
SYLLABUS

GENERAL BIOCHEMISTRY (**BCH 3033**)

Spring semester 2020

Class hours: MW 10:00-11:15 in PG5-134

Office hours: Monday & Wednesday 11:30-1:30

Instructor: Dr. Jessica Liberles

Department of Biological Sciences

email: jliberle@fiu.edu phone: 305-348-7508/9 office: AHC4-311, lab: AHC4-383

COURSE OBJECTIVES

To learn, understand, apply and reason about fundamental biochemistry concepts.

The material for the class is online and should be studied before class. Class time will be devoted to enforcing and applying the Biochemistry that You Learned Before Class. This class promotes *writing to learn*.

THIS COURSE REQUIRES

KNOWLEDGE FROM PREREQUISITE COURSES: CHM2211, BSC2010

TEXTBOOK: BIOCHEMISTRY 9th Edition by Berg, Tymoczko, Gatto Jr., and Stryer, MacMillan Learning with Sapling Plus.

TIME: You will need to study for approximately 6h per week in addition to attending every class, although there will be individual variation... Also, additional time may be required for writing assignments, to prepare for tests and the final exam, etc.

SCIENTIFIC CALCULATOR

COMPOSITION NOTEBOOK for THIS CLASS ONLY (it needs to be turned in at times)

PENS: Red, Blue, Black, Grey/pencil, Yellow, Orange, and Green (Colored pencils are fine)

RULER

GRAPH PAPER: 5 sheets

LAPTOP WITH INTERNET

COURSE COMPONENTS

E-TEXTBOOK: read assigned chapter before class (see schedule).

ONLINE LEARNING ENVIRONMENT: SaplingPlus provides a Learning Curve (LC) environment with individual study plans and Homework (HW) that provides ample feedback. Complete before class.

ONLINE LECTURES recommended: <https://aklectures.com/subject/biochemistry>

In-class Mini-lectures: Given in class as needed, or to introduce or summarize active learning activities.

In-class QUIZZES/graded assignments: Quizzes and graded assignments may be given in the class room at random times, but often at the beginning of class. These quizzes will test your knowledge of the material of the day (applying what you have learned from the online learning environments and the textbook prior to class) while the assignments may cover any prior material. Some assignments will be completed individually, some in pairs, and some as a small group.

In-class ACTIVE LEARNING: You will be working on enforcing your knowledge in biochemistry through activities and by applying what you have learned from the online learning environment and the textbook.

TESTS: There will be 3 midterm multiple choice tests. Each test is cumulative covering EVERYTHING previously covered in class and in the online learning environment.

Out-of-class WRITING ASSIGNMENTS: Three writing assignments will be assigned. The objective of the writing assignments is to inspire you to think about how to integrate different components and concepts of the course. Each writing assignment will be open for 1-2 weeks and are graded Pass or Fail.

GROUP project: Together with 3 other students, you will study a specific biochemistry topic at depth. You will write a paper of your study that will be shared with the rest of the class. To ensure even quality of these papers, you will first submit a draft paper for feedback from your writing and learning assistants, and from the instructor, before you submit the final paper. In addition, each group will make a short study guide for their topic and they will present their topic as a powerpoint presentation in class. This project will be graded based on the quality of the final products (paper, presentation, and study guide), as well as on the collaboration.

FINAL EXAM: Final exam covering everything including all projects. Study guide will be provided.

GRADING COMPONENTS

10% of your grade is based on your grade for the online homework on Sapling Plus.

Total: 100p

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Total: 100p

19% of your grade is from in-class quizzes or in-class assignments: Every class will start promptly at 10:00 and end at 11:15. During this time a quiz or in-class assignment will be given. To get credit you need to be present when the quiz or assignment starts and when it ends.

Makeups: In case of a medical emergency supported by a doctor's note, an alternative writing assignment may be possible. Regular doctor's appointment, travels, being late, etc. does not qualify for a makeup.

Per regular class: 10p

Total: 190p

10% of your grade is from writing assignments (WA): 3 WAs will be assigned. These are Pass or Fail.

WA1: 25p

WA2: 25p

WA3: 50p

Total: 100p

21% of your grade is from tests: there will be 3 cumulative tests.

Each test is worth 70p

Total: 210p

15% of your grade is from the group project.

Draft 1: 20p

Final paper: 50p

In-class presentation: 30p

Study guide: 20p

Collaboration: 30p

Total: 150p

15% of your grade is from the final exam:

Final exam: 150p

Total: 150p

Total number of points: 1000p

GRADE SCALE

Grade	Points Per Credit Hour	Tentative point scale
A	4.00	>925
A-	3.67	>895-925
B+	3.33	>865-895
B	3.00	>825-865
B-	2.67	>795-825
C+	2.33	>765-795
C	2.00	>695-765
D	1.00	>595-695
F	0.00	<595

LEARNING ASSISTANTS

Each class will have Learning Assistants (LAs) guiding you through activities such as e.g. problem solving, calculations, and graphing in Excel. The LAs may also offer study sessions as needed and will offer review sessions before tests.

