

Course Syllabus

Course Information

(course number, course title, term, any specific section title)

PHYSICAL CHEMISTRY II - CHEM-3322-001 – 2024S

Lecture: MWF 9:00am – 9:50am SLC 2.303

Workshop / Exam session: Tuesday 5:30pm – 6:45pm SLC 2.303

TA: Ly Tran, Ly.Tran@utdallas.edu

Professor Contact Information

(Professor's name, phone number, email, office location, office hours, other information)

Dr. Steven O. Nielsen, 972-883-5323, steven.nielsen@utdallas.edu, BE2.516 and BE3.304.

Office hours: 8:00-8:45am every day. Also, feel free to stop by or email whenever you have a question.

Course Pre-requisites, Co-requisites, and/or Other Restrictions

(including required prior knowledge or skills)

Prerequisites: MATH 2415 or MATH 2451 or MATH 3351, or consent of instructor.

Course Description

Fundamental microscopic properties of matter and radiation are discussed. A core of topics including quantum chemistry, atomic and molecular structure and spectroscopy, non-bonded interactions, and computational chemistry is supplemented with topics germane to students taking physical chemistry with biophysical applications.

Student Learning Objectives/Outcomes

Objectives: Physical Chemistry II is designed to provide students with fundamental understanding of chemical structures and processes at the microscopic level.

Fundamental microscopic properties of matter and radiation are discussed. A core of topics including quantum chemistry, atomic and molecular structure and spectroscopy, and statistical thermodynamics is supplemented with topics germane to students taking physical chemistry. Such additional topics might include computational chemistry, nuclear magnetic resonance, circular dichroism, and X-ray diffraction.

Outcomes: To this end, students will be able to

1. Explain atomic/molecular structure and spectroscopy in terms of quantum mechanics;
 2. Deduce molecular structure from spectroscopic data; and
 3. Interpret macroscopic properties of matter in terms of a statistical mechanical analysis of atoms and molecules.
 4. Demonstrate knowledge of mathematics and physics by applying that knowledge to evaluate mathematical problems related to physical chemistry.
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Required Textbooks and Materials

Physical Chemistry a molecular approach

Donald A. McQuarrie and John D. Simon. University Science Books, 1997.

<https://personal.utdallas.edu/~son051000/chem3322.html>

Assignments & Academic Calendar

(Topics, Reading Assignments, Due Dates, Exam Dates)

	Jan. 17	19	
22	24	26	
29	31	Feb. 2	
5	7	9	
12	14	16	
19	21	23	Test 1 on Feb. 20
26	28	Mar. 1	
4	6	8	(Spring Break March 11-15)
18	20	22	
25	27	29	Test 2 on March 26
Apr. 1	3	5	
8	10	12	
15	17	19	
22	24	26	Test 3 on April 23
29	May 1	3	
		10*	Final Exam: Friday May 10, 8:00am – 10:45am

Grading Policy

(including percentages for assignments, grade scale, etc.)

The course grade will be based on three term tests (20% each), homework (20%), and a final exam (20%). The lowest term test score can be replaced by your grade on the final exam.

The grading scale is: A: 80-100%, B: 60-80%, C: 50-60%, D: 40-50%, F: 0-40%

Course & Instructor Policies

(make-up exams, extra credit, late work, special assignments, class attendance, classroom citizenship, etc.)

There will be no makeup exams given. If you have an acceptable, documented reason for missing a term test (e.g. documented illness), you will be allowed to replace the missed term test with your score on the final. Otherwise, you will receive a zero. The final exam must be taken, will be comprehensive and cannot be replaced by any other grade. Homework turned in after the answers are posted online will not receive any credit.

Comet Creed:

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

“As a Comet, I pledge honesty, integrity, and service in all that I do.”

UT Dallas Syllabus Policies and Procedures:

The information contained in the following link constitutes the University’s policies and procedures segment of the course syllabus.

Please go to <http://go.utdallas.edu/syllabus-policies> for these policies.