

## CHEM 141 PRINCIPLES OF CHEMISTRY I (for Majors: Sections 01M-04M)

### FALL 2024 SYLLABUS

Instructor: Prof. Andrew B. Greytak  
Office: GSRC 409 Phone: 803-777-0672 Email: [greytak@sc.edu](mailto:greytak@sc.edu)

Lab Instructor: Prof. Augustus W. Fountain III  
Office: STB 227 Phone: 803-777-3904 Email: [way.fountain@sc.edu](mailto:way.fountain@sc.edu)

Office Hours (lecture): GSRC 409, time TBA

Lecture: Tues. / Thurs. 11:40 am – 12:55 pm, **Jones Physical Sciences Center (PSC) 104**

This class is offered via in-person (face-to-face) instruction and attendance is required. Be on time and come to class prepared. Reading Assignments and Homework are assigned through Pearson's Mastering linked through Blackboard. You may not bring food into the lecture hall. Drinks are OK.

You need to know your section number (01M, 02M, 03M, or 04M). Recitations will be led by a TA to be assigned. Each lab section will also be led by a TA who will guide you through lab classes. The following table lists lab and recitation times. STB stands for Science and Technology Building (1112 Greene St). Lab will not meet every week: check detailed schedule.

Section	01M	02M	03M	04M
Recitation	Monday 1:10-2:00 pm STB 417		Monday 3:55-4:45 pm STB 417	
TA				
Lab	Wednesday 8:30-11:30 am STB 212	Thursday 2:50-5:50 pm STB 212	Wednesday 12:00-3:00 pm STB 212	Thursday 8:30-11:30 am STB 212
Lab TA				

**Credit:** 4 credit hours. The completion of Chem 141 and 142 is equivalent to Chem 111, Chem 112, and Chem 321L.

**Prerequisite:** High school chemistry. In addition, all students **must** have completed (with C or better) or be enrolled in Calculus I (MATH 141 or higher), or received a math placement score sufficient for MATH 142. *Recommended:* 2 years of high school chemistry (or 1 year intensive course), and a good high school physics course.

**Text:** **Required:** "Mastering Chemistry with Pearson eText". This item bundles access to the Pearson Mastering online homework system (through which all homework will be assigned and graded) with access to the electronic version of our textbook "Chemistry: The Central Science" by Brown, LeMay, Bursten, Murphy, Woodward, and Stoltzfus (15th edition). Listed for this course, section 01M, at the Russell House Bookstore / Barnes & Noble College UofSC website (ISBN 8220126467606); also available from Pearson for single- (ISBN 9780137542932) and multi-term (ISBN 9780137542901) access.

**Recommended:** Hardcopy of Brown (15<sup>th</sup> ed., Pearson, 2023: ISBN13: 978-1292408767) or an earlier edition of Brown, or possibly a different General Chemistry textbook.

**Homework:** There will typically be one homework assignment per week. You will need to register for Pearson's Mastering Chemistry. Our Course Name is "CHEM 141 Fall 2024 (Majors)" and Course ID is **greytak38688**. The course (will be) linked to Blackboard and detailed registration instructions provided.

You should plan for at least an hour of reading and at least 45 minutes to an hour for the assigned homework problems.

**Lab Policies:** **There are no make-up labs.** Therefore you must come prepared for each one. All labs are conducted in STB 212.

As a matter of safety and policy, **proper lab attire** is required to enter the lab and complete your assignment:

- Students **are required to obtain** ANSI-approved laboratory safety glasses or goggles. They must be properly worn the entire time you are in the lab. Put them on before you come in.
- You must wear **long pants** that completely cover the leg (no rips, tears, or holes)
- You must wear shoes that completely cover the foot (**closed toe**)
- Lab coats (shared) *will be available* for students to use.
- No food, drink, or candy (including gum) in the lab. Any that are out will be discarded. Additionally, cosmetics or cell phones should not be out in the lab.
- Additional personal protective equipment, such as appropriate gloves, may be required for procedures using liquids and/or toxic materials, and will be provided. Students are required to follow prescribed safety procedures for all activities.

Failure to adhere to these classroom rules may result in your being dismissed from class and/or an academic penalty.

**Students must obtain the CHEM 141 lab manual from USC Print Services**, located in the basement of Russell House (next to the Carolina Card office). You are required to have the manual and bring it to each laboratory meeting. The CHEM 141 manual will be printed single sided with perforated pages. You will scan your completed worksheets and upload a pdf file to Blackboard for grading.

