SOUTHERN CALIFORNIA UNIVERSITY OF HEALTH SCIENCES
Accelerated Sciences Division

Syllabus Table of Contents

COURSE INFORMATION

Course Number (Prefix Code): CHEM211

Course Name: General Chemistry I lecture

Course Description:
The first semester of chemistry for science majors, pre-professional students, and others in science-related fields. This course provides a quantitative introduction to atomic and molecular structure, states of matter, basic thermodynamics, and solutions. A number of concepts within each topic will be demonstrated and sample problems discussed. These topics will be covered at a brisk pace in lectures due to the accelerated nature of this course. Within this course, students become conversant with the scientific vernacular, chemical symbols and notation. Students will manipulate mathematical equations in order to appreciate the quantitative nature of atomic interactions. States of matter will be categorized. The Periodic Table of the Elements will be studied to illustrate chemical periodicity and bonding. The gas laws will be introduced in order to understand statistical handling of large populations of atoms and molecules. The laws of thermodynamics will be introduced, including the concepts of enthalpy and entropy.

Course Delivery Model(s): Online, Online-Interactive

Time Requirement:

Lecture Hours per term:	45
Laboratory Hours per term:	0
Total Hours per term:	45
Course Duration (weeks):	5
Credits:	3

Credit Hour Verification:
This list represents the average amount of time a student is expected to spend to successfully complete this course. *Total hrs/wk 27*

	Activity Type	**Online-Interactive Hrs/wk**	**Online (Self-paced) Hrs/wk**
Course Time	Lecture	9 hours	6 hours
	Discussion forums	1 hour	1 hour
	Audio/Video recordings	3 hours	3 hours
	Quizzes (outside of class)	2 hours	2 hours

	Homework	3 hours	3 hours
Preparation and Study	Study (assessment prep)	4 hours	4 hours
	Reading	4 hours	4 hours
Other	Exams (outside of class)	1 hour	1 hour
Total	Total per week	27 hours	27 hours
	Total per course	135 hours	135 hours

Prerequisites: None

Co-requisites: None

Recommended Pre/Co-requisites: Introduction to chemistry; an algebra class is highly recommended pre-requisites.
CHEM211L recommended co-requisite

This course may be taken again for credit the following number of times (repeatable): 5

LEARNING OUTCOMES, OBJECTIVES, & ALIGNMENT

Student Learning Outcomes
In successfully completing this course, students will be able to:

SLO
1. Demonstrate thorough knowledge and understanding of the fundamental principles and core concepts of General Chemistry I.
2. Use dimensional analysis to solve quantitative problems and evaluate the results of calculations to make sure they are physically reasonable.
3. Be able to describe and define the general properties of gases (including define the units of pressure; define, apply, and carry out calculations using Boyle's, Charles', combined, and ideal gas laws; carry out calculations related to the density of gases, gas reaction stoichiometry, Dalton's Law of Partial Pressures, and gas diffusion; discuss kinetic molecular theory and deviations from ideality in gases.
4. Be able to describe the electronic structure of atoms, properties of elements in the periodic table, differentiate between types of bonds and determine 3D shapes of molecules.

TEXTBOOKS & MATERIALS

Required Textbook(s): White, J., Anderson, B., Green B., and Hall, M. *Chemistry: Achieve for Interactive General Chemistry*
ISBN: 9781319257866, 1st edition, 2021. An electronic textbook is provided to students through Canvas.

Required Materials: Working computer with a strong internet connection, camera and a microphone. Scientific calculator.

Scientific Calculator*

*** Graphics or text-memory calculators are not allowed for use during quizzes or exams. If a student brings one they will have to take the quiz without a calculator! Students are encouraged to obtain a scientific calculator with exponents and logarithms immediately, rather than the day before a quiz or an exam. It is important to be comfortable with the calculator being used, rather than to be struggling to locate the keys for certain mathematical operations. For example, a TI-30X IIS is acceptable.*

Provided Materials: The following materials will be provided:

Homework and quizzes platform (Macmillan).

Technology Requirements:

External resources: Macmillan

Learning Management System: Canvas. If a student is unfamiliar with the Canvas learning management system, please visit the manuals and learning guides available in the Canvas Student Guide. It is important that students are comfortable and competent in using this system, as all course material and communication will be done via Canvas.

Navigating Canvas – the Canvas site has a large set of Canvas tutorials and videos for students.

Browser and Computer Requirements for Canvas: This course requires that students have access to Google Chrome or Microsoft Edge.

