

## BIOCHEMISTRY II (CHEM 4610/6610) Fall 2019

**Instructor:** Dr. Victoria Mariani, 216 Courtland North, Tel. (404) 413-5542, [vmariani@gsu.edu](mailto:vmariani@gsu.edu)

**Prerequisites:** required 4610: Chem 4600 (grade of C or higher); required 6610: Chem 6600 (grade of B or higher)

**Lecture:** MW 3:30 pm – 4:45 pm, PSC 124

**Office Hours:** Mondays and Wednesdays 1 - 3.

**Textbook:** You can use 7th or 8th edition of text. I use the 8<sup>th</sup> edition for my reading assignments.

Biochemistry, 8th Ed., Berg, J.M.; Tymoczko, J.L.; Gatto, G.J.; Stryer, L., (2015), W.H. Freeman: New York, NY. [ISBN 1-4641-2610-0 Hardcover or ISBN 1-4641-8801-7 Looseleaf] or

Biochemistry, 7th Ed., Berg, J.M.; Tymoczko, J.L.; Stryer, L., (2012), W.H. Freeman: New York, NY. [ISBN 1-4292-2936-5 Hardcover or ISBN 1-4292-7396-8 Looseleaf]

Workbook: This is strongly recommended. The workbook includes learning objectives, self-assessment problems with solutions, and comprehensive problems. I will go over the questions from the text and workbook (see icollege “suggested problems”) during class. I recommend you use the 8<sup>th</sup> edition of the workbook.

Biochemistry Student Companion, 7th Ed., Deis, F.H.; Gerber, N.C.; Gumpert, R.I.; Koeppe, R.E., (2012), W.H. Freeman: New York, NY. [ISBN 1-4292-3115-7 Paperback].

Biochemistry Student Companion, 8th Ed., Rhodes, C.; Fertuck, K.; Josephy, D.; Koeppe, R.E., (2015), W.H. Freeman: New York, NY. [Paperback]

**Tutorial Center:** The tutorial center is in Sports Arena 125 Decatur St SE, First Floor

There will be a tutor specifically for Biochemistry 2 there to answer your questions. This is a good time to ask questions on specific homework problems and lecture topics. Time: TBA

**iCollege:** BIOCHEMISTRY II XLS GROUP J7 FALL SEMESTER 2019

All announcements will be posted on icollege. Please check it often. All notes from class will be posted within 24 hours after class.

***Do not email me on icollege.*** Email me at [vmariani@gsu.edu](mailto:vmariani@gsu.edu)

**Exams CHEM 4610:** There will be three class exams worth **100** points each. The lowest exam grade will be dropped. If you miss more than one exam, the 2<sup>nd</sup> missed exam will require proper documentation. See: <http://codeofconduct.gsu.edu/files/2013/03/2013-14-Student-Code-IV.F.-Policy-on-Class-Attendance.pdf>

There will be a required comprehensive final exam worth **150** points (on **Dec 16 1:30 pm**). The final exam is mandatory, and it will not be dropped under any circumstance. Failure to take the final WILL NOT result in a grade as an incomplete, simply a 0 will be used as the final exam grade.

Test scores will be posted on icollege. If there is a mistake or your score is missing, you must come to my office to discuss. *You are responsible for checking grades!* The icollege website is simply a tool to report grades, it is not my gradebook.

**Quizzes CHEM 4610:** Quizzes will collectively be worth **50** points. There will be approximately 10-15 quizzes on icollege.

#### **Grade Calculation 4610:**

Semester Grade = (sum 2 best class exams + quiz points + final exam) / 4

A+ 97% A 93% A- 89% B+ 85% B 80% B- 76% C+ 68% C 62% C- 58% D 50% F <50%

**Graduate CHEM 6610:** There will be three class exams worth **125** points each. The lowest exam grade will be dropped. If you miss more than one exam, the 2<sup>nd</sup> missed exam will require proper documentation. See: <http://codeofconduct.gsu.edu/files/2013/03/2013-14-Student-Code-IV.F.-Policy-on-Class-Attendance.pdf>

There will be a required comprehensive final exam worth **200** points (on **Dec 16 1:30 pm**). The final exam is mandatory, and it will not be dropped under any circumstance. Failure to take the final WILL NOT result in a grade as an incomplete, simply a 0 will be used as the final exam grade.

