

CHEM 309, Fall 2012: Schedule of ClassesTextbook: Volume 2 of *Physical Chemistry*, 9th edition by Atkins and DePaula, 2010

Class Schedule: M, T, Th 11:50 a.m. - 12:40 p.m.

Class	Chapter (Sections)	Topic(s)
8/30 (Thurs.)	Ch. 7 (1,2)	Origins of quantum mechanics
9/3 (Mon.)	Ch. 7 (3,4)	Dynamics of microscopic systems
9/4 (Tues.)	Ch. 7 (5,7)	Quantum mechanical principles
9/6 (Thurs.)	Ch. 8 (1-3)	Translational motion
9/10 (Mon.)	Ch. 8 (4,5))	Vibrational motion
9/11 (Tues.)	Ch. 8 (6-8)	Rotational motion
9/13 (Thurs.)	Ch. 8 (MB-4)	Math background -- differential equations
9/17 (Mon.)	Review (Ch 7,8)	(Quiz #1, 1:00 - 5:00 p.m.)
9/18 (Tues.)	Ch. 9 (1-3)	H atom structure and spectra
9/20 (Thurs.)	Ch. 9 (4,5)	Multi-electron atoms -- structure
9/24 (Mon.)	Ch. 9 (6-10)	Multi-electron atoms -- spectra
9/25 (Tues.)	Ch. 9 (MB-5)	Math background -- vectors
9/27 (Thurs.)	-----	DKL away, no class
10/1 (Mon.)	Ch. 10 (1,2)	Chemical bonding -- valence bond theory
10/2 (Tues.)	Ch. 10 (3-5)	Chemical bonding -- molecular orbital theory
10/4 (Thurs.)	Ch. 10 (6-8)	M.O. theory applied to polyatomic systems
10/8 (Mon.)	Review (Ch. 9,10)	(Quiz #2, 1:00 - 5:00 p.m.)
10/9 (Tues.)	Ch. 10 (MB-6)	Matrices
10/11 (Thurs.)	Ch. 11 (1-3)	Symmetry elements and operations
10/15 (Mon.)	Ch. 11 (4-6)	Applications of symmetry to V.B. theory
10/16 (Tues.)	-----	Applications of symmetry to M.O. theory
10/18 (Thurs.)	Ch. 12 (1,2)	Intro to molecular spectroscopy
10/22 (Mon.)	-----	DKL away, no class
10/23 (Tues.)	-----	DKL away, no class
10/25 (Thurs.)	-----	DKL away, no class

Class	Chapter (Sections)	Topic(s)
10/29 (Mon.)	Ch. 12 (3-7)	Rotational spectra
10/30 (Tues.)	Ch. 12 (8-12)	Vibrational spectra -- diatomic molecules
11/1 (Thurs.)	Ch. 12 (13-16)	Vibrational spectra -- polyatomic molecules
11/5 (Mon.)	Review (Ch. 11,12)	(Quiz #3, 1:00 - 5:00 p.m.)
11/6 (Tues.)	Ch. 13 (1-3)	Electronic transitions in molecules
11/8 (Thurs.)	Ch. 13 (4-6)	The fates of electronically excited states
11/12 (Mon.)	Ch. 14 (1-3)	Effect of magnetic fields on spinning charges
11/13 (Tues.)	Ch. 14 (4-6, 14-16)	NMR and EPR
11/15 (Thurs.)	Ch. 15 (1,2)	Distribution of molecular states
11/19 (Mon.)	Ch. 15 (3,4)	Internal energy, entropy
11/20 (Tues.)	Ch. 15 (5-7)	Partition functions
11/22 (Thurs.)	-----	Thanksgiving break -- no class
11/26 (Mon.)	Review (Ch. 13-15)	(Quiz #4; 1:00 - 5:00 p.m.)
11/27 (Tues.)	Ch. 16 (1,2)	Statistical thermodynamic functions -- origin
11/29 (Thurs.)	Ch. 16 (3-8)	Stat. thermo. Functions -- applications
12/3 (Mon.)	Ch. 17 (1-4)	Electric properties of molecules
12/4 (Tues.)	Ch. 17 (5,6)	Intermolecular interactions
12/6 (Thurs.)	Ch. 17 (7-10)	Interactions at phase interfaces
12/10 (Mon.)	Review (Ch. 16,17)	
12/11 (Tues.)	-----	Course review
12/13 (Thurs.)	-----	Review period, no class
12/?	-----	Final Exam (3 hrs.)