

Course Syllabus

Chemistry 161 – General Chemistry I

This course covers the first semester of the general chemistry curriculum. A goal of the course is to develop a deep understanding of underpinning chemistry concepts in order to apply them to practical problems.

The links below can be useful to reach the subsections of the syllabus:

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Course Information

Course Number: 01:160:161

Semester: Fall, 2022

Text book: “Chemistry: Structure and Properties”, 2nd Edition, by Nivaldo Tro. ISBN-13: 978-0-13-429393-6

Instructors, Lecture and Office Hours:

The course sections are distributed in 5 lectures according to the information listed below.

Four of these lecture sections are given on Monday, Wednesday, Thursday for 55 minutes; a fifth section is given on Monday and Wednesday evenings for 80 minutes. Each lecture section is associated to a 55-minute recitation.

All lectures will be delivered in-person, and attendance and participation is required.

Sec. 01-10, OS: MWF 2:15-3:10 PM Beck Auditorium

Lecturer: Prof. Paul Kimmel pkimmel@chem.rutgers.edu

Office hour: MWF 3:15 -4:15 PM Beck 006

Sec. 16-25: MWTh 10:35-11:30 AM Hickman 138

Lecturer: Prof. Anna Kornienko akern@chem.rutgers.edu

Office hour: Monday 12:00 - 1:40 PM Hickman 122

Wednesday 11:40 AM - 1:30 PM Hickman 132

Sec. 31-43: MW 7:30-8:50 PM Beck Auditorium

Lecturer: Prof. Paul Kimmel pkimmel@chem.rutgers.edu

Office hour: MW 9:00 PM - 10:00 PM Beck 006

Sec. 46-57: MWTh 12:25 PM -1:20 PM Beck Auditorium

Lecturer: Prof. Bryan Langowski loki@chem.rutgers.edu

Office hour: MWTh 1:45-2:45 PM Beck 004

Sec. 61-69: MWTh 8:45 AM -9:40 AM Hickman 101

Lecturer: Prof. Francesca Guerra francesca.guerra@rutgers.edu

Office hour: MW 10:00-11:00 AM Hickman 204

Learning Goals

Core SAS Curriculum Learning Goals Met by this Course



Areas of Inquiry

Natural Sciences
Social and Historical Analysis
Arts and Humanities



Areas of Inquiry

Natural Sciences
Social and Historical Analysis
Arts and Humanities

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

Department Learning Goals Met by this Course

By the end of this course, students will be able to draw upon:

- *relevant scientific models*
- *representations at the macroscopic, submicroscopic (small particle), and symbolic levels—including mathematical formulae*
- *qualitative and quantitative reasoning skills*

...to demonstrate their understanding (at honors level) that:

1. “**Atoms:** Matter consists of atoms that have internal structures that dictate their chemical and physical behavior.”
2. “**Bonding:** Atoms interact via electrostatic forces to form chemical bonds.”
3. “**Structure and Function:** Chemical compounds have geometric structures that influence their chemical and physical behaviors.”
4. “**Intermolecular Interactions:** Intermolecular forces—electrostatic forces between molecules—dictate the physical behavior of matter.”
5. “**Chemical Reactions:** Matter changes, forming products that have new chemical and physical properties.”
6. “**Thermodynamics:** Energy is the key currency of chemical reactions in molecular-scale systems as well as macroscopic systems.”
7. “**Measurement and Data:** Chemistry is generally advanced via experimental observations.”
8. “**Visualization:** Chemistry constructs meaning interchangeably at the particulate and macroscopic levels.”

Canvas Website

All communication to the students will be occur through the Canvas website: <https://canvas.rutgers.edu> (Links to an external site.). You should login to this website using your Rutgers netID and password. Once on Canvas, click “courses” and then Chem 161 Fall 2022 which brings you to the course site.

