Biophysical Chemistry I  
MCB 3003 and 5003 Fall, 2019  
Monday and Wednesday, 4:40-5:55pm

An introduction to the physical chemistry of biological molecules and systems. Principal topics include biomolecular thermodynamics, kinetics, transport properties, and biomolecular structure.

Instructor  
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Office Hours: By appointment

Course Objectives  
This course provides an introduction to the principles of physical chemistry as applied to biological molecules and systems. The course is intended for students who wish to develop an understanding of the physical-chemical basis for biological processes.

Topics  
Biomolecular Thermodynamics  
- Basic framework  
- First Law and energy conservation  
- Second Law and entropy  
- Free energy rules  
- Chemical potential  
Kinetics  
- Rate laws and reaction mechanisms  
- Enzyme-catalyzed reactions  
- Electron transfer  
Transport Processes  
Biomolecular Structure  
- Quantum mechanics  
- Applications of quantum mechanics

Textbook  

Additional Resources  
Biomolecular Thermodynamics: from theory to application, Barrick, D. 2017, CRC Press.  

Course Evaluations  
Exams: There will be two in-class exams and a final exam.  
Problem Sets: Three problem sets will be assigned.  
Presentations: Students will be assigned short presentations of key applications of biophysical chemistry that address important biological questions.  
Participation: Students will be evaluated on their involvement in class discussions.
Grading
Exams: 60%
Problem Sets: 20%
Presentations: 10%
Class Participation: 10%

Policy Statements
Policy Against Discrimination, Harassment and Related Interpersonal Violence
Student Conduct Code
Academic Integrity Statement
Academic misconduct is dishonest or unethical academic behavior that includes, but is not limited to, misrepresenting mastery in an academic area (e.g., cheating), failing to properly credit information, research, or ideas to their rightful originators or representing such information, research, or ideas as your own (e.g., plagiarism).

Final Exam Policy
In accordance with UConn policy, students are required to be available for their final exam and/or complete any assessment during the time stated. If you have a conflict with this time you must obtain official permission to schedule a make-up exam with the Dean of Students. If permission is granted, the Dean of Students will notify the instructor. Please note that vacations, previously purchased tickets or reservations, graduations, social events, misreading the assessment schedule, and oversleeping are not viable reasons for rescheduling a final.