Biochemistry 721.03 (02684-4)

Physical Biochemistry III

Professor Thomas J. Magliery & Professor Mark P. Foster
Spring 2008

Monday, Wednesday & Friday, 10:30-11:18 a.m.
Sunday, 4/6 & 4/20, 6:00-7:30 p.m.
609 Biological Sciences Building

Required Text Tinoco et al., *Physical Chemistry: Principles and Applications in Biological Sciences*, 4th ed.

Other Texts (BPL reserve) Cantor & Schimmel, *Biophysical Chemistry*, vol. II-III
Chang, *Physical Chemistry for the Chemical and Biological Sciences*

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Office Hours By appointment

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Office Hours Tues/Thurs, 2-3 pm, 732 Riffe Building

Website Carmen, https://carmen.osu.edu/

Grading Your final grade will be determined from: 10% homework; 25% each for two midterm exams; and 40% from a final exam. Scores on the midterms may be adjusted to achieve equal weighting. Your letter grade for the course will be determined solely from your total adjusted, weighted points for the class. Letter grades will not be assigned to homework or midterms.

Homework Completion of homework problems in a timely manner will enable your success in the course. However, homework from the book will not be collected or graded. A series of problem solving sets, made up of an in-class group portion and take-home individual portion, will be collected and graded. These are due at the beginning of class the Mondays following the Group Work sessions. No late papers will be accepted.

Quizzes Unannounced quizzes may be administered and counted as part of the homework grade. No make-ups will be given for missed quizzes.

Exams Midterm Exam 1, Friday, Apr. 25, 10:30-11:18 a.m., 609 BI (Chap. 6 & 11)
Midterm Exam 2, Friday, May 18, 10:30-11:18 a.m., 609 BI (Ch. 7) *tentative*
Final Exam, Wednesday, Jun. 4, 9:30-11:18 a.m., TBA (Chap. 6-8 & 11)

All exam questions will be drawn from material presented in class and in the assigned reading, and will be similar to problems in the book, on group work and on take-home work. You may bring a pencil or pen and a non-programmable calculator to exams. You may not share these items with other students. You may not use scrap paper; all work must be done on the exam itself. ***You may not bring a cell phone, MP3 player or digital camera to the exams. If the proctors see or hear one of these devices during the exam, your exam will immediately be confiscated, and you will receive a***

zero. Proctors are instructed to pass questions on to the instructor, who will decide whether or not to issue a clarification to the whole class. No individual clarifications will be made during the exam.

Make-up exams will be given only for class conflicts or medical ***emergencies*** with a doctor's note. **The doctor's note must state that you are too ill to take the exam. Merely having a cold or visiting the doctor will not be sufficient excuse for a make-up.** Make-up exams must be scheduled with the instructor to be completed within one week of the administration of the original exam. **At the professor's discretion, an oral exam may be given as a make-up exam.** Missing an exam for any other reason or failure to complete the make-up in the time allotted will result in a zero. Incomplete grades (I) will not be granted for missed exams. There are no make-ups of the final exam.

Midterm exam answers and grades will be posted on the class web site. Requests for re-grades must be submitted by the beginning of next class after the exam is returned. A written explanation of the grading error must be attached to the front of the exam; **no additional marks or changes should be made on the exam**. A portion of the exams will be photocopied after grading to ensure that no changes are made. **If a re-grade is requested, the instructor will re-grade *the whole exam*, not just the error cited**. There will be no re-grades of the final exam, and they will not be returned to you. You may see your graded final exam by appointment with the professor after grades are posted.

Attendance It is your responsibility to attend all lectures and to take notes. All exam questions will be drawn from in-class material or assigned reading. Instructors will not provide notes, even for missed lectures. PowerPoint slides may be released at the instructors' discretion, but will not be released until completion of the module or chapter.

Disabilities Students who need accommodations for documented disabilities should see the instructor as soon as possible. Alternative formats for class materials can be provided through the Office for Disability Services, 292-3307, 150 Pomerene Hall.

Misconduct All work submitted for this class is expected to be your sole effort. No form of academic misconduct will be tolerated. Suspected cases will be referred to the Committee on Academic Misconduct per OSU procedures. Any falsification or improper alteration of grades, marks, answers or University forms will be dealt with severely. You will also be held to a high standard of treating your instructor, TA and peers with the utmost respect.

Detailed Lessons (First Half—Magliery)

Date	Topic	Reading	Notes
3/24	Kinetic Theory	Ch. 6 pp 252-267	
3/26	Diffusion	Ch. 6 pp 267-279	
3/28	Sedimentation & Viscosity	Ch. 6 pp 279-291	
3/31	Electrophoresis, Molecular Size & Shape	Ch. 6 pp 291-302	
4/2	Review of Equilibrium Binding	Ch. 5 pp 197-206, 210-213	
4/4	**Group Problem Solving I**		
4/6	**Evening session 6-7:30**		
4/7	Binding of Small Molecules by a Polymer	Ch. 11 pp 614-628	Take-home problems due
4/9	***Class canceled***		
4/11	Random Walk	Ch. 11 pp. 628-636	
4/14	Helix-coil Transitions	Ch. 11 pp. 636-645	
4/16	***Class canceled***		
4/18	**Group Problem Solving II**		
4/20	**Evening session 6-7:30**		
4/21	Statistical Thermodynamics I	Ch. 11 pp. 645-659	Take-home problems due
4/23	Statistical Thermodynamics II	TBA	
4/25	**Midterm I (Ch. 6 & 11)**		

A note on homework: The problems from the text are suggested. They will not be collected or graded. However, it will be very difficult to do well in the class if you have not done the problems. Take-home problem sets will be handed out with the Group Problem Solving sessions. You must work this part of the problem solving *on your own* and turn it in for a grade.

Detailed Lessons (Second Half—Foster)

Date	Topic	Reading	Notes
Week 6	Kinetics: Reaction Order, Reaction Mechanisms & Rate Laws	Ch. 7	
Week 7	Temperature Dependence, Transition State Theory		
Week 8	Fast Reactions, Diffusion Limit, Acid-Base Catalysis		
5/18	**Midterm Exam II (Ch. 7) *tentative***		
Week 9	Enzyme Kinetics: Steady State and Non-Steady State	Ch. 8	
5/26	*Memorial Day – No Classes*		
Week 10	Competition and Inhibition		
6/4	**Final Exam, 9:30-11:18 a.m., TBA**		