

Principles of Biophysical Chemistry 11:115:409 Spring 2017

Meeting days and time	Meeting location
W F 9:15 - 10:35 AM	LOR 115

CONTACT INFORMATION:

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Office hours: by appointment

*Note: This syllabus is subject to change, particularly the lecture topics. You will be notified of changes in class.

COURSE WEBSITE, RESOURCES AND MATERIALS:

- weekly presentations and other relevant materials are posted on the Sakai course site under course content
- **Text:** Physical chemistry for life sciences, Peter Atkins and Julio De Paula, 2nd ed., 2011, W.H. Freeman and Company, New York, ISBN-13: 978-1-4292-3114-5

Reading assignments come primarily from the textbook. Additional sources will be used when necessary.

COURSE DESCRIPTION:

The course focuses on the application of physical theory and selected experimental methods to biochemical processes

LEARNING GOALS:

- 1) apply basic principles of thermodynamics, kinetics, and quantum chemistry to quantitative and conceptual problem-solving
- 2) apply principles of thermodynamics and kinetics to characterization of biomolecular structures and functions

ASSIGNMENTS/RESPONSIBILITIES & ASSESSMENT:

There are four 80 minute examinations. All examinations are open book / open notes. The 80 minute exams each comprise 15% of the grade. Problems for each topic will be formally assigned and the average grade for problem sets will be worth 40% of the course grade. Students are expected to carry out problems like the homework assignments on the exams. Problem sets must be handed in on the due date at the beginning of the class. Late problem sets will be counted as 0.

Attendance

Students are expected to attend every class meeting and participate

COURSE GRADE IS CALCULATED AS FOLLOWS:

HW problem sets 40%

Exams 60%

A \geq 90, B+ 87-89, B 80-86, C+ 78-79, C 70-77, D 60-69

LECTURE AND EXAM SCHEDULE:

meeting	date	topic	assignment
1	1/18/17	The First Law (chapter 1)	
2	1/20/17		
3	1/25/17	The second law (chapter 2)	HW 1 is due
4	1/27/17	Phase equilibria (chapter 3)	HW 2 is due
5	2/1/17		
6	2/3/17	Problem solving, review	HW 3 is due
7	2/8/17	EXAM I	
8	2/10/17	Chemical equilibria (chapter 4)	
9	2/15/17		
10	2/17/17	Ion and electron transport (chapter 5)	HW 4 is due
11	2/22/17		
12	2/24/17		
13	3/1/17	Problem solving, review	HW 5 is due
14	3/3/17	EXAM II	
15	3/8/17	Kinetics. Reaction rates (chapter 6)	
16	3/10/17	Rate laws and mechanisms (chapter 7)	HW 6 is due
17	3/22/17		
18	3/24/17	Complex mechanisms (chapter 8)	HW 7 is due
19	3/29/17		
20	3/31/17	Problem solving, review	
21	4/5/17	EXAM III	
22	4/7/17	Quantum theory (chapter 9)	
23	4/12/17		
24	4/14/17	Bonding (chapter 10)	
25	4/19/17		
26	4/21/17	Macromolecules and self-assembly (chapter 11), Spectroscopy (chapter 12)	
27	4/26/17		
28	4/28/17	Problem solving, review	
29	Scheduled final exam time	EXAM IV	

ACCOMODATIONS FOR STUDENTS WITH DISABILITIES

Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

ACADEMIC INTEGRITY

In this course you are bound by all the academic standards detailed in Rutgers University Academic Integrity Policy.

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academic-integrity-policy>. The principles of academic integrity require that a student:

- properly acknowledge and cite all use of the ideas, results, or words of others.
- properly acknowledge all contributors to a given piece of work.
- make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that

- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- all student work is fairly evaluated and no student has an inappropriate advantage over others.
- the academic and ethical development of all students is fostered.
- the reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.

In this class we will take cheating very seriously. All suspected cases of cheating and plagiarism will be automatically referred to the Office of Judicial Affairs, and we will recommend penalties appropriate to the gravity of the infraction.