Course announcements can be seen on Canvas, using the “announcements” tab. Instructors will routinely use Canvas to post announcements. You may have to adjust Canvas settings to make sure that these announcements will automatically be sent to you by Rutgers email. Click on **account** tab (upper left) then click on **notifications**. Look at the “announcement” line in the Course Activity chart and in the “email address” click on the left side to be sure there’s a green checkmark. This green checkmark on the left side means that all announcements will be immediately sent to you by Rutgers email.

The website is organized in weekly modules, each listing appropriate information, resources and deadlines for that week.

Lecture notes will be made available on Canvas.

Course schedule

The “General Course Information” module on Canvas contains the course schedule, listing the planned topics covered in each lecture, along with the corresponding section of the textbook and the suggested textbook problems associated with those topics.

There are 2 files. The 55-minute lecture sections, and the 80-minute lecture sections. Overall, both schedules are identical in coverage, except that the lessons are divided into 80 minute segments or 55 minute segments.

Textbook

The textbook for this course is Rutgers Custom Edition of “**Chemistry: Structure and Properties**”, Second Edition, by Nivaldo Tro. The same textbook will also be used in Chem162 during the following semester. Lecture material and suggested practice problems originate in this book.

The textbook is available online as an e-book through First Day Program, for \$35.00. This cost is included in tuition bill, but students can opt out if they want. Click on **First Day Course Materials**, found in the left-hand column (starting with "home" at the top) of the Canvas course site.

Recitations

Recitation sections are 55 minutes long and are designed for smaller groups in which students can ask questions, and more easily converse with the instructor than would be possible in a large lecture. Recitations are used to go over problems and explain material that is covered during the lectures.

Recitation sections will either be in-person or online. Each lecture section is assigned to a particular time slot and location for a recitation that can be determined by consulting your class schedule. Attendance and participation (by answering quiz or poll questions) in recitation is mandatory and will count towards the final grade. A more complete

description of recitation policies and procedures can be found in the file “ [161 Recitation Policies Fall 2022](#)”

” [Actions](#)

Active Learning Workshop

During the first week of class, students will be given the opportunity to apply for participation in a different version of recitation. Details about this application can be found in the General Course Information module under the heading [What are the Active Learning Workshops \(and how to sign up\)](#) and will be also be explained during the first lecture and posted in an announcement on Canvas. Active learning workshops (ALW) are 80 minutes long. In this ALW section, recitations will emphasize collaborative learning, and will be given on Mondays period 3 from 12:00 to 1:20 PM and Tuesdays period 2 from 10:20 to 11:40 AM, in Academic Building East (AB) Room 4400 on College Ave..

If more than the maximum number apply, students will be chosen randomly from the application pool. Students who apply should be willing to actively take part in group work, and have no course conflict with the recitation times.

The survey to apply/opt out to ALW can be completed following the link : [apply here \(Links to an external site.\)](#)

All students must fill out this survey, irrespective of their interest in ALW, by Tuesday 9/13 at 11:59 pm.

eLearning Online Homework

Online homework will be assigned through the website <https://my.elearning.rutgers.edu> (Links to an external site.) every week.

In order to access it, login with netid and password using a laptop or desktop computer with either Google Chrome or Mozilla Firefox as web browser.

There are two type of assignments:

1. A practice assignment - it is not graded and will be available until the end of the semester. You can access it as many times as you want. One purpose of the weekly practice assignment is to prepare you for the weekly quiz (see below), and thus this assignment should be done BEFORE the quiz.

2. A **graded and timed** quiz divided in 2 parts. Students will have **ONE ATTEMPT** to complete each part of the quiz and once they start they have to complete it within **25 minutes**. **The sum of the scores of both quizzes will be used to calculate the weekly quiz score.**

Part A of the quiz will be released on Wednesday and part B on Friday at 6:00 pm and they will both be due the following **Monday at 6:00 pm (Eastern Time Zone)**.

The 2 lowest scored quizzes will be dropped when calculating the course grade. If a quiz is missed, this will count towards one of the lowest scored quizzes, so extensions and/or make-up will not be granted.

Technical problems **MUST** be reported to eLearning tech support through the website <https://techsupport.elearning.rutgers.edu>. Please do not contact your lecturer for technical problems.

