

**BIO 3100 - Cellular Biochemistry
Fall 2019**

Instructor: Dr. Athar Ansari

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- Class meets 5:30 PM to 6:45 PM Tuesdays and Thursdays in 0146 DeRoy
- Office hours: Wednesdays 1:30-3:00 or by appointment
- Class Web site: <http://blackboard.wayne.edu>
- 3 credits (lecture)

Prerequisites: The prerequisite courses for BIO 3100 are BIO 2200 and BIO 2600; CHM 1220/1230 and CHM 1240/1250.

Skills and activities: Students will learn the following skills in general and honors sections of the class:

General section

- Concept of hypothesis
- Formulation of questions and designing of experiments to test hypothesis
- Analytical skills
- Problem solving skills

Honors section

- Searching the literature for pertinent information on a selected topic
- Reading of research papers and developing an understanding of the central concept of research findings
- Ability to present ideas in the form of oral and/or written presentation

Learning objectives: The learning objectives for the general and honors sections are as follows:

- A solid understanding of the chemistry of life and the central role that laws of thermodynamics play in living systems
- An understanding of the structure of biomolecules
- An understanding of the physiological function of major biomolecules
- Understanding of the concept of the structure-function relationship: how the structure of biomolecules allow them to perform their assigned cellular function
- Introduction to the metabolism of major biomolecules and the principles that govern them; integration of metabolism
- Introduction of the concept of information pathways within a cell: emphasizing the basic principles of enzymology and gene expression
- The course material should provide students with a foundation for subsequent studies in upper level disciplines in Biology

Text: Lehninger Principles of Biochemistry 6th or 7th Edition by DL Nelson and MM Cox.

Study Guides: *Recommended* - The Absolute, Ultimate Guide to Lehninger Principles of Biochemistry 6th or 7th Edition Study Guide and Solutions Manual by Marcy Osgood and Karen Ocorr
Web sites: <http://www.whfreeman.com/lehninger>

Grading Policy: Grades will be from 0 to 100.

Grade Scale:	91.6-100	A
	90.0-91.5	A-
	88.5-89.9	B+
	81.6-88.4	B
	80.0-81.5	B-
	78.5-79.9	C+
	71.6-78.4	C
	70.0-71.5	C-
	68.5-69.9	D+
	61.6-68.4	D
	60.0-61.5	D-
	0-59.9	F

Grading: Grades will be based on points earned from quizzes and exams.

During most but not all classes, there will be a quiz based on material covered during that lecture or from the previous lecture. A total of 30 points are available from quizzes. If you obtain a score of 50% or better on 80% of the quizzes, you will receive the 30 available points. If you obtain a score 50% or better on 50-79% of the quizzes, you will receive a score of 15 points. If you score less than 50% or do not turn in 50% of the quizzes, you will receive a score of 0 for the quiz grade. **There will be absolutely no makeup quizzes under any circumstances.**

There will be three in class lecture exams and a comprehensive final exam. The three lecture exams will consist of 50 multiple choice and true/false questions. Each of the three lecture exams will be worth 100 points. The lecture exam with the lowest score will be dropped. The final exam is required and cannot be dropped. The final exam is comprehensive and is worth 120 points. The final will consist mainly of multiple choice and true/false questions but will also include a few short answer questions. **No makeup exams will be given and no exam will be given in advance.**

Quizzes	30 points
Two lecture exams	200 points
FINAL EXAM	120 points
TOTAL	350 points

Note: there is no extra credit or extra assignments. Grades will be based solely on the items listed above.

Examination Policies:

- No makeup exams will be given and no exams will be given in advance.
- Anyone caught cheating on an exam will automatically receive a failing grade for the class and procedures for expulsion of the guilty individual from Wayne State University will be undertaken.
- Picture identification will be required for each exam. Individuals without picture ID will not be allowed into the examination room.
- Students will not be allowed to leave the room during an exam. Once a student has left the room, he or she will not be allowed to return.
- Absolutely no talking among students will be tolerated during the exam. Students observed talking will receive a grade of zero on the exam.
- All electronic devices including, but not limited to, cell phones, pagers, PDAs, iPods, and other audio/video devices and computers are strictly forbidden during the exam and should be stored out of sight. If any of these items are observed during the exam, they will be confiscated. Cells phones should be turned off before you enter the room; cell phones that ring during an exam will be confiscated.
- Conflicts regarding the grading of exams must be resolved within one week of the return date. The exam in question must be returned along with a written statement explaining the concern.

General Policy:

1) Any special considerations (disabilities, religious holiday conflicts, etc.) must be brought to the attention of the instructor in the first week of classes. If you have a physical or mental impairment that may interfere with your ability to successfully complete the requirements for this course, you may contact Education Accessibility Services (583 Student Center Building, 313.577.1851) to discuss appropriate accommodations on a confidential basis.

2) In the event of a University closure on the day of an exam, the exam will be given during the next regularly schedule lecture period.

University closures will be publicized through:

- the University Newsline (313) 577-5345*
- WSU Homepage (www.wayne.edu)*
- WSU Pipeline (www.pipeline.wayne.edu)*
- WDET-FM (Public Radio 101.9)
- by other local radio and television stations

* Note: The information on closures and class cancellations is likely to be found at these locations before it is broadcast by local radio and television stations.

7) For any and all issues not covered in this syllabus, refer to the "Student Due Process Policy".

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Lecture Schedule (subject to change)

Number	Lecture Topic	Reading from Lehninger 7th Ed.
1	Overview, Foundation of Biochemistry	Chapter 1
2	Water	Chapter 2
3	Amino Acids, Peptides and Proteins	Chapter 3
4	3-D Structure of Proteins	Chapter 4
5	Protein Function	Chapter 5
6	Enzymes, Part I	Chapter 6
7	Enzymes, Part II	Chapter 6
8	Nucleic Acids	Chapters 8
9	Genes and Chromosomes	Chapters 24
10	Carbohydrates	Chapters 7
11	Introduction to Metabolism Principles of Energetic	Chapter 13
12	Glycolysis, Gluconeogenesis and the Pentose Phosphate Pathway	Chapter 14
13	Citric Acid Cycle	Chapter 16
14	Oxidative Phosphorylation and Photophosphorylation	Chapter 19
15	Lipid : Structure and Function	Chapters 10
16	Fatty Acid catabolism	Chapters 17
17	Lipid Biosynthesis	Chapters 21
18	DNA Metabolism	Chapter 25
19	RNA Metabolism	Chapter 26
20	Protein Metabolism	Chapter 27
21	Regulation of Gene Expression	Chapter 28
22	Current Topics in Biochemistry	