

Chemistry 4304
Biological Chemistry I
Spring Semester 2010
Syllabus, December 2009

Instructor: Dr. Fenfei Leng, Department of Chemistry and Biochemistry

Office: Chemistry and Physics (CP)-317

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Credits: 3

Lecture (Sec 1) MWF 11:00-11:50 am; room PCA 180

Prereq: CHM 2211, CHM 3120, and BSC 1011 with a C or better

Required Books: Biochemistry, 6th Edition (2006), by J. M. Berg, J. L. Tymoczko, & L. Stryer..

Recommended Book: Student Companion to Accompany Biochemistry, 6th Edition (2006) by R. I. Gumport, F. H. Deis, N. C. Gerber, & R. E. Koeppe II.

Course Description: Chemistry 4304 is the first semester of an undergraduate biochemistry sequence, which includes CHM 4304 (Biological Chemistry I) and CHM 4307 (Biological Chemistry II). The course will introduce the structures and functions of proteins, nucleic acids, carbohydrates, and lipids. Enzymology and metabolism will also be discussed.

Exams: There will be three mid-term exams during the semester, all of them will be held in PCA 180. No papers, electronic devices etc. will be allowed close to your desk during the exam.

Cheating will not be tolerated. The tentative exam schedule follows:

11:00 am - 11:50 am Monday, February 1

11:00 am - 11:50 am Wednesday, March 3

11:00 am - 11:50 am Monday, April 12

Final Exam, April 21, 9:45 am – 11:45 am, room PCA180

If you are unable to make one of these times please contact Dr. Leng immediately.

The final exam will be held in April.

If you require any special consideration or accommodation due to a disability you need to see Dr. Leng immediately.

Grading: There will be three mid-term exams during the semester and one comprehensive final exam. **No** make-up exams will be given. Allowances will be made for medical reasons when accompanied with documentation from a physician stating explicitly that you are not able to take the exam on that day for health reasons. In addition, allowances will be made for armed forces personnel with commitments related to national security. **All** exams will count towards your final grade.

Mid-term exams (3 x 100 points)	300 points
Final Exam	300 points
Total	600 points

The instructor's expectations for students during the semester: The students will be responsible for all materials covered in lectures and assigned in the book. The students are expected to read the appropriate materials in the text before each class, and solve the appropriate problems followed each chapter, and also take the online quizzing (<http://bcs.whfreeman.com/biochem5/default.asp>). The key to success is hard work. Solving

problems and excising is the only way to make sure you understand the subjects covered in the course; the more you try the more benefits you will get.

Learning Outcomes: The overall goal of this course is for students to understand the basic principles of biochemistry. To this end, the following major learning outcomes shall apply:

1. Students will be able to understand structure and function of proteins, nucleic acids, lipids, and carbohydrates.
2. Students are expected to understand basic concepts of enzymes, the simple kinetics, and regulatory mechanisms.
3. Students will have a basic understanding of the metabolism concepts, glycolysis, and the citric acid cycle.

Office Hours: Dr. Leng is usually available in his office or in his laboratories OE-307 and OE-298 after 10 am. He is also available by appointment. His office hour is M 3-4 pm.

Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly to demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the educational mission of the University. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Handbook.

Date			Tentative Schedule	Readings
Jan	4	M	Introduction, protein structure and function	Chapters 1 & 2
	6	W	Protein structure and function	Chapter 2
	8	F	Protein structure and function	Chapter 2
	11	M	Protein structure and function	Chapter 2
	13	W	Exploring proteins: purification	Chapter 3
	15	F	Exploring proteins: purification	Chapter 3
	18	M	MLK Holiday	N/A
	20	W	Nucleic acids: structure	Chapters 4 & 28
	22	F	Transfer of genetic information	Chapter 4
	25	M	Exploring genes: techniques	Chapter 5
	27	W	Exploring genes: techniques	Chapter 5
	29	F	Review	Chapters 1-5
Feb	1	M	First Hourly Exam (Chapters 1-5)	
	3	W	Hemoglobin	Chapter 7
	5	F	Hemoglobin	Chapter 7
	8	M	Enzyme kinetics	Chapter 8
	10	W	Enzyme kinetics	Chapter 8
	12	F	Enzyme inhibition	Chapter 8
	15	M	Catalytic Strategies: proteases	Chapter 9
	17	W	Catalytic Strategies: proteases	Chapter 9
	19	F	Catalytic Strategies: other enzymes	Chapter 9
	22	M	Regulatory strategies	Chapter 10
	24	W	Regulatory strategies	Chapter 10
	26	F	Regulatory strategies (last day to drop with a DR grade)	Chapter 10
Mar	1	M	Review	Chapters 7-10
	3	W	Second Hourly Exam (Chapters 7-10)	
	5	F	Carbohydrates	Chapter 11
	8	M	Carbohydrates	Chapter 11
	10	W	Carbohydrates & Lipids	Chapters 11-12
	12	F	Lipids	Chapter 12
	15-20		Spring Break	N/A
	22	M	Lipids	Chapter 12
	24	W	Metabolism: basic concepts and design	Chapter 15
	26	F	Metabolism: basic concepts and design	Chapter 15
	29	M	Glycolysis	Chapter 16
	31	W	Glycolysis	Chapter 16
Apr	2	F	Glycolysis	Chapter 16
	5	M	The Citric acid cycle	Chapter 17
	7	W	The Citric acid cycle	Chapter 17
	9	F	The Citric acid cycle (Review chapters 11, 12, 15, 16, & 17)	Chapter 17
	12	M	The Third Hourly Exam (chapters 11, 12, 15, 16, & 17)	
	14	W	Oxidative phosphorylation	Chapter 18
	16	F	Oxidative phosphorylation	Chapter 18
	21	W	Final Examination	9:45 – 11:45 am