**Recitations:** 50 minutes of which 30 minutes are for a demonstration of problem solving and your questions, and 20 minutes are for a short recitation quiz.

**Attendance:** Students are expected to attend all classes in the format they are offered. The University Attendance Policy can be found at [this link](#). Attendance is taken daily. More than 3 unexcused absences from lecture (~10% of meetings) may lower your final grade by one-half grade.

Students who miss classes due to a diagnosed health condition or registered disability should contact the [Undergraduate Student Ombudsman](#) or [Student Disability Resource Services](#) to document the reason for their absence. USC policy is that students with documented absences may be offered recorded classes, be considered present for participating in class virtually and have the opportunity to reschedule exams, labs or assignments at the instructor's discretion; first utilizing any syllabus statement regarding missed class, assignments or exams. If a student misses more than one exam in CHEM 141 with proper official documentation, then the second missed exam may be rescheduled. ALL excused absences and accommodations for disabilities MUST have proper official documentation. Excused absences may not be penalized in a student's grade, and the student must be permitted to make-up coursework missed due to an excused absence or to complete an equivalent assignment agreed upon with the instructor.

## Learning Management System:

The University uses Blackboard, and all assignments and course information will be found there. Check Blackboard often for announcements and up-coming assignments, laboratory exercises, and quizzes as well as short videos.

**Exams:** All Exams will be administered in the same room as lectures (STB 417). There are three mid-term exams which last 70 minutes each. Typically, some questions are multiple choice and some require written answers. Practice exams with answer keys will be posted 1 week prior. You are allowed to drop one exam as described later. Rescheduling or make-up exams will not be offered in the case of a single excused absence, but may be considered as an accommodation in unusual circumstances. **You must bring a photo ID to the exam and show it to the proctor when you are finished.**

**Final Exam:** The Final Exam will be administered on Thursday, Dec 12 at 12:30 PM in our regular classroom (PSC 104). It lasts 2.5 hours until 3:00 PM. As with the midterms some questions will be multiple choice and some will not. A practice final will be posted 1 week prior.

Grading:	Midterm exams	600	(3x 200 each)
	Homework	200	
	Recitation quizzes total	100	
	Laboratory	200	
	Final exam	400	
	TOTAL	1500	

**Grading Scale:** All elements of the course as listed above are required and must be completed within the normal term. Failure to complete all elements on time will result in a grade of F. *Students must score a  $\geq 60\%$  average on exams and a  $\geq 60\%$  average in the laboratory portion to pass the course.* For students meeting those requirements, letter grades will be assigned based on the percentage of the total available score that was earned. An approximate scale is follows, however, the grading scale may be adjusted based on overall class performance:

A	89-100%
B+	$\geq 86\%$
B	$\geq 80\%$
C	$\geq 70\%$
D	$\geq 60\%$
F	$< 60\%$

Grades of Incomplete will only be assigned in unusual circumstances. There is no extra credit available for this class. If your percentage score on the final exam is better than the lowest mid-term exam, or if you miss one mid-term exam due to an excused absence, the percentage score on the final will substitute for the percentage score on the lowest or missing midterm exam.

## Hazardous Weather & Other Emergencies:

In case of emergency closure, such as described by USC Policy HR 1.18, instructions will be posted on Blackboard. Emergency closures are announced on the university Carolina alert website <http://carolinaalert.sc.edu/>. Emergency closures could result in a mandated transition to online synchronous instruction on short notice. This class will observe public health directives (related to COVID-19, etc) that may be specified by USC or applicable public health authorities.

**Calculators:** Programmable calculators (any that are approved for the AP test) may be used for examinations, but laptop computers, phones, tablets etc. may not be used.

**Cell phones:** All cell phones are to be turned **off** or **silenced** during class. All cell phones are to be put away out of view during class; there is no text messaging, web browsing, etc. during class. There will be no eating during class time. Failure to adhere to these classroom rules may result in you being dismissed from class and/or an academic penalty.

### Academic Integrity:

Your enrollment in this class signifies your willingness to accept these responsibilities and uphold the Honor Code of the University of South Carolina. Please review the Honor Code Policies. Any deviation from this expectation can result in a course failure and a referral to the Office of Student Conduct and Academic Integrity.

