

# University of Mary Washington

Department of Chemistry

## **CHEM 317: Biochemistry I**

Fall 2019

Sections 1 & 2

Instructor: Dr. Randall D. Reif  
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Office Hours: Mondays 1:30-3:30 PM  
Wednesdays 1:30-3:30 PM  
Thursday 2:00-3:00 PM  
Other times by appointment.  
I also have an open door policy-drop by anytime my door is open!

Class Times: Section 1 & 2: M, W, F 10:00 – 10:50 AM Jepson 225

### Required Course Materials:

**David L. Nelson and Michael M. Cox, *Lehninger Principles of Biochemistry*, Worth Publishing, Seventh Edition, 2017**

***Recommended: Mary Osgood and Karen Ocoor, The Absolute, Ultimate Guide to Lehninger Principles of Biochemistry, Seventh Edition, Study Guide and Solutions Manual***

Calculator with scientific notation and logarithmic/exponential functions; NO PDA's (Palm Pilots, Visor Handhelds, etc.) Highly recommend Texas Instruments TI-30X series.

### Course Prerequisites

This course requires a grade of C or better in CHEM 212.

### Course Description

Biochemistry is designed to provide an understanding about the molecular and mechanistic characteristics of biological systems. CHEM 317 will focus on the structures of proteins, sugars, nucleic acids, and lipids and how these structures affect the functions of these essential molecules.

After completing the course, a student should

- Gain an understanding of basic structures of all classes of macromolecules

- Demonstrate a comprehension of the kinetic, equilibrium and thermodynamic principles related to biological systems
- Be able to relate structure and function of the biologically relevant molecules

## Learning Outcomes

This course will:

1. Help students develop a satisfactory knowledge base for upper level students in Biochemistry
2. Allow students to demonstrate proficiency in Biochemistry
3. Enhance student ability to find, interpret, and communicate peer reviewed original research
4. Prepare students for advanced study in graduate/professional school or employment in a chemistry-related field
5. Enhance student ability to interpret and solve chemical problems (critical thinking skills)

## Grading

The grade in the course will be based on the number of points accrued throughout the semester. Each assignment is worth a specific percentage of the final grade, shown below. The dates for the assignments will be announced in class or are listed on the tentative schedule.

<b>Grade component</b>	<b>Total %</b>
One-hour examinations (3) – 15% each	45%
Quizzes and Assignments	15%
Enzyme Live Webinar Project	15%
Class Participation	5%
Cumulative Final Examination	20%
Total possible points for semester	100%

The dates of exams are given on the tentative schedule. No cellular phones, PDAs, or other personal devices will be permitted during an examination. If a calculator is required for the quiz or exam, no formulas or information may be stored in the memory of the device. Quizzes and assignments can be announced or unannounced. **There are no make-ups for in-class assignments, quizzes, or examinations.**

The final course grade will be based on the following point scale:

<b>Points accrued</b>	<b>Letter grade</b>	<b>Points accrued</b>	<b>Letter grade</b>
≥ 93 %	A	76.9-73.0 %	C
92.9-90.0 %	A-	72.9-70.0 %	C-
89.9-87.0 %	B+	69.9-67.0 %	D+
86.9-83.0 %	B	66.9-60.0 %	D
82.9-80.0 %	B-	≤ 59.9 %	F
79.9-77.0 %	C+		

A mid-semester report of unsatisfactory (U) will be reported if you have a C- or below in the course thus far.

## Honor System

Any assignment for which you will receive a grade (unless designated as a group assignment) must be completed and pledged as your own work. The honor pledge must be written in full: *I hereby declare upon my word of honor that I have neither given nor received unauthorized help on this work. (Signature)*. It is your duty as students and ours as faculty to uphold the Honor Code, which is described in detail in the [Guidebook & Constitution](#). Suspected violations of the Honor Code will be addressed according to the policy established by the Honor Council. I will not grade an assignment without a signed pledge.