Examination System: Proctorio. We will be using the Proctorio Online Exam Proctoring Service in this course. Proctorio is a software extension in Chrome that uses your computer's screen, web cam, and microphone to create a remote proctored environment, and enables students to take exams via Canvas from any remote location. *Students must have a strong and stable internet connection for Proctorio to work well.* During exams, students, the computer, and all surrounding environment may be recorded.

In addition to the instructor(s) and Teaching Assistants(s) of this course, Proctorio and SCU Proctorio administrators are the only ones who will have access to the recordings. The Chrome browser extension must be installed before students can take any exam, and it can be removed once an exam is complete.

There will be an initial practice exam for students to become familiar with using Proctorio, which allows students to identify any potential issues prior to using this examination system.

Suggestions for completing online coursework: Save work often; this includes backing it up on multiple devices or cloud applications. When submitting final papers on the Canvas learning management system (LMS), ensure that all files have been uploaded properly. Also make sure to keep a hard copy of all papers/projects in case of an unforeseen technological failure or outage.

EVALUATION OF STUDENT LEARNING

Grading scale:

Letter grade
A = 90% - 100%
B = 80% - 89.99%
C = 70% - 79.99%
D = 60% - 69.99%
F = 0.0% - 59.99%

Assessments:

Assessment Name	# of assignments	Weight	SLO Linkage
Pre-Lecture Activity	11	10%	1,2,3, and 4
Participation	10	15%	1,2,3, and 4
Adaptive Modules Quiz	11	15%	1,2,3, and 4
Homework	11	20%	1,2,3, and 4
Exams	2	40%	1,2,3, and 4

Course Topics:

Week	Module	Topic	Assessment Activity	SLO Linkage
1	1	Science and Measurement	Learning Curve, HW, Pre-Lecture activity, participation, and reading.	1,2
	2	Atoms and the Periodic Table	Learning Curve, HW, Pre-Lecture activity, participation, and reading	1,2
2	3	Compounds and the Mole	Learning Curve, HW, Pre-Lecture activity, participation, and reading	1,2
	4	Chemical Reactions and Aqueous Solution	Learning Curve, HW, Pre-Lecture activity, participation, and reading	1,2
	5	Stoichiometry	Learning Curve, HW, Pre-Lecture activity, participation, and reading	1,2
3	6	Thermochemistry	Learning Curve, HW, Pre-Lecture activity, participation, and reading	4
	7	Gases	Learning Curve, HW, Pre-Lecture activity, participation, and reading	3
4	8	The Quantum Model of the Atom	Learning Curve, HW, Pre-Lecture activity, participation, and reading	4
	9	Periodicity and Ionic Bonding	Learning Curve, HW, Pre-Lecture activity, participation, and reading	4
5	10	Covalent Bonding	L Learning Curve, HW, Pre-Lecture activity, participation, and reading.	4
	11	Molecular Shapes and Bonding Theories	Learning Curve, HW, Pre-Lecture activity, participation, and reading	4

UNIVERSITY POLICIES

All university policies apply to this course and all others. For full policy information please consult the SCU Catalog. Additionally, program policies apply to students in each program as described in the Catalog and in SCU Health Handbook for clinical courses.

Drop Date: It is your responsibility to understand when you need to consider unenrolling from a course. Refer to the SCU Academic Calendar for dates and deadlines for registration. Refer to SCU Academic Policies for information about the drop period.

Incomplete Policy: Under emergency/special circumstances, students may petition for an incomplete grade. See the SCU Catalog for Policies about Incomplete Grades

Academic Integrity: As a student at this university, you are expected to maintain high degrees of professionalism, commitment to active learning, and integrity in and out of the classroom. See the SCU Academic Integrity Code.

Accessibility Services and Accommodations: The Office of Student Services provides support to students with disabilities requiring accommodations in concert with the lead faculty for this course. All students are encouraged to request accommodations as far in advance of when the accommodation will be required as possible to allow the University to process the request and provide approved accommodations. To begin the process please request a consultation with the designated Accessibility Services Officer as soon as possible. Once the Office of Student Services approves the request, the letter of accommodation will be provided to the student and lead faculty member via email. The student should be certain to follow-up with the lead faculty member to plan for the specific accommodation needs for the course. Program requirements cannot be modified to accommodate a disability. Please see the catalog for details regarding Accessibility Services and Accommodations .

A complete list of University Services is available through MySCU, including:

- Tech Support information
- Veterans Support Services
- Resources for Title IX support though the Campus Safety tab
- Student Advocacy and Accountability resources

Learning Resource Center: Students can use the library's resources which provide students with an excellent collection of books, journals, electronic databases, and websites as well as consult with the librarian to help with the course.