Cheating, plagiarism, copying from old lab reports or recitation quizzes, and other forms of academic dishonesty in connection with any portion of this course will normally result in failure of the course. Cooperating in academic dishonesty will also result in failure. Submitting an online homework answer without working through the problem independently is considered cheating. All incidents of academic dishonesty will be reported to the student's College for possible further disciplinary action.

**Copyright:** Lectures and course materials (which include my presentation slides, video recordings, tests, exams, outlines, and lecture notes) are protected by copyright. You are encouraged to take notes and utilize course materials for your own educational purpose. However, you are not to reproduce or distribute this content without my expressed written permission. This includes sharing course materials to online social study sites like Course Hero and other services. Students who publicly reproduce, distribute or modify course content maybe in violation of the university's Honor Code's Complicity policy, which states: sharing academic work with another student (either in person or electronically) without the permission of the instructor. To best understand the parameters around copyright and intellectual property review ACAF 1.33 "Intellectual Property Policy".

**Collaboration:** A student's grades are to represent to what extent that individual student has mastered the course content. You should assume that you are to complete course work individually (without the use of another person or uncited outside source) unless otherwise indicated by the instructor. It is your responsibility to seek clarification if you are unclear about what constitutes proper or improper collaboration. This does not mean you should not study in groups and discuss problems - the latter is encouraged. (More to that in the first class).

### Lab Assignments:

In this course students will complete laboratory assignments. You are encouraged to work together in the lab to complete the data collection. However, all lab reports must be the work of the individual student and may not be copied from another student's work, the text or any other source. Any discussion with your lab section should be limited to general terms and big picture concepts. Avoid sharing your lab report with other students electronically.

### Citations:

When citing references or outside published works in laboratory reports students shall follow the "ACS Guide to Scholarly Communication" available electronically at <https://pubs.acs.org/doi/full/10.1021/acsguide.40303>.

## Reusing Course Materials:

The use of previous semester course materials is not allowed in this course. This applies to homework, projects, quizzes and tests. Because these aids are not available to all students within the course, their use by any individual student undermines the fundamental principles of fairness and disrupts your professor's ability to accurately evaluate your work. Any potential violations will be forwarded to the Office of Student Conduct and Academic Integrity for review.

## Disability Services:

Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, contact the Student Disability Resource Center: 777-6142, email <mailto:sadrc@mailbox.sc.edu>, main office Close-Hipp (1705 College St) Suite 102. All accommodations must be approved through them. Any disability-related absences should be reported through a disability coordinator within 24 hours of the absence when possible. If the absence is not reported in a timely manner, accommodations will not be allowed.

## Expectations of the Instructor:

The instructor is expected to facilitate learning, to answer questions appropriately, to be fair and objective in grading, to provide timely and useful feedback on assignments, to maintain adequate office hours on line, and to treat students as they would like to be treated in their place.

**Content:** Chem 141 is taught in a rigorous fashion for serious students who intend to major in chemistry. The course presumes a solid background in science and mathematics. It is aimed at developing independent thought and problem-solving abilities. The principles of chemistry will be illustrated with accurate and thought-provoking examples.

## Learning Outcomes on successful completion of Chem 141:

- Demonstrate knowledge of basic stoichiometric calculations, naming compounds, writing and balancing chemical reactions, properties of ionic and covalent compounds, properties of solutions, thermochemistry, and atomic orbitals and their significance in bonding.
- Master the skills of solving practical numerical problems in chemistry.
- Work collaboratively with other students for teaching and learning chemistry.
- Demonstrate a mastery of historical knowledge of chemical events as compared to modern day practices.
- Demonstrate proficiency in assembling basic laboratory glassware, performing fundamental laboratory techniques, making and recording relevant experimental observations, and interpreting the results.
- Discuss the important scientific discoveries that lead to the development of modern chemistry (Carolina Core Scientific Literacy).
- Demonstrate understanding that the natural world has an atomic and molecular basis which successfully explains its physical phenomena.
- Discuss, through examples, the impact of chemical phenomena on the fields of medicine, pharmacy, dentistry, biology, and physics.
- Apply gas laws and kinetic molecular theory to processes involving gases.
- Explain the intermolecular attractive forces that determine the properties of the states of matter and phase behavior.
- Write proper laboratory reports with abstract, introduction, experimental methods, results, discussion, conclusions, with appropriate graphs and statistical data analysis, including dimensional analysis.