Cellular Biochemistry Syllabus
Biology 3100 – 3 credits
11:30-12:45pm Tue/Thr
Room: Zoom (online through canvas)

Winter 2021

Professor: Dr. Jared Schrader (Ph.D.)
Office: Room 2119 Biological Sciences (Office hours will be virtual through zoom)
Phone: 313-577-0736 (all voice messages are emailed to me, so you will likely get a response by email if you call and I can't pick up)
Email: schrader@wayne.edu
URL: https://canvas.wayne.edu/
Office hours: Thursdays 1:00 pm-2:00 pm, Other hours may be scheduled on an individual basis.

Prerequisites: The prerequisite courses for BIO 3100 are BIO 2600; CHM 1220/1230 and CHM 1240/1250. If you have received an override to get into the class, you are still responsible for this material.

Required Materials for Lecture: Lehninger Principles of Biochemistry 6th or 7th Edition by DL Nelson and MM Cox. You do NOT need the online homework access. If you use a previous copy of the book, be aware that it is your responsibility to ensure you have found the best practice.

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 .

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

CONTACTING DR. SCHRADER AND GETTING HELP

Discussion Board**:** There is a discussion board in Canvas. This is a good place for simple content questions. There will be a forum for discussing exam questions.

Email**: See the email guidelines in General Policy 5.** Email is a good way to communicate with me about issues that do not need you to come to office hours. These include letting me know about chronic clicker or canvas problems. I cannot answer questions on biology content or study strategies by email, because these require discussions. I do not answer emails about issues that are covered in the syllabus, in canvas or that were adequately covered in lecture.

In the Zoom meeting before or after class**:** This is a fine time for quick questions, but there usually is not time for long discussions.

Office Hours**: Dr. Schrader's office hours are Thursdays 1:00 pm-2:00 pm, Other hours may be scheduled on an individual basis.**

WSU Computing and Information Technology (C & IT)**:** For free help with campus computing, including email, zoom, canvas, respondus lockdown browser and lockdown monitor, or your AccessID call (313) 577-4778, see http://computing.wayne.edu/ or email helpdesk@wayne.edu.

Withdrawals:
See WSU policy at: http://sdcl.wayne.edu/RegistrarWeb/Registrar/policies.htm

I encourage you to get help instead of withdrawing (see the Academic Success Center information at the end of this syllabus); this will save you money and help you graduate sooner. If you must withdraw, it must be initiated by the student through the registrar's office via Pipeline, not by the Professor. The Professor will assign the withdrawal grade based on the following WSU policies and rules regarding grade assignment, repeating and withdrawing from classes:

1. Students who drop the course by **Jan. 25, 2021** are eligible for full tuition refund.
2. The last day you can drop this course and have no record on your transcript is **Jan. 25, 2021**

3. Students who request course withdrawals by **Mar. 28, 2021** (last day to withdraw) will receive one of these notations:

- "WP" Withdrawal with a passing grade earned to date
- "WF" Withdrawal with a failing grade earned to date
- "WN" Withdrawal never attended, or no graded work to date

Grade earned to date will not include lab points; all exam scores will be included (*ie* no drops allowed).

4. Students who do not complete the semester will receive a grade of F if they do not withdraw from class by Sunday, November 10th. "Incomplete" grades will not be issued to students in poor standing who are seeking an alternative to a late drop.

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.

MIDTERM EXAM 1	100 points
MIDTERM EXAM 2	100 points
MIDTERM EXAM 3	100 points
(Lowest MIDTERM-EXAM DROPPED	*-100 points)*
MDTERM POINTS	**200 points**
FINAL EXAM POINTS	**100 points**
TOTAL	**300 points**

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

Exam corrections: When each exam is returned, you will have THREE BUSINESS DAYS to correct errors in grading or to challenge the questions on the exam. Corrections and inquiries about specific exam questions must occur on canvas in the exam discussion forum. If needed, I will normalize (or "curve") the exam scores to the score of the second highest student.

Final Course Grade: A letter grade is calculated after your total score is converted into a percentage and assigned a letter grade according to the table below:

Total Percentage / Final Grade
93% – 100% A
90% – <93% A-

88% – <90% B+
83% – <88% B
80% – <83% B-
78% – <80% C+
73% – <78% C
70% – <73% C-
68% – <70% D+
63% – <68% D
60% – <63% D-
<60% F

In lieu of extra credit, grades will be rounded up automatically (For example, a 92.49999999 would yield an A-, but a 92.5 or higher would yield an "A".

