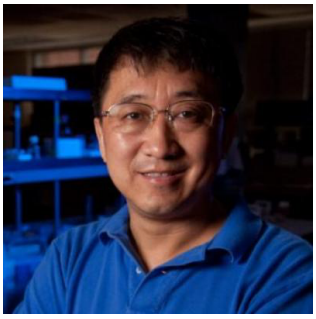
BCMB 3100/57111
Introductory Biochemistry and Molecular Biology
Spring 2022

Instructors:



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Class Schedule: TR **(**Tuesday/Thursday) 12:45 – 2:00 PM, & Tuesday 2:20 – 3:35 PM, Davison Life Sciences, Room C127

Breakout Sessions/Case Studies: Breakouts will serve as a group office hour to discus

Objective: The objective of this course is to introduce you to the chemistry of life and provide a basis for further studies in biological sciences. The course material includes the structure and function of biological molecules, enzymology metabolism, bioenergetics, and molecular biology. The course will be taught by two different instructors using a variety of different teaching methods, including standard lectures, problems, scenarios, and real biochemical cases that will enable you to learn biochemistry and molecular biology. The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.

Textbook: The book for the course is Biochemistry: A Short Course, Tymoczko, Berg and Stryer, 4th Edition (ISBN: 1319114636). Our exams are based on our notes, the lecture material, breakout questions, and case studies.

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Course Organization and Schdule:

			BCMB 3100/57111 Spring 2022		
Lecture	**Unit**	**Date**	**Subject Material**	**Lecturer**	**Quiz**
1	1	T 1/11	Intro, Peptide bond and Thermodynamics	Xu	
2		T 1/11	Thermodynamics (cont.), noncovalent interactions, water, hydrophobic effect, Detergents	Xu	
3	1	R 1/13	pKa, le Chatelier's, leaving groups, Bicarbonate Buffer; Amino Acids. Primary structure of proteins, Purification	Xu	
4	1	T 1/18	Protein structure: Four rules of folding, Secondary structure, Tertiary Structure	Xu	
5*	1	T 1/18	***Breakout 1: study questions covered in Lectures 1 - 4**	Xu	
6*	1	R 1/20	***Quiz 1: test on all material covered in Lectures 1-4**	Xu	1
7	1	T 1/25	Binding and affinity Intro to Hemoglobin	Xu	
8	1	T 1/25	Bohr Effect, 2,3-BPG, Fetal Hemoglobin, Sickle Cell	Xu	
9	1	R 1/27	Enzyme Kinetics ; Kinetics: Rates (reaction order), Catalysis, Initial velocity analysis, Steady state, Lineweaver-Burk, Enzyme inhibition	Xu	
10	1	T 2/1	Enzyme Mechanisms I: Four tricks; Enzym Mechanisms II: HEWL, Serine Protease	Xu	
11*	1	T 2/1	***Breakout 2 : study questions covered in Lectures 5 - 8**	Xu	
12*	1	R 2/3	***Quiz 2: test on all material covered in Lectures 5-8**	Xu	2
13	1	T 2/8	Carbohydrates: structure	Xu	
14	2	T 2/8	Carbohydrates (cont.), metabolism (pathways, regulation)	Xu	
15	2	R 2/10	Metabolism (continued), Glycolysis	Xu	
16	2	T 2/15	Glycolysis	Xu	
17*	2	T 2/15	***Breakout 3: study questions covered in Lectures 9 - 12**	Xu	
18*	2	R 2/17	***Quiz 3: test on all material covered in Lectures 9-12**	Xu	3
19	2	T 2/22	Glycolysis & Gluconeogenesis	Xu	
20	2	T 2/22	Pyruvate Dehydrogenase	Xu	
21	2	R 2/24	Pyruvate Dehydrogenase and other glycolytic enzymes	Xu	
22	2	T 3/1	Other glycolytic enzymes	Xu	
23*	2	T 3/1	***Breakout 4: study questions covered in Lectures 13 - 16**	Xu	
24*	2	R 3/3 Mid	***Quiz 4: test on all material covered in Lectures 13-16**	Xu	4
	3	T 3/8	**Spring Break**		
	3	T 3/8	**Spring Break**		
	3	R 3/10	**Spring Break**		
24	3	T 3/15	Intro; Citric Acid Cycle and Wernicke-Korsakoff case	Weiss	
25	3	T 3/15	Citric Acid Cycle and Wernicke-Korsakoff case	Weiss	
26	3	R 3/17	Citric Acid Cycle and Wernicke-Korsakoff case review	Weiss	
27	3	T 3/22	Electron transport & Oxidative phosphorylation; Leigh Syndrome Case	Weiss	
28	3	T 3/22	Electron transport & Oxidative phosphorylation; Leigh Syndrome Case	Weiss	
29	3	R 3/24	Electron transport & Oxidative phosphorylation; Leigh Syndrome Case review	Weiss	
30*		T 3/29	***Quiz 5**	Weiss	5
31	3	T 3/29	Lipids as fuel; Lipid Metabolism case	Weiss	
32	3	R 3/31	Lipids as fuel; Lipid Metabolism case	Weiss	
33	3	T 4/5	Lipids as fuel; Lipid Metabolism case review	Weiss	
34	3	T 4/5	Amino Acid Metabolism Case	Weiss	
35		R 4/7	Amino Acid Metabolism Case	Weiss	
36		T 4/12	Amino Acid Metabolism Case review	Weiss	
37*	4	T 4/12	***Quiz 6**	Weiss	6
38	4	R 4/14	Nucleic Acids Case	Weiss	
39	4	T 4/19	Nucleic Acids Case	Weiss	
40	4	T 4/19	Nucleic Acids Case Review	Weiss	
41	4	R 4/21	Protein Synthesis & the Genetic Code	Weiss	
42	4	T 4/26	Protein Synthesis & the Genetic Code	Weiss	
43	4	T 4/26	Protein Synthesis & the Genetic Code Review	Weiss	
44*	4	R 4/28	***Quiz 7**	Weiss	7
45	4	T 5/3	**Review, Classes End**	Weiss	
46*	4	TBD	*Optional Final--Final Exam Week	Weiss	
47	4		Case Studies & Reading Quiz grades (added together)	Weiss	8

