

Chemistry 4300

Physical Chemistry - Spring Semester 2021

Lecture: TuTh, 11:10 am - 12:30 pm

Course web site: www.grandinetti.org/chem-4300-physical-chemistry

Carmen: carmen.osu.edu

Instructor: Philip Grandinetti

Email: grandinetti.1@osu.edu (Do not send me messages on Carmen).

Office Hours: by appointment

Section	Recitation Time	Room	TA	Email
21829	Mo, 8:00-8:55 am	Online	Brendan Wilson	wilson.3559@osu.edu
21830	Mo, 9:10-10:05 am	Online	Montgomery Gray	gray.1023@osu.edu
21831	Tu, 9:10-10:05 am	1008 Evans Lab	Paige Bowling	bowling.181@osu.edu

Lecture Topics

Classical Physics	Quantum Physics	Chemical Kinetics
Forces, Fields, and Energy	Wave Particle Duality	Rate Laws & Reaction Order
Probability Distributions	Wave Mechanics	Reaction Mechanisms
Kinetic Theory of Gases	Quantum Harmonic Oscillator	Predicting Rate Constants
Rotational Motion	Radiating Dipoles in QM	
Vibrational Motion	Time Independent Perturbation Theory	
Equipartition of Energy	Quantum Particle in 3D	
Electrostatics	Quantum Rigid Rotor	
Wave Motion	The Hydrogen Atom	
Electrodynamics	Magnetism, Angular Momentum, and Spin	
	Identical Particles in QM	
	Multi-electron Atoms	
	Diatomic Molecules	
	Polyatomic Molecules (time permitting)	

Grading

Lecture Pop-Quizzes	5%	
Recitation Quizzes	20%	
First Exam	25%	Exam - Feb. 12
Second Exam	25%	Exam - Mar. 26
Final Exam	25%	Thursday, Apr 29, 10:00 am

Recitation quizzes will be given on Fridays through Carmen. Lecture pop-quizzes will be given during class through Carmen.

Missed Quizzes: There are no make-up quizzes. Only the 10 highest recitation quiz scores will be counted while 11 (or more) quizzes will be offered. Similarly, the two lowest lecture pop-quiz scores will be dropped. Make-up exams will only be given for documented medical reasons, or pre-approved university conflicts. Students with University conflicts should provide the lecturer with their complete course schedule, including the conflict, at least two weeks before the exam so an alternate exam can be scheduled.

Grading Cutoffs

How your letter grade is assigned to a numerical grade is not decided until end of semester. Cutoffs, based on previous years, are generally close to those below:

100% \geq A	> 86%	60% \geq C+	> 52%	28% \geq E
86% \geq A-	> 80%	52% \geq C	> 46%	
80% \geq B+	> 74%	46% \geq C-	> 40%	
74% \geq B	> 68%	40% \geq D+	> 34%	
68% \geq B-	> 60%	34% \geq D	> 28%	

Exercises

Exercises are given in the text. They will not be graded. Solutions will be posted on Carmen.

Policies

- Audio or video recording of class is not allowed without permission.
- Posting any course materials online is not permitted.

Advice for doing well in this class

The best piece of advice is work (correctly) through every single exercise in the text, and understand deeply why you got the correct answer. Of course, that's easier said than done, so here are a few other tips to help you succeed:

1. Read through online notes before each lecture. Even better if you can read ahead a few lectures. Note down the things you don't understand in the lecture notes and ask about them in class.
2. Come to class! Statistics show that students who skip class do the worst.
3. Ask questions in class when you don't understand. Don't be embarrassed, chances are quite high that others in the class have the same question in their heads.
4. Don't waste a lot of time working on exercises when you can't get the right answer. If you're still stuck, come see your TA or me during office hours.
5. Start early, and don't fall behind. Students who do well in this course often spend about **10-20 hours each week** (outside of lecture and recitation) reading and re-reading through the notes and text, and asking questions, while they work on the exercises.

Requirements Fulfilled

Chemistry 4300 is a Physical Science course in the Natural Science category of the GE, which has these goals and objectives:

Goals: Students understand the principles, theories, and methods of modern science, the relationship between science and technology, the implications of scientific discoveries and the potential of science and technology to address problems of the contemporary world.

Learning Objectives:

1. Students understand the basic facts, principles, theories and methods of modern science.
2. Students understand key events in the development of science and recognize that science is an evolving body of knowledge.
3. Students describe the inter-dependence of scientific and technological developments.
4. Students recognize social and philosophical implications of scientific discoveries and understand the potential of science and technology to address problems of the contemporary world.

Disability Services (ODS)

All students with documented disabilities, who need accommodations, should see the instructor privately to schedule an appointment as early in the quarter as possible. If your disability requires materials in alternative format, please contact the Office for Disability Services at 292-3307, Room 098 Baker Hall, 113 West 12th Avenue.

STANDARDS OF ACADEMIC CONDUCT IN CHEMISTRY

Any material submitted in Chemistry must represent your own work. Violations of this standard will be referred to the University Committee of Academic Misconduct (COAM) as required by Faculty Rules.

It is the responsibility of COAM to investigate all reported cases of student academic misconduct; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations, quizzes, and graded assignments. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information see the Code of Student Conduct on the web at:

<https://trustees.osu.edu/code-student-conduct/3335-23-04>