

PHYSICAL CHEMISTRY II

CHEM 3620

Spring 2025

Instructor:	Matthew Rowley	Office Hours:	Daily 10:00 am – 11:00 am
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Please include the course number in the subject line of all correspondence.

Tentative Schedule

This class will meet on Mondays, Wednesdays, and Fridays from 12:00 pm to 12:50 pm in room 127 of the Science Center (SC).

	Date	Topic	Chapter
Week 1	W, Jan. 8	The Origins of Quantum Mechanics	7A
	F, Jan. 10	Wavefunctions	7B
Week 2	M, Jan. 13	Operators and Observables	7C
	W, Jan. 15	Special Topic: Experiments and Interpretations in QM	**
	F, Jan. 17	Translational Motion	7D
Week 3	M, Jan. 20	Martin Luther King Day – No Class!	
	W, Jan. 22	Vibrational Motion	7E
	F, Jan. 24	Rotational Motion	7F
Week 4	M, Jan. 27	Hydrogenic Atoms	8A
	W, Jan. 29	Many Electron Atoms	8B
	F, Jan. 31	Atomic Spectra	8C
Week 5	M, Feb. 3	Valence-Bond Theory	9A
	W, Feb. 5	MO Theory: the Hydrogen Molecule-Ion	9B
	F, Feb. 7	MO Theory: Homonuclear Diatomic Molecules	9C

	Date	Topic	Chapter
Week 6	M, Feb. 10	MO Theory: Heteronuclear Diatomic Molecules	9D
	W, Feb. 12	MO Theory: Polyatomic Molecules	9E
	F, Feb. 14	Shape and Symmetry	10A
Week 7	M, Feb. 17	President's Day – No Class!	
	W, Feb. 19	Group Theory	10B
	F, Feb. 21	Applications of Symmetry	10C
Week 8	M, Feb. 24	General Features of Molecular Spectroscopy	11A
	W, Feb. 26	Rotational Spectroscopy	11B
	F, Feb. 28	Vibrational Spectroscopy of Diatomic Molecules	11C
Week 9	M, Mar. 3	Vibrational Spectroscopy of Polyatomic Molecules	11D
	W, Mar. 5	Symmetry Analysis of Vibrational Spectroscopy	11E
	F, Mar. 7	Electronic Spectra	11F
Week 10	M, Mar. 10	Spring Break – No Class!	
	W, Mar. 12	Spring Break – No Class!	
	F, Mar. 14	Spring Break – No Class!	
Week 11	M, Mar. 17	Decay of Excited States	11G
	W, Mar. 19	Special Topic: Lasers and Spectroscopy	**
	F, Mar. 21	General Principles of NMR	12A
Week 12	M, Mar. 24	Features of NMR Spectra	12B
	W, Mar. 26	Pulse Technique in NMR	12C
	F, Mar. 28	Electron Paramagnetic Resonance	12D
Week 13	M, Mar. 31	The Boltzmann Distribution	13A
	W, Apr. 2	Molecular Partition Functions	13B
	F, Apr. 4	Molecular Energies	13C

	Date	Topic	Chapter
Week 14	M, Apr. 7	The Canonical Ensemble	13D
	W, Apr. 9	Internal Energy and Entropy	13E
	F, Apr. 11	Derived Functions	13F
Week 15	M, Apr. 14	Electric Properties of Molecules	14A
	W, Apr. 16	Interactions Between Molecules	14B
	F, Apr. 18	Liquids	14C
Finals Week	T, Apr. 22	Final Exam — 11:00 pm – 12:50 pm Bring a pencil and scantron	