Test scores will be posted on icollege. If there is a mistake or your score is missing, you must come to my office to discuss. *You are responsible for checking grades!* The icollege website is simply a tool to report grades, it is not my gradebook.

**Quizzes CHEM 6610:** Quizzes will collectively be worth **50** points. There will be approximately 10-15 quizzes on icollege.

#### **Grade Calculation 6610:**

Semester Grade = (sum 2 best class exams + quiz points + final exam) / 5

A+ 97% A 93% A- 89% B+ 85% B 80% B- 76% C+ 68% C 62% C- 58% D 50% F <50%

**Learning Outcomes:** The course will focus on developing an understanding of the biochemical principles and processes that govern the structure, interactions, functions & transformations of biomolecules; this will help students rationalize biochemical facts and solve problems. Upon successful completion of the course students will have the tools to be able to apply their knowledge of biochemistry to understand the causes of human diseases, as well as applications of biochemistry in medicine, agriculture and the environment.

**Course Objectives:** A comprehensive and integrated review of modern biochemistry with emphasis on proteins, enzymes, nucleic acids, lipids, carbohydrates and metabolism. Will examine biomolecular structure-function relationships, concepts of enzyme function, regulation, bioenergetics, metabolism, gene expression, and characterization of biomolecules. Organization, transport and signaling in cells will also be examined. Principles of acid/base chemistry, redox, organic mechanisms, kinetics, and thermodynamics will be applied throughout. *Working knowledge of these topics covered in 1211, 1212, 2100 2410 and 4600 (or 6600) is expected PRIOR to taking biochemistry.*

**Secrets to Success:** Those who are successful in this course: 1) **Review:** Read the text and/or look over power points before lecture. This is to familiarize yourself with the material before it is covered such that one can pick up information in class time. 2) **Reinforce:** Look over and/or recopy the notes from the lecture within a day of the class. This is to reinforce the material and to make you aware of any problem spots. 3) **Apply:** Regularly work problems from the text, companion, sample exams and internet. If you cannot apply the material it will be difficult to answer multiple choice questions on the exams. 4) If you have questions about the material or problems come to my office hours with questions

To pass this course you need to do more than simply memorize the material. You need to be able to “apply” the material. Reading the text or another source is real important for this. To be successful one must learn to “speak the language of biochemistry”.

**Notes:** There will be no incompletes given for this course. Poor course performance is not rewarded with an incomplete. Do not ask. If you have a hardship, the Dean of Students is where you go. Please see: <http://deanofstudents.gsu.edu/student-assistance/emergency-withdrawal/>

*There will be no grade changes in this course.* I simply add up the points you earned. I cannot alter what you earned. Unfortunately, there is no score for “hard work”. If there are any issues with your grade or course work, you must come to my office (not email) before the last day of class to discuss. The day grades are due is a terrible time to address these issues!

### **Exam Dates (Subject to change)**

<u>no.</u>	<u>Date</u>	
1	Wednesday	September 25
2	Wednesday	October 23
3	Wednesday	November 20
F	Monday	December 16

Topics in blue were covered in Biochemistry 1

**Topics for Exam 1:**

- 16.1 -16.4 glycolysis/ gluconeogenesis regulation review
- 20.3 – 20.5 pentose phosphate pathway
- 18.2 – 18.4 electron transport chain, oxidative phosphorylation, regulation review
- 19.1 – 19.4 photosynthesis, light reactions
- 20.3 – 20.5 Calvin cycle, dark reactions

**Topics for Exam 2:**

- 22.1 – 22.5 fatty acid catabolism, ketone bodies, fatty acid synthesis
- 26.1 – 26.4 cholesterol biosynthesis and transport
- 27.3 diabetes
- 14.2 signal transduction: tyrosine phosphorylation cascades

**Topics for Exam 3:**

- 23.1- 23.5 protein turnover, amino acid catabolism, urea cycle, incorporation of intermediates
- 24.2 – 24.4 amino acid biosynthesis, regulation, distribution
- 25.1 -25.5 nucleotide biosynthesis regulation, distribution

**Topics to be included on Final:**

- 33.1 – 33.5 Sensory Systems
- 14.1 signal transduction: GPCRs

**Note:**

We may progress faster or slower throughout the semester. Topics from a previous section could be held for the next exam or topics from a later session could have been covered and added to the exam. I only will put questions concerning topics that have been covered on the exam!

**\*\*Please come to class regularly for exact topics covered on the exam.\*\***