## Inclusive Learning

I feel strongly that the classroom and laboratory should be inclusive environments where People from different backgrounds, temperaments, experiences, and life circumstance can all participate in shared learning. Listening, respectfulness, and civility are cornerstones of inclusive learning and will be expected from everyone.

## Course Recording Policy

To ensure the free and open discussion of ideas, students may not record classroom lectures, discussion and/or activities without the advance written permission of the instructor, and any such recording properly approved in advance can be used solely for the student's own private use. Students who wish to record lectures or class activities for study purposes must inform the faculty member first. Students with approved accommodations from the Office of Disability Resources permitting the recording of class meetings must present the accommodation letter to the instructor in advance of any recording being done. On any days when classes will be recorded, the instructor will notify all students in advance. Distribution or sale of class recordings is prohibited without the written permission of the instructor and other students who are recorded. Distribution without permission is a violation of educational privacy law. This policy is consistent with UMW's Policy on Recording Class and Distribution of Course Materials.

## Family Educational Rights and Privacy Act (FERPA)

FERPA is a Federal law that protects student educational records. It is a violation of this law to put a stack of graded papers at the front of the classroom for students to retrieve. There is a chance that another student could see a grade on the assignment. To retain confidentiality, the grade on assignments will be placed on a back page. If you would like to retrieve your paper from the classroom, please sign and date the provided waiver form. If you do not feel comfortable having your papers placed on a table at the front of the classroom, you can pick your papers up

in person at my office. Please indicate on the waiver, your choice of manner to obtain assignments.

### Class Attendance

Class attendance is strongly encouraged. Lateness to the lecture is distracting to others and students should attempt to be on time. Tardiness to an exam will result in less time allowed to complete the assignment. You are responsible for all materials covered in class during your absence. Out of courtesy to your fellow classmates, please turn off all cellular phones or pagers.

### Disability Resources

The Office of Disability Services has been designated by the University as the primary office to guide, counsel, and assist students with disabilities. If you receive services through that office and require accommodations for this class, please make an appointment with me as soon as possible to discuss your approved accommodation needs. Bring your accommodation letter with you to the appointment. I will hold any information you share with me in the strictest confidence unless you give me permission to do otherwise. Any student with particular needs should contact the Office of Disability Resources; 401 Lee Hall or at 540-654-1266. They will require appropriate documentation of a disability.

### Title IX

University of Mary Washington faculty are committed to supporting students and upholding the University's *Policy on Sexual and Gender Based Harassment and Other Forms of Interpersonal Violence*. Under Title IX and this Policy, discrimination based upon sex or gender is prohibited. If you experience an incident of sex or gender-based discrimination, we encourage you to report it. ***While you may talk to me, understand that as a "Responsible Employee" of the University, I MUST report to UMW's Title IX Coordinator what you share.*** If you wish to speak to someone confidentially, please contact the below confidential resources. They can connect you with support services and help you explore your options.

#### **Resources**

-Stefanie Lucas-Waverly  
Title IX Coordinator  
540-654-5656  
slucaswa@umw.edu  
-Crystal Rawls  
Title IX Deputy for Students  
Area Coordinator  
540-654-1801  
crawls@umw.edu

#### **Confidential Resources**

-Talley Center for Counselling Services  
LeeHall 106  
-Student Health Center  
Lee Hall 112  
-Empowerhouse  
540-373-9373  
-RCASA  
540-371-1666

## Lecture Notes

While the PowerPoint slides are a nice supplement to lecture notes, they will not serve as an effective substitute. Handwritten lecture notes are more likely to contain key concepts and principles from class.

## Role of the Textbook

It is strongly recommended that the text readings be completed BEFORE coming to class. The text is a powerful asset, but is not a substitute for attending class. Tests will emphasize material from lectures.

## Exam Preparation

The best way to prepare for exams is to keep up with the material by reviewing notes, reading the text, and completing study questions. Reviewing the material with a partner is an excellent way to study. In addition to my office hours, I encourage everyone to take advantage of the student chapter of the ACS help sessions as well as the many chemistry resources available in the library and on the web.

