Master Course Syllabus

For additional course information, including prerequisites, corequisites, and course fees, please refer to the Catalog: https://catalog.uvu.edu/

Semester: Spring
Year: 2025
Course Prefix: BIOL/CHEM
Course and Section #: 3620-001
Course Title: Biological Chemistry II
Credits: 3

Course Description

The formal objective of this course is to give you a fundamental background in the chemistry of biological systems, emphasizing information. Successful completion of this course should enable you to do the following: 1) To understand the fundamentals of anabolic and information-related biological chemistry, 2) To see the relevance of biochemistry to human concerns, including the health sciences and chemical fields, and 3) To be prepared to learn more advanced biochemistry and molecular biology. The more holistic goal is to have meaningful answers to these two questions: 1) Why should someone interested in the career you're interested in take *another* biochemistry class? And 2) How do your cells know who they are and what to do? (I.e. how do you *work*?)

Course Attributes

This course has the following attributes:

☐ General Education Requirements
☐ Global/Intercultural Graduation Requirements
☐ Writing Enriched Graduation Requirements
☒ Discipline Core Requirements in Program
☒ Elective Core Requirements in Program
☐ Open Elective
Other: *Click here to enter text.*

Instructor Information

Instructor Name: Dr Craig Thulin

Student Learning Outcomes

Upon successful completion of the course, you will be able to:

1. Appreciate the relationship between Biochemistry and Molecular Biology, bringing together Chemistry and Biology in a meaningful way.
2. Be intimately familiar with the biochemical basis of genetic information and its expression, including understanding nucleic acids and the enzymes that process them.
3. Synthesize a coherent view of the basic concepts of cell signaling, extending to an understanding of sensory systems in multicellular animals.
4. Become familiar with the molecular basis of the immune system.
5. Categorize molecular motors and cytoskeletal systems.
6. Appreciate the biochemical basis of pharmacological therapeutics.

Course Materials and Texts

Biochemistry, Berg, Tymoczko & Stryer, 9th ***or*** 10th Ed.
Scientific calculator
Canvas & Teams access, Proctorio, UVU email (or send me alternative email address)

Course Requirements

Course Assignments, Assessments, and Grading Policy

Grading Criteria:
Proctorio Practice Test: 1% of final grade
Pre-course & Midcourse Surveys: 4% of final grade (2% each)
Attendance (taken thrice during semester): total of 3% of final grade
Weekly quizzes (*making* questions): total of 10% of final grade
Weekly taking/peer-evaluation of peers' quizzes: total of 10% of final grade
Weekly Real-Life-ation activities: total of 7% of final grade
Midterm Exams: three exams, total of 45% of final grade
Final Exam: 20% of final grade
TOTAL 100%

Grading Standards:
A = 93% & above, A- = 90–92, B+ = 87–89, B = 83–86, B- = 80–82, C+ = 77–79, C= 73–76, C - = 70–73, D+ = 67–69, D = 63–66, D - = 60–62, E (failing) = Below 60
The instructor reserves the right to *lower* these cutoffs. *Scores are NOT rounded off!*

Required or Recommended Reading Assignments

Biochemistry, Berg, Tymoczko & Stryer, 9th ***or*** 10th edition, chapters 1, 4-6, 14, and 27-36

General Description of the Subject Matter of Each Lecture or Discussion

Week of	MON	WED	FRI
Jan 6-10	Introduction to the class	Chapter 1 Overview	Ch 1 continued
Jan 13-17	Ch 1 continued	Chapter 4 Central dogma	Ch 4 continued
Jan 20-24	**MLK Day**	Chapter 5 Genes & genomes	Ch 5 continued
Jan 27-31	Ch 5 continued	Ch 5 continued	Chapter 6 Evolution & bioinformatics
Feb 3-7	Ch 6 continued	Chapter 14 Signal transduction	Ch 14 continued
Feb 10-14	Ch 14 continued	Chapter 27 Integration of metabolism	Ch 27 continued
Feb 17-21	**Presidents' Day**	Chapter 28 Pharmacology	Ch 28 continued

Feb 24-28	Ch 28 continued	Chapter 29 DNA metabolism	Ch 29 continued
Mar 3-7	Ch 29 continued	Chapter 30 RNA metabolism	Ch 30 continued
Mar 10-14	**Spring Break**	**Spring Break**	**Spring Break**
Mar 17-21	Ch 30 continued	Ch 30 continued	Chapter 31 Protein synthesis
Mar 24-28	Ch 31 continued	Ch 31 continued	Ch 31 continued
Mar 31-Apr 4	Chapter 32 Gene regulation in prokaryotes	Chapter 33 Gene regulation in eukaryotes	Ch 33 continued
Apr 7-11	Chapter 34 Sensory systems	Ch 34 continued	Chapter 35 Immunology
Apr 14-18	Ch 35 continued	Ch 35 continued	Chapter 36 Molecular motors
Apr 21	Ch 36 continued Review	**---**	**Final Exams**
Apr 24-30	**FINAL EXAM**	**Final Exams**	**---**