WRITING ASSISTANTS

Each class will have Writing Assistants (WAs) guiding you through activities such as e.g. problem solving. The WAs will work closely with you on your individual and group writing assignments.

SCHEDULE

Date	Topic	Before class, read the following chapter and complete its LC and HW	Deadline (before class on given day)
Week 1			
Jan 6	Biochemistry: An evolving science		
Jan 8	Proteins	Ch 1: HW, Amino acids	
Week 2			
Jan 13	Proteins	Ch 2: LC & HW	
Jan 15	Proteins in the lab	Ch 3: LC & HW	WA1: Metabolism map
Week 3			
Jan 20	MLK – no class		
Jan 22	DNA, RNA, Flow of genetic information	Ch 4: LC & HW	
Week 4			
Jan 27	Exploring Genes and Genomes	Ch 5: LC & HW	
Jan 29	Exploring Evolution and Bioinformatics	Ch 6: LC & HW	
Week 5			
Feb 3	TEST 1	Ch 1-6	
Feb 5	Hemoglobin	Ch 7: LC & HW	Note: also covered by some projects
Week 6			
Feb 10	Enzymes	Ch 8: LC & HW	WA 2: About a protein
Feb 12	Catalytic strategies	Ch 9: LC & HW	
Week 7			
Feb 17	Regulatory strategies	Ch 10: LC & HW	Note: also covered by some projects
Feb 19	Carbohydrates	Ch 11: LC & HW	
SPRING BREAK			
Week 8			
Mar 2	TEST 2	Ch 1-11	
Mar 4	Lipids and Cell Membranes	Ch 12: LC & HW	

Week 9			
Mar 9	Channels and Pumps Signal transduction	Ch 13, 14: LC & HW	Note: also covered by some projects
Mar 11	Metabolism	Ch 15: LC & HW	Group project written draft
Week 10			
Mar 16	Glycolysis and Gluconeogenesis	Ch 16: LC & HW	
Mar 18	The Citric Acid Cycle	Ch 17: LC & HW	
Week 11			
Mar 23	Oxidative Phosphorylation	Ch 18: LC & HW	
Mar 25	The Calvin Cycle and the Pentose Phosphate Pathway	Ch 20: LC & HW	Group project written final & student study guide
Week 12			
Mar 30	TEST 3	Ch 1-18, 20	
Apr 1	Glycogen metabolism Fatty Acid Metabolism	Ch 21, 22: LC & HW	WA 3: Photosynthesis Note: also covered by some projects
Week 13			
Apr 6	Project presentations	Student study guide	
Apr 8	Project presentations	Student study guide	
Week 14			
Apr 13	Project presentations	Student study guide	
Apr 15	Project presentations	Student study guide	
Week 15 – FINALS WEEK			
Apr TDB	FINAL EXAM	Ch 1-12, 13-18, 20, 21, & all projects (incl. student study guides)	

MORE ABOUT THE CLASS

1. ***Be prepared and attend every class***
2. ***There is a lot to learn and understand in Biochemistry. Be ambitious and study now, not later.***
3. ***Missed quizzes, tests, exams, or deadlines*** – if you miss a quiz, test or a deadline you must provide proper documentation in order to take the test at a different time or to get an extended deadline. The makeup must be completed taken within 1 week. If an exam or test falls on a religious holiday that you observe, let the instructor know during the first two weeks of classes.
4. ***Focus!*** – Yes, you are encouraged to talk to your group about biochemistry but try to keep your conversations focused on the topic. If laptops are used, they are for science only. Phones are kept silent and out of sight (this is the default – if your specific situation necessitates incoming phone access during class, let the instructor know).

5. You are expected to know the relevant parts of the **FIU student Handbook** that apply to you (undergraduate or graduate) and oblige in appropriate behavior. **CHEATING:** Cheating is not tolerated and will be reported.
6. **Early Alert** – to help you succeed in your academic courses, FIU utilizes an Early Alert system. Instructors are now able to notify students' academic advisors if there are concerns about class performance. If an alert is submitted, your academic advisor will send you a message via your Student Dashboard (accessed via your MYFIU page) to discuss ways to improve your performance. Please respond to any communication you receive from your academic advisor about an early alert. Our goal with this program is to help you to be successful by identifying any issues as early on as possible and working to address them.

****Syllabus is subject to change at the discretion of the professor****