

CHEM 3621: Physical Chemistry 3

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Phone: 871-6698

Class time: 10-11:50 T/Th in Olin 103

Office Hours: 12-1 T/Th or by appointment in SGM 101

Text: *Physical Chemistry*, 3rd ed. Engel and Reid, with Mastering Chemistry on-line tools

Grading:

- A) Exams:** There are 3 exams. If you miss an exam for a valid reason, the other two will be averaged. The two exams are worth 20% of your grade and the final is worth 30%
- B) In-class group work:** Problem solving is a very important part of learning Physical Chemistry. We will spend class time working on problem sets. This is a group grade and worth 10% of your final grade and this is graded on in-class participation, not correctness.
- C) Additional online problems:** The Mastering Chemistry online problem sets will be used throughout this course. You are expected to do these problems independently. To gain access go to: The course is Knowles2017. This is worth 10% of your grade.
- D) Presentation:** In the last two weeks of class we will cover current literature on spectroscopy. I will post papers on Canvas to select from and presentations will be done in pairs. This is worth 10% of your grade. The final will cover this material and material from earlier in the quarter.

Approximate Schedule: *changes may occur!*

Week	Date	Topic	Reading	On-line Homework
1	3/28	Electronic Spectroscopy	25	
	3/30	Fluorescence Spectroscopy		Friday 3/31 11:59pm
2	4/4	Fluorescence Spectroscopy		
	4/6	Fluorescence Correlation Spectroscopy	On Canvas	
3	4/11	Nuclear Magnetic Resonance	28	
	4/13	Nuclear Magnetic Resonance		Friday 4/14 11:59pm
4	4/18	Exam 1		
	4/20	Transport Phenomena	34	
5	4/25	Transport Phenomena		
	4/27	Chemical Kinetics	35	Friday 4/28 11:59pm
6	5/2	Chemical Kinetics		
	5/4	Chemical Kinetics		Friday 5/5 11:59pm
7	5/9	Advanced Chemical Kinetics	36	
	5/11	Advanced Chemical Kinetics		Friday 5/12 11:59pm
8	5/16	Exam 2		
	5/18	Current topics in spectroscopy*	Papers	
9	5/23	Current topics in spectroscopy*		
	5/25	Current topics in spectroscopy*		
10	6/1	Review Session		
	6/6	Final Exam		

Powerpoint slides: These will be posted as pdfs after the lecture, typically the same day.

Disability Services: Any student who feels s/he may need an accommodation based on the impact of a disability or medical condition should contact the Disability Services Program to coordinate reasonable accommodations. This should be done IN ADVANCE of exams. They are located on the 4th floor of Ruffatto Hall; Information is also on line at <http://www.du.edu/disability/dsp>

Religious Accommodations Policy: University policy grants students excused absences from class or other organized activities or observance of religious holy days, unless the accommodation would create an undue hardship. Faculty are asked to be responsive to requests when students contact them IN ADVANCE to request such an excused absence. Students are responsible for completing assignments given during their absence, but should be given an opportunity to make up work missed because of religious observance.

Talk topics:

- 2D NMR (Hough, 28.14)
- DEER EPR (Martin)
- Fluorescence anisotropy
- Ultrafast spectroscopy (kinetics)
- XRD and X-ray crystallography
- X-ray fluorescence and uses in analytical chem.
- Vibrational Spectroscopy/AFM (Raschke)
- FRET single molecule
- Correlation spectroscopy
- Single molecule tracking (diffusion models, chapter 34)
- Single molecule photobleaching stoichiometry (Isacoff, probabilities)