

SOUTHERN CALIFORNIA UNIVERSITY OF HEALTH SCIENCES
Accelerated Sciences Division

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COURSE INFORMATION

Course Number (Prefix Code): CHEM351

Course Name: Chemistry for Health Sciences Lecture

Course Description:

Chemistry for Health Sciences is an introductory course designed for Health Sciences or Pre-Nursing majors. Basic concepts in general, organic, and biological chemistry are covered. The course explores the role of chemistry as an intermediary between the physical and life sciences. Topics covered include measurement and unit conversion, atomic and molecular structure of matter, solutions, acid/base chemistry, organic chemistry, and structure of proteins, carbohydrates, and fats.

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

Time Requirement:

Lecture Hours per term:	60
Laboratory Hours per term:	0
Total Hours per term:	60
Course Duration (weeks):	5
Credits:	4

Credit Hour Verification:

This list represents the average amount of time a student is expected to spend to successfully complete this course.

	Activity Type	Online Interactive Hrs/wk	Online Self-Paced Hrs/wk
Course Time	Lecture time	12	0
Academic Engagement	Video Lectures	0	0.5
	Supplemental Videos	3	4
	Adaptive Reading Assignment	4	6
	Homework	4	6

	Activity Type	Online Interactive Hrs/wk	Online Self-Paced Hrs/wk
	Exam	1	1
Preparation and Study	Study time (assessment prep)	6	9
	Reading (chapter readings, materials research)	6	8.5
Total	Hours per week	36	36
	Hours per course	180	180

Prerequisites: None

Co-requisites: None

Recommended Prerequisites and Co-requisites: CHEM351L – recommended co-requisite; Introduction to Chemistry – recommended prerequisite

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

LEARNING OUTCOMES, OBJECTIVES, & ALIGNMENT

Student/Course Learning Outcomes

In successfully completing this course, the student will be able to:

SLO/CLO
1. Apply dimensional analysis to calculate stoichiometric quantities of chemical reactions.
2. Explain how VSEPR Theory influences physical properties of matter.
3. Predict the products of organic chemical reactions.
4. Describe how intermolecular forces affects hydrophobic and hydrophilic interactions.
5. Describe the structure and function of proteins.
6. Explain the process of cellular respiration and energy production.

TEXTBOOKS & MATERIALS

Required Textbook(s): General, Organic, and Biochemistry by Katherine J. Denniston 10th edition (Connect©) (ISBN: 13: 978-1260148954). An electronic textbook is provided to students on 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:

Homework and quizzes platform (McGraw-Hill).

Technology Requirements

[Click here to view the SCU technology requirements](#)

External resources: McGraw-Hill Connect

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: 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 you to take exams via Canvas in the location of your choice. You must have a strong and stable internet connection for Proctorio to work well. During the exam, you, your computer, and the environment you are taking the exam in may all 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 a practice exam to become familiar with using Proctorio, and surface any issues you may encounter with Proctorio.

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	#	Pts Each	Weight	SLO Linkage
Participation	5	10	15%	1-6
Reading Assignments	22	-	-	1-6
Homework	5	40	20%	1-6
Module Quizzes	5	10	15%	1-6
Case study/Practice Problems	2	20	10%	1-6
Exams	3	100	40%	1-6
Total			100%	

Course Topics:

Module	Title	Topics	Assessments	SLOs
1	The Chemical Equation	Chap 1 - Methods and Measurement Chap 2 - The Structure of the Atom and Periodic Table Chap 3 - Structure and Properties of Ionic and Covalent Compounds Chap 4 – Calculations and the Chemical Equation	Intro Discussion Board Reading Assignment, Homework Assignment, Participation Practice Problem / Case Study Module Quiz	1,2
2	Properties of Matter	Chap 5 - States of Matter: Gases, Liquids and Solids Chap 6 - Solutions Chap 7 - Energy, Rate, and Equilibrium Chap 8 - Acids and Bases and Oxidation-Reduction	Reading Assignment, Homework Assignment, Participation/Discussion, Practice Problem / Case Study Module Quiz Practice Quiz	1,2,4
3	Organic Chemistry	Chap 10 - An Introduction to Organic Chemistry: The Saturated Hydrocarbons Chap 11 - The Unsaturated Hydrocarbons: Alkenes, Alkynes, and Aromatic Chap 12 - Alcohols, Phenols, Thiols, and Ethers Chap 13 - Aldehydes and Ketones Chap 14 - Carboxylic Acids and Carboxylic Acid Derivatives Chap 15 - Amines and Amides	Reading Assignment, Homework Assignment, Participation/Discussion,	3,4
Exam I (Chpt 1-8)				
4	Structure and Function of Biomolecules	Chap 16 - Carbohydrates Chap 17 - Lipids and Their Functions in Biochemical Systems Chap 18 - Protein Structure and Function Chap 19 – Enzymes Chap 20 - Introduction to Molecular Genetics	Reading Assignment, Homework Assignment, Participation/Discussion, Practice Quiz	3,4,5
Exam II (Chpt 10-15)				

Module	Title	Topics	Assessments	SLOs
5	Biochemical Pathways	Chap 21 – Carbohydrate Metabolism Chap 22 - Aerobic Respiration and Energy Production	Reading Assignment, Homework Assignment, Participation/Discussion, Practice Quiz	6
Exam III (Chpt 10-15)				

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 a student’s responsibility to understand when to consider unenrolling from a course. Refer to the [SCU Academic Calendar](#) for dates and deadlines for registration. Also 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: Students at this university are expected to maintain the highest degrees of professionalism, a commitment to active learning, and display integrity both 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 accommodation in concert with the lead faculty for this course. All students are encouraged to request accommodation as far in advance of when the accommodation will be required to allow the University to process the request and provide approved accommodation. 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 through 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 a student disagrees with someone's comments, they should do so respectfully and collegially and provide legitimate examples to support their side.
- Before pressing the submit button review 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 the meaning when they cannot see facial expressions or hear the tone of voice.
- Avoid short, generic replies such as "I agree!", "I like it!" or "Funny!" – explain why, add another point in support of the idea, or raise a question to continue constructive dialogue.

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 classes with scheduled class time, 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 learning, students are expected to maintain a realistic study schedule. The amount of study set by the student varies on prior knowledge and understanding of foundational material pertaining to the course. Students must check their schedule and Canvas course page to confirm they are correctly enrolled in the appropriate course modality.

- **Lecture Outline PowerPoints, Supplemental Videos and Support Materials:** The lecture outline is a series of PowerPoint slides on the most important chapter topics that should be reviewed before beginning the Reading Assignment. These slides will also serve as a good reference when completing homework and reviewing for exams. Supplemental videos and support materials contain additional videos or other items related to some of the most important or interesting topics in the chapter. Some videos show fun applications. These are all optional learning materials.
- **Adaptive Reading Assignments:** These sections are created on “Connect” through SmartBook. They improve reading productivity and provide students with better knowledge retention. SmartBook is an intelligent eBook that applies the adaptive technology of LearnSmart to ensure a focus on content the student has not yet learned while also promoting long-term retention of already learned material.
- **Supplemental Videos:** the video content helps students gain a deeper understanding of the concepts presented in the learning modules and in the textbook. Often, supplemental videos pages feature animations, videos, or other interactive learning resources.
- **Homework:** Homework problems are reflective of the type questions that will be on the exams. There is a difference between completing chemistry related word problems with access to help (book, instructor office hours, tutor, Google, etc.) versus completing problems independently. It is okay and encouraged to use all available resources to learn how to complete a certain type of chemistry problem. However, the long-term goal should be obtaining the ability to complete exam problems without any aid.
- **Discussion Board Posts:** Weekly discussion boards are required for asynchronous courses, while active participation during lecture is required for synchronous courses. Faculty will be active in all discussion boards and work interactively with students to build knowledge. Students must review the lecture material and PowerPoints on Canvas before posting on the discussion board and starting assignments in each module to be better prepared to participate interactively with peers in the discussion boards to maintain the participation grade.
- **Exams:** There are three exams in each class. 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. You must use proctoring methods required by the instructor.

Note: Completing assignments open book (book, instructor office hours, tutor, Google, etc.) is different from 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.