## Weather Policy

To determine if classes will be held during inclement weather check the school website or call campus safety. If the campus is closed due to weather or other conditions on a day when an exam is scheduled, the exam will take place during the next class period when campus is open. If an assignment is due in class on a day when campus is closed due to weather or other conditions, it will be due at the next scheduled class meeting.

## Live Webinar Project

For this project, you will work with a partner to “Adopt an Enzyme”. You will work together to choose an enzyme to research and present a mock Live Webinar. As scientific presentations have become commonly presented through the internet, this project will give you a speaking presentation experience reflective of the real world. The UMW Speaking Center will play a major role in the project. *More details for this project will be released throughout the semester.* Some important dates of the project are shown below and are subject to change:

- 1.) October 9, 2019 – Enzyme must be selected and reported to the instructor
- 2.) October 1, 2019 to November 8, 2019– Practice presentation must be performed with a consultant from the speaking center.
- 3.) November 4-25, 2019 – Final presentation must be recorded and posted for viewing by the instructor and fellow students in the class. The Speaking Center will help with recording with a consultant if desired.
- 4.) December 9, 2018 – All blog post questions and answers posted and peer-evaluation forms turned in to the instructor.

## Important Dates

9/2 – Labor Day – No Class

9/25 – Exam I

10/14 – Fall Break - No Class

11/6 – Exam II

11/27-29 – Thanksgiving Break

12/4 – Exam III

Final Exam: Monday, 12/9/19 at 8:30-11:00 am

Tentative Schedule: Dates and times are likely to change depending upon interest and other factors.

<b>Date</b>	<b>Topic</b>	<b>Reading</b>
8/26, 8/28, 8/30	Foundations of Biochemistry	Chapter 1
9/4, 9/6, 9/9	Water	Chapter 2
9/11, 9/13, 9/16	Amino Acids, Peptides, and Proteins	Chapter 3
9/18, 9/20, 9/23	Amino Acids, Peptides, and Proteins	Chapter 3
<b>9/25</b>	<b>Exam I</b>	
9/27, 9/30, 10/2	The 3-D Structure of Proteins	Chapter 4
10/4, 10/7, 10/9, 10/11	Protein Function	Chapter 5
<b>10/14</b>	<b>Fall Break: No Class</b>	
10/16	Protein Function	Chapter 5
10/18, 10/21, 10/23, 10/25	Enzymes	Chapter 6
10/28, 10/30, 11/1	Enzymes	Chapter 6
11/4	Carbohydrates and Glycobiology	Chapter 7
<b>11/6</b>	<b>Exam II</b>	
11/8, 11/11	Carbohydrates and Glycobiology	Chapter 7
11/13, 11/15, 11/18, 11/20	Nucleotides and Nucleic Acids	Chapter 8
11/22, 11/25	Lipids	Chapter 10
11/27, 11/29	Thanksgiving Break: No Class	Chapter 8
12/2	Lipids	Chapter 10
<b>12/4</b>	<b>Exam III</b>	
12/6	Biological Membranes and Transport	Chapter 11
<b>12/9</b>	<b><i>Cumulative Final Exam</i></b>	<b><i>8:30am- 11:00am</i></b>

I have read and am accountable for all information in the Chemistry 317 Syllabus. I am also accountable for all information, both written and verbal, communicated in the class. I am accountable for information transmitted to me via electronic mail (e-mail) and posted on Canvas.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

**FERPA Waiver**

Name : \_\_\_\_\_

I give permission for graded assignments bearing my name and grade to be placed in the front of a classroom for retrieval (Note: The grade will never be on the front page).

Signature: \_\_\_\_\_

I do not wish to have my graded assignments placed in front of a classroom and will retrieve my papers in Dr. Reif's office.

Signature: \_\_\_\_\_