Online Etiquette: In general, behavior in an online classroom should emulate the professional behavior expected in an on-ground classroom with a few additional requirements:

- Avoid using text slang and abbreviations such as "u" (instead of "you"), "TLDR" (Too Long, Didn't Read) or "TBH" (To Be Honest) - not everyone knows what they are. Do not use ALL CAPS for entire sentences or posts - this is seen as yelling at someone.
- Any form of personal attack or inappropriate response with other students or faculty is unacceptable. We will remove any discussion posts showing this and warn the author.
- If you disagree with someone's comments, do so respectfully and collegially, and provide legitimate examples to support your side. Try to find something to complement in the other's comments.
- Before you press the submit button, review your comments, making sure nothing is coming across as defensive, too "know-it-all" or critical, or academically inappropriate. It is easy for someone to misinterpret your meaning when they cannot see your expression or hear the tone of your voice.
- Avoid short, generic replies such as "I agree!", "I like it!" or "Funny!" – explain why you agree, add another point in support of the idea, or raise a question.

Attendance: SCU policy defines attendance for all courses and specifies online courses as active, weekly participation in the course as described in the syllabus. Examples of activities could include, but are not limited to:

- Participating in weekly online chats or discussions
- Submitting or completing assignments
- Commenting on other student contributions
- Actively logged on and participating in class at least three times per week

See the Academic Policies page in the SCU Catalog for more details on Attendance Policy.

Accelerated Sciences Course Recommendations

- Read before and after each class. Skim the chapter before it is covered in lecture to become comfortable with some of the terms associated with each topic. Review each chapter after it is covered in class to enhance understanding of the material.
- Do not wait until the night before homework is due to start the assignment. Understanding of concepts will be enhanced if the time is taken to learn them beforehand and later review the material without being rushed.
- Stay focused by finding an environment to study with few distractions.
- Participate during class by taking notes and looking over them afterwards.
- Any topics covered in the course could be presented in subsequent examinations, so it is critical to prepare and learn all presented material.
- Remember that procrastination in an accelerated course can quickly prove disastrous! Failure to learn foundational principles can make all future material seem nearly incomprehensible, so make sure to budget time wisely over the next five weeks.

Specifically for synchronous courses:

- Ask questions for clarification when not understanding the material being covered.
- *Do not skip class, arrive late, or leave early.* Given the accelerated nature of our courses, every minute of class missed can have a real impact on student success in a course.
- Work on assigned problems as close to the time as when the topic is covered in class to increase understanding of specific concepts.
- Find a group of students to study with. This makes studying more fun and helps learning of the material by teaching to and learning from peers. Explaining these concepts to other students aids in mastery of what is covered.

Teaching Methods & Instruction

In synchronous classes with scheduled class times, lecture will be delivered in real time/live by the instructor. Students must adhere to the attendance policy set out by the instructor for the class. In asynchronous classes, students will review lecture content on their own time. Due to the individualized nature of the learning, students should expect to spend as much time as needed based on prior knowledge of foundational material and a realistic study schedule. Students should check both their schedule and the Canvas course page to confirm they are correctly enrolled in the chosen course modality.

Pre-lecture activity: Before each lecture, students complete very short 5-7 question quizzes to orient them to the lecture content and to give them an idea of the prerequisite knowledge they might need to fully grasp each lecture's content. Pre-lecture activities are graded based on completion.

Participation: Students earn points by completing learning activities. *Attendance is not the same thing as participation.* Students are expected to be involved and engaged in all classroom activities (which may include activities graded on quality of participation).

Adaptive Module Quiz (may be called LearningCurve): In each Adaptive Module Quiz, the instructor has established a certain score needed to reach to demonstrate comprehension of the concept. That score is called a target score. Once the target score is reached, full credit is given for completing the Adaptive Quiz. The target score much be reached to receive credit for the Adaptive Quiz. Questions get progressively harder through the Adaptive Quiz, and more points are allotted for answering harder questions. Reviewing portions of the electronic textbook may be required when questions are missed.

Homework: Students reinforce concepts learned in class by completing the homework assignments. Homework assignments are open-book formative assessments where students can have unlimited attempts to practice problems. The highest score achieved is recorded in the gradebook. Homework must be completed by the due date – late submissions incur a 2% grade reduction for every day submitted late.

Exams: There are two exams in each class, a mid-term, and a final exam. There will be questions that are similar to all quizzes, homework, questions at the end of each chapter, and any other activity given. The exams are all on Canvas. Please pay attention to the due dates. They are final and will not be extended. Proctoring is required by the instructor for all exams.

- Note: Completing assignments open book (book, instructor office hours, tutor, Google, etc.) is different than testing in an exam environment. It is acceptable and encouraged to use all available resources to learn how to complete an assignment; however, the long-term goal should be to pass the exams without any outside aid.