

Syllabus for Chemistry 302, Physical Chemistry II Spring Semester 2015

Introduction to Quantum Mechanics:

Lecture: MWF 12:35-1:25pm Flanner Hall 105, Discussion: M 1:40-2:30pm Faller Hall 105

Instructor: Dr. Conrad Naleway,
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Office hours: WF 10:30-11:30am plus by appointment and weekly review sessions (tba)

Textbook: *Physical Chemistry*, Atkins & De Paula, W.H. Freeman, 10th Edition

Course Prerequisites: Chemistry 301 and Math 263 (Multivariate Calculus). Math 264 (Ordinary Diff. Eq.) is strongly encouraged. If you have not completed the course prerequisites, you may be administratively dropped from the class. Please discuss this with the instructor immediately!

Course Overview

Physical Chemistry II will explore beyond the macroscopic world of thermodynamics and explore the quantum mechanical principles needed to understand atomic and molecular structure. This will start with the historical development and fundamentals of quantum mechanics as it applies to the world around us and then apply the methods learned to hydrogen-type atoms. Using these principles, the class will focus on atomic and molecular spectroscopy, and finally finish by touching on the field of statistical mechanics to see how the microscopic world can be linked to the macroscopic.

Course Structure

There are three 50-minute lectures (MWF) and one 50-minute discussion section (M) per week. Even though lectures are extremely important, you will gain much more by completing assigned reading and problem sets BEFORE the lectures. By coming to lecture prepared having read the text and thought about these topics, you will be able to follow presented materials and fill in any remaining gaps. Additionally, you be able to ask key questions to better comprehend the complex material. The three keys to success in our class are: reading the textbook, solving as many problems as possible, and asking questions. Asking questions is a clear way to organize your thinking and help capture its relevance. Try to be proactive in this class and ask questions of me during lecture, office hours and among yourselves. To assist, discussion sections will often groups (3-4 people) to tackle a representative set of problems that are similar to the earlier assigned problems.

Course Grading:

In class exams (50%): We will have four exams. These will be take place during discussion (Exams 1,2,4) or lecture (Exam 3). The lowest grade will be dropped.

Final Exam (25%): The final exam will be cumulative, thus it is imperative that you master topics as they are introduced in class. There will be no make-up exams given unless extreme and documented circumstances might occur.

Homework/Class Assignments (20%): Periodic outside of class assignments will be given which will require either short reports or in-class presentations

In Class Participation (5%): Active participation in discussion is required; asking questions in lecture is strongly encouraged.

Additionally, *Practice Problems*: Problems from our text or other sources will be assigned to help you learn the material. These will not be collected, but it will be to your benefit to complete the problems

Final Grading Scale:

A 100-93;	B- 80-77;	D 64-60
A- 92-89;	C+ 76-73;	F <60
B+ 88-85;	C 72-70;	
B 84-81;	C- 69-65	

Supplementary Material

Companion site for Atkins Physical Chemistry: <http://bcs.whfreeman.com/pchem10e>

Academic Integrity

All students in this course are expected to have read and to abide by the standard of personal honesty, drafted by the College of Arts & Sciences, found at: [http://www.luc.edu/cas/pdfs/CAS Academic Integrity Statement December 07.pdf](http://www.luc.edu/cas/pdfs/CAS_Academic_Integrity_Statement_December_07.pdf)

Everything you submit that is incorporated as a component of your grade in this course (examinations, homework, reports) must represent your own work. Any students caught cheating/plagiarizing will automatically FAIL the class and the incident will be reported to the Chemistry Department Chair and the Office of the CAS Dean. There will be no tolerance whatsoever for cheating or plagiarism. Simply, *any instance of dishonesty (including those detailed on the website provided above or in this syllabus) during exams will result in a **failing grade** for the course.* The Dean of Arts & Sciences and The Chair of The Department of Chemistry will also be notified. I truly hope to never have to invoke these processes. Please be honest with your work.

Students with Disabilities

If you have any special needs, please let me know during the first week of classes. The university provides added services for students with disabilities. Any student who would like to use any of these university services should contact the Services for Students with Disabilities (SSWD), Sullivan Center (773) 508- 3700. Further information is available at <http://www.luc.edu/sswd>

Tutoring

The Loyola Undergraduate ACS has open tutoring every week on W and Th evenings in Flanner 129. In addition, Loyola maintains a Center for Academic Excellence & Tutoring <http://www.luc.edu/tutoring> Again, this is a service included in your tuition, so you are encouraged to utilize.