Psychiatric Services (CAPS). CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professionals within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community, and consultation and collaboration with campus partners. CAPS can be reached by phone at (848) 932-7884, and is located at 17 Senior Street, New Brunswick, NJ 08901.

<http://health.rutgers.edu/medical-counseling-services/counseling/>

Crisis Intervention. <http://health.rutgers.edu/medical-counseling-services/counseling/crisis-intervention/>

Report a Concern. <http://health.rutgers.edu/do-something-to-help/>

Violence Prevention & Victim Assistance (VPVA). The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling, and advocacy for victims of sexual and relationship violence and stalking to students, staff, and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181. VPVA can be reached by phone at (848) 932-1181, and is located at 3 Bartlett Street, New Brunswick, NJ 08901. www.vpva.rutgers.edu/

Disability Services. Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: <https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>. Disability services can be reached by phone at (848) 445-6800, and is located at Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854. <https://ods.rutgers.edu/>

COURSE SCHEDULE (*Subject to change*)

Week	Lecture	Topics	Sections	Suggested Problems	Quizzes	eLearning Homework
1	Th 01/20 <i>Zoom</i>	Intro	E.1-8 11.3-5			
2	M 01/24 <i>Zoom</i>	Solutions	13.1-5	13.25, 29, 31, 33, 37, 39, 45, 47, 53, 59, 97, 99, 101	Quiz #1	HW #1 Due 01/30
	Th 01/27 <i>Zoom</i>		13.6-7	13.65, 69, 71, 73, 77, 81, 85, 89, 105, 113, 121, 125		
3	M 01/31	Chemical Kinetics	14.1-5	14.27, 31, 33, 35, 37, 41, 43, 45, 47, 49, 51	Quiz #2	HW #2 Due 02/06
	Th 02/03		14.5-8	14.57, 59, 65, 71, 75, 77, 81, 87, 95, 101, 105, 115, 117		
4	M 02/07	Chemical Equilibrium	15.1-5	15.21, 25, 27, 29, 31, 33, 35	Quiz #3	HW #3 Due 02/13
	Th 02/10		15.6-8	15.37, 41, 43, 47, 49, 51, 53, 57, 59, 61, 73, 83, 89, 91		
5	M 02/14		15.8-9	15.63, 65, 67, 71, 79, 95, 97	Quiz #4	HW #4 Due 02/20
	Th 02/17	Review				
6	M 02/21	Midterm #1				No HW
	Th 02/24		16.1-5	16.31, 33, 35, 37, 39, 41, 45, 47, 145		
7	M 02/28	Acids & Bases	16.6-8	16.49, 51, 53, 55, 59, 65, 75, 81, 83, 87, 89, 93, 129		HW #5 Due 03/06
	Th 03/03		16.9-11	16.97, 99, 103, 107, 109, 113, 117, 121, 123		
8	M 03/07	Aqueous Equilibrium	17.1-4	17.25, 27, 29, 33, 37, 43, 47, 51, 53, 59, 63, 65, 73, 75, 113, 121, 131	Quiz #5	HW #6 Due 03/13
	Th 03/10		17.4-7	17.83, 85, 87, 93, 97, 99, 103, 107, 125, 137, 139		
-	M 03/14	Spring Break - No Class				

-	Th 03/17	Spring Break - No Class				
9	M 03/21	Free Energy & Thermodynamics	18.1-4	18.27, 31, 33, 35, 37, 39, 41, 83	Quiz #6	HW #7 Due 03/27
	Th 03/24		18.5-7	18.43, 45, 51, 53, 59, 61, 65, 67, 87		
10	M 03/28		18.8-10	18.69, 71, 75, 79, 91, 93, 97, 103, 107	Quiz #7	HW #8 Due 04/03
	Th 03/31	Review				
11	M 04/04	Midterm #2				HW #9 Due 04/10
	Th 04/07	Radioactivity	20.1-12	20.31, 35, 37, 45, 51, 55, 59, 65, 73, 77, 83, 91, 99		
12	M 04/11	Electrochemistry	19.1-4	19.33, 37, 39, 43, 47, 49, 53, 57, 59	Quiz #8	HW #10 Due 04/17
	Th 04/14		19.5-9	19.61, 65, 69, 71, 75, 83, 85, 91, 99, 115, 119, 127		
13	M 04/18	Organic Compounds	21.1-5	21.33, 37, 41, 43, 51, 53, 55	Quiz #9	HW #11 Due 04/24
	Th 04/21		21.7-12	21.61, 65, 67, 71, 75, 79, 83, 89, 91, 99		
14	M 04/25	Inorganic Compounds	22.1-4	22.17, 19, 21, 25, 33, 37, 59, 69	Quiz #10	HW #12 Due 05/01
	Th 04/28		22.5-6	22.41, 45, 47, 51, 53, 65, 71, 73		
15	M 05/02	Final Review				
	TBD	Final Exam TBD				