
BC 351-001 Syllabus Fall 2023

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Prerequisites: BZ110 or 120 or LIFE102 & CHEM241 or 245 or 341 or 345

Required Text: Principles of Biochemistry, 2nd Edition. This etext can be purchased directly from the publisher here: <https://www.grlcontent.com/course-purchase>. Select “Colorado State” and “Principles of Biochemistry, Second Edition” then “Fall 2023: BC351 Section 001 Kalet”

Learning Outcomes: Mastering these learning outcomes will help you apply the principles of biochemistry to everyday life and in your careers. After successful completion of this course, students should be able to:

- Predict the polarity of a functional group and what type of noncovalent interaction it will participate in.
- Compare and contrast the interactions driving the formation of secondary, tertiary and quaternary structure of proteins and apply these concepts to the process of protein folding and stability.
- Predict the effects of mutations or ligand structural change on the activity, structure or stability of a protein.
- Apply laws of thermodynamics and explain/illustrate instances when energy is converted from one form to another in biological processes.
- Predict spontaneous direction given a reaction’s actual free energy change or Q and K_{eq} and interpret these concepts graphically.
- Apply the principles of kinetics, equilibrium, and Le Châtelier’s Principle to biological steady states, metabolic flux and pathway design.
- Compare and contrast various mechanisms for regulating the function of a macromolecule, enzymatic reaction rate or pathway.
- Describe, illustrate and differentiate the stages, pathways and steps in cellular metabolism and diagram their interconnectedness.

Canvas: All course content except for that found in the text will be presented via Canvas: <https://canvas.colostate.edu/>

Materials:

I am going to provide several materials to help you gain knowledge of the principles of biochemistry:

1. Textbook: Principles of Biochemistry, 2nd Edition: See page 1
 - a. 14 Chapters
 - b. Structure Tutorials
 - c. Drag-n-Drop Assignments
 - d. Practice Materials
 - e. Glossary
2. Lecture Recordings: You can access these by clicking on the Echo360 button on the left margin when logged into Canvas
3. PowerPoint Slides: I am going to make these files available to you if you would like to take notes on them
4. Study Guides: these are very general questions directing your studying and your thinking and also include problems from your text
5. Practice Exams and Answer Keys

Assessment:

“How will my learning be assessed?”

1. Reflection/Summary Questions – 14 points
These can be found in the textbook under the “Reflection/Summary Questions” tab.
All of the Reflection/Summary Questions are due on 12/7/2023 at 11:59 PM!
2. Chapter Quizzes – 70 points
These will be presented through the textbook. There will be a total of 14 quizzes equaling 70 points. You will have two attempts at each quiz. The highest score from both attempts will be used to calculate your grade.
All of the quizzes are due on 12/7/2023 at 11:59 PM!
3. Exams – 400 points
There will be four exams in this course. Each exam will be worth 100 points. Exams will consist of multiple answer, matching and short answer. The dates of the exams are indicated on the schedule.

How to Study: I recommend first reading the text that corresponds to the lecture that you will be watching, then printing out the PowerPoint slides and taking notes on the slides while attending the lectures. Once you have attended all of the lectures for a chapter, I recommend completing the study guide referring back to your notes, text and/or recordings as necessary. Once you feel confident with the material, I would take the practice exam(s) in a similar setting as you would the real exam. Grade the exam and review any content that you missed. Being that this a four credit course, most students will require spending 12 – 16 hours per week on this course in order to be successful. Don't forget about the additional resources available to you in the text!

Grade Breakdown:	<u>Assignment</u>	<u>Points Counted</u>
	4 Exams (100 points each)	400
	14 Quizzes (5 points each)	70
	14 Reflection/Summary Questions	14
	Pre Test & Post Test	20
	Total	504

Extra Credit: You have the ability to earn up to five extra credit points for participating in 100% of the iclicker questions presented during class. If you participate in less than 100% of the iclicker questions, then you will receive points on a sliding scale.

Grading Scheme: I do not grade based on a curve or drop the lowest exam from the final grade calculation.

<u>Letter Grade</u>	<u>Percentage</u>
A+	96.0% – <100%
A	92.0% – <96.0%
A-	90.0% – <92.0%
B+	86.0% – <90.0%
B	82.0% – <86.0%
B-	80.0% – <82.0%
C+	76.0% – <80.0%
C	70.0% – <76.0%
D	60.0% – <70.0%
F	below 60.0%

Academic Integrity: This course will adhere to the Academic Integrity Policy of the Colorado State University [General Catalog](#).

End of Semester: I know there will be some students that are very close to the next letter grade threshold. Consider your second attempt at the quizzes the mechanism to earn those points necessary to earn the grade you desire. **I will not negotiate grades!** Grade negotiation always leads to someone receiving inequitable treatment and is a policy that I cannot abide as I desire to maintain an atmosphere of academic honesty and integrity. If you are concerned about your grade, you are more than welcome to discuss ways to improve it **during** the semester when you still have the ability to do so.