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Website: Lecture notes, powerpoints, study guides, cases, and problems from class will be posted on eLC. It is your responsibility to make sure you have access to the eLC site. Please email Dr. Xu or Dr. Weiss from your UGA email account if you need to be enrolled.

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Attendance: While attendance is not recorded, it is **required**. Exam questions will be taken from information covered during lectures, breakouts, and case studies. To help you focus on the important material in the lectures, we recommend reading over the associated study questions, assigned reading, and/or case studies prior to class. You will be responsible for all announcements made in class or through ELC E-mail. Arrive on time and avoid leaving early. In the event of weather-related cancellation of classes, the schedule will pick up the sequence of lectures as classes resume. If we have covered all material for an exam, the exam will be given on the first day back.

Why Is In-Person Attendance Even Important?

When you show up to class in person, it tells your professor that you take the class seriously by making the effort to be there. That's great! However, in-person attendance has important benefits to your actual *learning*. Attending class helps you do the following:

- *Make connections between concepts*. During class lectures and discussions, your brain will find connections to the assigned reading, previous class meetings, and your own life experiences. These connections serve as the foundation of learning!
- *Benefit from the professor's experience*. Your professors share examples, stories, and real-life applications of concepts that make information easier to understand and remember.
- *Anticipate exam questions*. Concepts or ideas emphasized by your professor during class can indicate the importance of certain facts, concepts, or processes. On occasion, your professor may even say during class, "This is something you really need to know for the exam."
- *Gain clarity on course assignments*. While your course syllabus outlines the major assignments, professors often provide new information or clarification about upcoming assignments during class, typically in response to students' questions.
- *Receive immediate feedback*. Professors often ask "Are there any questions?" By attending class in person, you get immediate answers to your questions.