Required Course Syllabus Statements

Generative AI

This course requires you to complete assignments that assess your understanding, application, and problem-solving ability applied to the subject matter. You are expected to do your own work. Problem solving and scientific thinking are tools that are necessary for students to learn in this course. The use of artificial intelligence (AI) tools, such as chatbots, text generators, paraphrasers, summarizers, or solvers, is strictly prohibited for any part of your assignments. Using these tools will be considered academic dishonesty and will be handled according to the university's academic honesty policy. If you have questions about acceptable use of AI tools, please consult the instructor before submitting your work.

Using Remote Testing Software

☐ This course does not use remote testing software.

☒ This course uses remote testing software. Remote test-takers may choose their remote testing locations. Please note, however, that the testing software used for this may conduct a brief scan of remote test-takers' immediate surroundings, may require use of a webcam while taking an exam, may require the microphone be on while taking an exam, or may require other practices to confirm academic honesty. Test-takers therefore shall have no expectation of privacy in their test-taking location during, or immediately preceding, remote testing. If a student strongly objects to using test-taking software, the

student should contact the instructor at the beginning of the semester to determine whether alternative testing arrangements are feasible. Alternatives are not guaranteed.

Required University Syllabus Statements

Americans with Disabilities Act and Section 504 of the Rehabilitation Act
The Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973, as amended, prohibit Utah Valley University from engaging in discrimination on the basis of disability in any program or activity. Discrimination is also prohibited in all aspects of employment against persons with disabilities who, with reasonable accommodation, can perform the essential functions of a job. Students who believe they have been denied program access or otherwise discriminated against because of a disability are encouraged to initiate a grievance by contacting the Accessibility Services Director, Sherry Page at 801-863-8747. Employees can contact the ADA Coordinator, Irene Whittier at 801-863-8389.
Upon request, this information is available in alternative formats, such as mp3, Braille, or large print. To request this format, email asd@uvu.edu.
Statement from Accessibility Services:
Students needing accommodations due to a disability including temporary and pregnancy accommodations may contact the UVU Accessibility Services at accessibilityservices@uvu.edu or 801-863-8747. Accessibility Services is located on the Orem Campus in LC 312.

Academic Integrity
At Utah Valley University, faculty and students operate in an atmosphere of mutual trust. Maintaining an atmosphere of academic integrity allows for free exchange of ideas and enables all members of the community to achieve their highest potential. Our goal is to foster an intellectual atmosphere that produces scholars of integrity and imaginative thought. In all academic work, the ideas and contributions of others must be appropriately acknowledged and UVU students are expected to produce their own original academic work.
Faculty and students share the responsibility of ensuring the honesty and fairness of the intellectual environment at UVU. Students have a responsibility to promote academic integrity at the university by not participating in or facilitating others' participation in any act of academic dishonesty. As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, assessments, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Likewise, instructors are responsible to clearly state expectations and model best practices. Further information on what constitutes academic dishonesty is detailed in UVU Policy 541: *Student Code of Conduct*.

Equity and Title IX
Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has experienced or experiences harassment or sexual assault including, dating and domestic violence, stalking or sexual exploitation, you are encouraged to report it to the Title IX Coordinator in the Office for Equal Opportunity and Affirmative Action, BA-203, (801) 863-7999.
Please be aware that all faculty members and university employees are considered "Responsible Employees" and are required to report incidents of sexual misconduct and relationship violence and thus

cannot guarantee confidentiality. Please know that you can seek confidential resources at UVU Student Health Services, SC-221, (801) 863-8876.
https://www.uvu.edu/equalopportunity/titleix/ (Title IX coordinator for victims of any form of harassment, sexual misconduct, discrimination, or intimate partner violence)

Religious Accommodation

UVU values and acknowledges a wide range of faiths and religions as part of our student body, and as such provides accommodations for students. Religious belief includes the student's faith or conscience as well as the student's participation in an organized activity conducted under the auspices of the student's religious tradition or religious organization. The accommodations include reasonable student absences from scheduled examinations or academic requirements if they create an undue hardship for sincerely held religious beliefs. For this to occur, the student must provide a written notice to the instructor of the course for which the student seeks said accommodation prior to the event.
The UVU campus has a place for meditation, prayer, reflection, or other forms of individual religious expression as is described at https://www.uvu.edu/ethics/reflectioncenter/