CHEM 6600
BIOCHEMISTRY I
Fall 2014

Instructor:
Dr. Aimin Liu and Dr. Jun Yin
Email: Feradical@gsu.edu and junyin@gsu.edu
Phone: 404-413-5532 and 404-413-6090

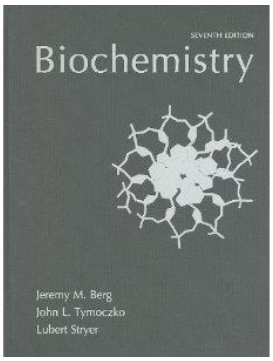
Graduate Teaching Assistant:
Ian Davis
404-413-5562

Lecture Schedule & Room:
MW 5:30-6:50 pm; F: Self-Study & Office Hours
327 Classroom South (CLSO, 65 seats)

Office Hours:

Students are required to bring their textbook and lecture notes.
Office hours are suspended the day of the exams, and no questions will be answered on the day of the exams.
Students desiring to discuss more in-depth about a topic or career plans may request to schedule an appointment outside office hours via email

Textbook:
"Biochemistry, 4th, 6th or 7th edition, Lubert Stryer et al. The 5th edition is not recommended.



Course Objective:
A comprehensive and integrated review of modern biochemistry with emphasis on proteins, enzymes, nucleic acids, carbohydrates, lipids, regulation and control of enzymes and metabolism, bioenergetics, vitamins, nucleotide metabolism, protein synthesis, and cellular sensing mechanisms.

Tests and Assignments:

Three class exams 100 points each		= 300
One comprehensive final exam		= 200
	Total	= 500

Exams schedule (Please mark your calendar):

September 22 (M) class exam 1
October 27 (M) class exam 2
December 1 (M) class exam 3
December 9 (T) final exam
No make-ups or rescheduling of exams will be carried out under any circumstance

The final grade will be counted against the possible points out of 500 (3 class exams + final exam). The final exam is mandatory, and it must be taken on December 9. You are responsible for withdrawing before the deadline if you need to do so. If more than one in exam is missed for legitimate reasons, you should seek a

hardship withdrawal or an incomplete. If you do not withdraw and miss the final exam, or more than one class exam, then zeros will be assigned for these grades.

Projected Grading Scale:
A+: 97%, A: 90%; A-: 86%; B+: 81%; B: 77%; B-: 72%; C+: 68%; C: 65%; C-: 60%; D: 55%; F: <55%

Notes:
The Instructor reserves the right to seat or move students during the tests.
Students are required to show (and leave) their student identification on the desk to take the test. Tests will be graded ONLY upon showing a student I.D.

All tests taken must represent your individual, unaided efforts. To receive or offer information during an examination is cheating. The use of unauthorized supplementary materials during tests is also cheating. A student who cheats on an exam will receive a zero for that exam which cannot be dropped as the lowest grade. Any suspected offenses may also be referred to the Department Chairman for appropriate action.

The Department of Chemistry follows the university policy on academic honesty published in the "Faculty Affairs Handbook" and the "On Campus: The Undergraduate Co-Curricular Affairs Handbook." Any suspected offenses may be referred to the Department Chair for appropriate action. All tests taken must represent your individual, unaided efforts. To receive or offer information during an examination is cheating. The use of unauthorized supplementary materials during tests is also cheating.

Suggestions:
Students are strongly encouraged to carefully read and study in depth the topic on the textbook before coming to class, and not to wait until the last days to study for tests.

Last day to Withdraw from Class and Receive a "W":
October 14th, semester midpoint
The University requires that faculty members must, on a date after the mid-point of the course to be set by the Provost (or his designee):

1. Give a WF to all those students who are on their rolls but no longer taking the class and
2. Report the last day the student attended or turned in an assignment.

Academic Honesty

Students will be expected to maintain the highest standards of academic honesty. With respect to homework assignments, it is expected that no student will turn in work that is not his or her own by copying the work of another student or by using the work or solutions from this course given in previous years. Discussion of approaches to solving the homework problems after attempting to work the problems independently, however, is permitted and encouraged.

It is expected that during a test or examination, a student will not:
1) Accept or use information of any kind from other students.
2) Represent the work of another student as his or her own.
3) Use aids to memory other than those expressly permitted by the examiner.