Grading

Grades are based on an overall percentage score (0-100) determined from three midterm exams, a final exam, online quizzes, and recitation attendance/participation according to the distribution shown below.

	Percentage of total grade
Three midterm exams	39% (3 × 13)
Final exam	26%
Online Quizzes	30% (see note below)
Recitation	5%
Total	100%

Note: Online homework quizzes are designed so students can practice and improve their problem-solving skills and conceptual understanding, with the ultimate goal that this will correlate with improved test scores. Therefore, there should not be a significant difference between online homework quizzes and exam averages. Your online homework quiz average will count 30% toward your final grade, but only up to a maximum of 20 points above your exam average. Example: Your exam average is 60%, online homework average is 90%. For purposes of calculating the final average, online homework quizzes will count as 80% (maximum of 20% higher than your exam average).

There are no grade curves in the class – grades are assigned based on the overall percentage score according to a final scale to be decided at the end of the course. An approximate idea of the grading scale would be as follows: A ($\geq 90\%$); B (80-89%); C (65-79%); D (55-64%); F ($< 55\%$).

Attendance in Lecture

Lecture attendance will be checked through the polling questions. You are expected to participate in the polling. Polling questions will aid in understanding material during lectures.

If You Need Extra Help

Prepare for each recitation section by doing the suggested problems in the syllabus, and having questions ready for the recitation instructor.

Office hours for all the lecturers and recitation instructors will be posted on Canvas by the end of the first week of class. You can feel free to go to the office hour of any lecturer or recitation instructor. All lecturers and recitation instructors are committed to help you achieve success in the class.

The four Learning Center locations are closed until further notice but have a virtual help desk, https://rlc.rutgers.edu/help_desk (Links to an external site.) , to help students navigate their courses and connect with support services. They have also created a guide for successful online learning, <https://rlc.rutgers.edu/succeedonline> (Links to an external site.)

For help with Rutgers libraries and computer labs, please check their website at: <https://oit-nb.rutgers.edu/labs> (Links to an external site.)

Disabilities 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 should contact the contact the office of Disability Services at <https://ods.rutgers.edu> (Links to an external site.) or tel: 848-445-6800.

Once you receive a Letter of Accommodations, please submit it to the course administrator as soon as possible.

Additional information can be found here: <https://ods.rutgers.edu/students/receiving-accommodations-online> (Links to an external site.)

Academic Integrity

Students are expected to adhere to the university policies on academic integrity and student conduct in all assignments, assessments and other matters regarding this course. These policies can be found online: <http://studentconduct.rutgers.edu/academic-integrity/> (Links to an external site.)

Use of external sources to obtain solutions to homework assignments or exams is cheating and a violation of the University Academic Integrity policy.

Cheating in the course may result in penalties ranging from a zero on an assignment to an F for the course, or expulsion from the University. Posting of homework assignments, exams, recorded lectures, or other lecture materials to external sites without the permission of the instructor is a violation of copyright and constitutes a facilitation of dishonesty, which may result in the same penalties as explicit cheating.

Intellectual Property

Lectures and materials utilized in this course, including but not limited to videocasts, podcasts, visual presentations, assessments, and assignments, are protected by United States copyright laws as well as Rutgers University policy.

The instructors of this course possess sole copyright ownership. Students are permitted to take notes for personal use or to provide to a classmate also currently enrolled in this course. Under no other circumstances is distribution of recorded or written materials associated with this course permitted to any internet site or similar information-sharing platform without my express written consent. Doing so is a violation of the university's [Academic Integrity Policy](#) (Links to an external site.).

Contact Information

Course Coordinator: Darrin York	york@chem.rutgers.edu
Course Administrator: Paul Kimmel	pkimmel@chem.rutgers.edu
Recitation Coordinator: Bryan Langowski	loki@chem.rutgers.edu
Online Homework Coordinator: Francesca Guerra	francesca.guerra@rutgers.edu
Teaching Intern Coordinator: Anna Kornienko	akern@chem.rutgers.edu