

**BIO 3100 - Cellular Biochemistry
Fall 2020**

Instructor: Dr. Athar Ansari

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- Class meets 5:30 PM to 6:45 PM Tuesdays and Thursdays through Zoom link
- Office hours: Wednesdays 1:30-3:00 or by appointment in my office in Biology Building
- Class Web site: <https://canvas.wayne.edu/courses/133432>
- 3 credits (lecture)

Class Meeting: Class will meet online through zoom link shown below. You need to register in advance for this meeting. After registering, you will receive a confirmation email containing information about joining the meeting.

<https://wayne-edu.zoom.us/meeting/register/tJctdu6orTktHNTIRZEjdUnbMs-fLRIZ-zc0>

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 exams.

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 100 points. The final will consist of only multiple choice questions. **No makeup exams will be given and no exam will be given in advance.**

Two lecture exams	200 points
FINAL EXAM	100 points
TOTAL	300 points

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

Examination Policies:

- The exam will be administered via Respondus Lockdown Browser and Respondus Monitor.

MINIMUM SYSTEM REQUIREMENTS for Respondus Monitor (used for Exams):

Windows: 10, 8, 7, Vista

Mac: OS X 10.7 or higher

Internet Explorer (Windows) or Safari (Mac) must function properly on the computer

Adobe Flash Player

Web camera (internal or external) & microphone

A broadband internet connection

Note: It is strongly recommend to use an Ethernet (wired) Internet connection while taking an exam in Respondus Lockdown Browser. They are more likely to run into problems due to dropped/interrupted WiFi connections than when using a wired connection. If they do lose their Internet connection during the exam, it will lock up the browser and not allow them to save answers, move on to other questions, submit or exit the exam.

- No makeup exams will be given and no exams will be given in advance.
- Picture identification will be required for each exam.
- Absolutely no talking will be tolerated during the exam. Students will be observed by video camera during exam.
- Anyone caught cheating will automatically receive a failing grade for the class and procedures for expulsion of the guilty individual from Wayne State University will be undertaken.

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 scheduled lecture period.

University closures will be publicized through:

- the University Newline (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	