Following a test or examination, a student will not try to deceive teachers or graders by misrepresenting or altering his or her previous work. In advance of a test or exam, a student will not knowingly obtain access to the exam questions.

Departures from the above standards are contrary to fundamental principles of GSU. Such departures are considered serious offenses for which disciplinary penalties, including suspension and expulsion, can be imposed.

Disability Service:

Students who wish to request accommodation for a disability may do so by registering with the Office of Disability Services. Students may only be accommodated upon issuance by the Office of Disability Services of a signed Accommodation Plan and are responsible for providing a copy of that plan to instructors of all classes in which an accommodation is sought.

Tentative Lecture Schedule (check https://gsu.view.usg.edu/ on a daily basis for updates, lecture notes and schedule changes etc):

Section I. Protein Structure & Function Relationships, Enzyme Mechanisms (Liu)
Amino Acids, Protein Structure, Protein Synthesis, Protein Isolation, Protein in Action, Enzymes, Kinetics, regulation, Common Mechanistic Strategies
Exam 1: September 22

Section II. Carbohydrate Metabolism (Yin)
Carbohydrate Structure, Glycolysis, PDH Complex, TCA Cycle, NADH Shuttle, Oxphos and ATP Synthesis, Gluconeogenesis, and Glycogen - Pentose Shunt Pathway
Exam 2: October 27

IV. Bioenergetics, Lipids, Nucleic Acids, Vitamins, and Cellular Sensory Mechanisms (Liu)
Lipid Structure and Metabolism, Nucleotide Structure and Metabolism, Water Soluble Vitamins, Fat Soluble Vitamins & Minerals, and Cellular Sensory Mechanisms
Exam 3: December 1

V. Final Exam

December 9: Comprehensive Final Exam

Tentative lecture schedule (may be changed as the course progresses)

Week	Date	Chapter	Topic	Lecturer (Liu or Yin)	
1	August 25	1	Introduction, pH, buffer	Liu	Yin
	27	2	Amino acid, protein	Liu	
	29	2	Protein structure	Liu	
2	September 1		***Labor day, no class***		
	3	2	Protein structure	Liu	
	5	3	Protein purification	Liu	
3	8	7	Protein in action	Liu	
	10	7	Protein in action	Liu	
	12	8	Enzymes	Liu	
4	15	8	Enzyme kinetics	Liu	
	17	10	Enzyme regulation	Liu	
	19		**Review**	Liu	
5	22		**Midterm exam 1**		
	24	11	Carbohydrates		Yin
	26	11	Carbohydrates		Yin
6	29	16	Glycolysis		Yin
	October 1	16	Glycolysis		Yin
	3	16	Gluconeogenesis		Yin
7	6	17	Pyruvate dehydrogenase		Yin
	8	17	Citric acid cycle		Yin
	10	18	NADH shuttle	Liu	
8	13	18	Oxidative phosphorylation	Liu	
	15	19	Photosynthesis	Liu	
	17	20	Calvin cycle		Yin
9	20	20	Pentose phosphate pathway		Yin
	22	21	Glycogen metabolism		Yin
	24		**Review**		Yin
10	27		**Midterm exam 2**		
	29	12	Fatty acid metabolism		Yin
	31	22	Fatty acid metabolism		Yin
11	November 3	25	Nucleotide biosynthesis		Yin
	5	25	Nucleotide biosynthesis		Yin
	7	30	Protein synthesis		Yin
12	10	5	Tools for molecular biology		Yin
	12	15	Vitamins and minerals	Liu	
	14	15	Vitamins and minerals	Liu	
13	17	14	Signal transduction	Liu	
	19	27	Metabolic pathway integration	Liu	
	21	27	Metabolic pathway integration	Liu	
14	24		***Thanksgiving no class***		
	26		***Thanksgiving no class***		
	28		***Thanksgiving no class***		
15	December 1	26	**Midterm exam 3**		
	3	26	**Review I**	Liu	
	5	27	**Review II**		Yin
16	8	28	Office hour or Q&A		
	9		**Final exam**		

Textbook: Biochemistry, 7th edition, Berg, Tymoczko, Stryer.