Technology: Turn off cell phones. This includes no e- mail or texting during class. If you distract the other students, then you will be asked to leave classroom. Please do bring your laptop computers, if available,

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as a resource to look up relevant information during class and for working on study guides, case studies, and exams via eLC.

Office Hours: There are no set office hours for this class. Students are strongly encouraged to participate in classroom discussion, *breakout/case study sessions and the course google doc. We have learned that many students tend to have the same questions, so an open discussion helps the entire class. If you have a specific reason or need to meet with us, use email and we will schedule a time.

Quizzes: The grading in this course will be based on weekly, open-book quizzes, which will be given via eLC during the session marked on the schedule (*). While it is open-book, the work MUST be the student's own work. Discussion of the quiz or answers with ANYONE other than the professor, will constitute cheating. The quiz will last the entire class time and will consist of 15-25 questions covering lectures, study questions, and case studies (Part 2 of course).

Quizzes will not be returned. Answers will be discussed immediately following the quiz. If you believe there has been a grading error on your quiz you have **one week** from the date the quiz grade is posted to contact us for grade changes. No grades will be changed after this date.

Make-up exams: There will be no make-up exams for missed quizzes. Instead, all students have the option of taking a cumulative 'Optional Final' at the end of the course. This optional final can be used to replace any quiz grade.

Grading:

A	A-	B+	B	B-	C+	C	C-	D	F
92%	**88%**	**84%**	**80%**	**76%**	**72%**	**60%**	**50%**	**40%**	**< 40%**

Peer Learning Assistants (PLAs)

Good news: this class is supported by Volunteer PLAs. PLAs are students who successfully took this course in a previous semester and are returning this semester to support you and your learning. They have received special training on how people learn and how to be an effective resource for you. In addition, they will meet regularly with your instructor to understand how to best support your learning in this course. PLAs are not here to reteach the material, nor to provide you with the answers, nor to evaluate your work. They do not grade assignments or exams and are not teaching assistants (TAs).

PLAs are here specifically to help you learn by enhancing discussions and activities in this class. They will help you get the most out of classroom activities by clarifying instructions and assisting you in finding the

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right questions to deepen your learning. So, get to know your PLAdas and take advantage of their training on your journey to academic success.

CORONAVIRUS INFORMATION FOR STUDENTS

Face coverings:

Following guidance from the University System of Georgia, face coverings are highly recommended for all individuals while inside campus facilities.

How can I obtain the COVID-19 vaccine?

University Health Center is scheduling appointments for students through the UHC Patient Portal (https://patientportal.uhs.uga.edu/login_dualauthentication.aspx). Learn more here – https://www.uhs.uga.edu/healthtopics/covid-vaccine.

The Georgia Department of Health, pharmacy chains and local providers also offer the COVID-19 vaccine at no cost to you. To find a COVID-19 vaccination location near you, please go to: https://georgia.gov/covid-vaccine.

In addition, the University System of Georgia has made COVID-19 vaccines available at 15 campuses statewide and you can locate one here: https://www.usg.edu/vaccination

What do I do if I have COVID-19 symptoms?

Students showing COVID-19 symptoms should self-isolate and schedule an appointment with the University Health Center by calling 706-542-1162 (Monday-Friday, 8 a.m.-5p.m.). Please DO NOT walk-in. For emergencies and after-hours care, see, https://www.uhs.uga.edu/info/emergencies.

What do I do if I test positive for COVID-19?

If you test positive for COVID-19 at any time, you are **required to report it** through the DawgCheck Test Reporting Survey. If you are ill or have been exposed to someone with COVID-19, please DO NOT COME TO CLASS. **Please email the instructor and we will make the recorded lecture available to you.**

UGA adheres to current Georgia Department of Public Health (DPH) quarantine and isolation guidance and requires that it be followed. Follow the instructions provided to you when you report your positive test result in DawgCheck.

Other COVID related information is available at [https://coronavirus.uga.edu/].

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