Academic integrity: To acknowledge that most, if not all, students do not cheat, the following policy will be strictly observed in accordance with the WSU policy on cheating.

1. Any individuals caught cheating will automatically receive a grade of "F" for at least the exam and up to and including failing the class and expulsion from WSU. Charges may be filed in accordance with the university policy on academic honesty (http://www.doso.wayne.edu/judicial/academic-integrity.htm). Read this carefully.

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
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. These programs 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.
¬ A practice exam will be given for you to test whether your setup is capable of running Respondus Lockdown Browser and Monitor. Please take this as early as possible and work with C&IT to resolve any technical issues you might have before the real exam.
¬ Picture identification will be required for each exam.
¬ Absolutely no communication will be tolerated during the exam. Students will be observed by video camera during exam.

Student Disability Services: If you have a documented disability that requires accommodations, you will need to register with Student Disability Services (SDS) for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600

David Adamany Undergraduate Library in the Student Academic Success Services Department. SDS telephone number is (313) 577-1851 or (313) 577-3365 (TTD only). Once you have your accommodations in place, I will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University. Please be aware that a delay in getting SDS accommodation letters for the current semester may hinder the availability or facilitation of those accommodations in a timely manner. Therefore, it is in your best interest to get your accommodation letters as early in the semester as possible.

General Policies:

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 documented disability that requires accommodations, you need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TTY: telecommunication device for the deaf; phone for hearing impaired students only). Once you have your accommodations in place, I will be glad to meet with you privately **during my office hours** to discuss your special needs. **You need bring your paperwork to office hours so I can process it and give you the answer sheets that you will need.** Please refer to the SDS website for further information about students with disabilities and the services we provide for faculty and students: http://studentdisability.wayne.edu/ If your disability requires you to sit in a certain part of the classroom, please sign up for a team that meets your needs. If you have a concern about seating in the lecture hall, for example you have a disability that requires you to sit at the tables in the back, please email me as soon as possible so we can make arrangements.

2) If you need to see me and cannot attend my recurring zoom office hours, you need to set up an appointment by email. In order to schedule these appointments, you need to contact me at least 24 hours in advance. Please include three unique times that you can meet me. I cannot guarantee I will be available, but I try to meet the needs of all my students.

3) **Email guidelines:** I will not reply to emails when the answer can be found in the syllabus or on canvas. I do not answer questions on biology content or study strategies by email because I need to discuss content with students to make sure they understand. I am happy to answer content questions during office hours. That is one of the main purposes of office hours. I will respond to most other emails within **two business days**. After two business days, you may email me again. **Due to privacy laws and for professionalism you must email me from your WSU email account.** I expect emails to be in a professional style, with your course number and a description of the issue (not just your name) as the subject, a proper greeting, e.g. "Dear Professor Schrader," a proper salutation, e.g. "Sincerely, Chris Smith," correct punctuation including capitalization and no texting abbreviations. Emails that do not follow these rules may take longer get a reply, may be returned for correction, or ignored. If I cannot figure out what you want, I cannot help you. Following these email guidelines even outside of this course will enhance your success at WSU and beyond.

4) University web service outages will be publicized through:

- WSU Canvas (canvas.wayne.edu)*,
- WSU Homepage (www.wayne.edu)*,
- The University Newsline (313) 577-5345*,
- WDET-FM (Public Radio 101.9) and
- 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. If this occurs during a normal class period, I will record the video lecture and upload if for you to view whenever web service returns. If an outage will occur on an exam day, we will move the exam to the next scheduled class period.

5) For any and all issues not covered in this syllabus, refer to the "Student Code of Conduct", which can be found at http://doso.wayne.edu/assets/codeofconduct.pdf

6) Updates to this syllabus and schedule may be posted on the course canvas website at https://canvas.wayne.edu/. You are responsible for checking canvas announcements and your University email account. I recommend checking at least once each business day of a semester in which you are enrolled.

BIO 3100 – Cellular Biochemistry Winter 2021 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	