

PH253 Fall 2010 Schedule

	Main topic	secondary	tertiary	Pfeffer & Nir

Aug 19, 2010	intro / relativity I	principle of relativity	time dilation	1.3.1-5
Aug 24, 2010	Relativity II	Lorentz transformations	dynamics	1.3.6-7
Aug 26, 2010	Relativity	E&M; space-time diagrams	momentum & energy	1.3.8-9; 1.5
Aug 31, 2010	Radiation	accelerated charges	oscillating charges	2.1.1-4
Sep 2, 2010	Thermal radiation & the quantum hypothesis	light scattering, thermal radiation	Planck's hypothesis	2.1.4-7
Sep 7, 2010	Energy quantization & levels; photoelectric; Compton			2.2.1-2.2.4; 2.3.1-2
Sep 9, 2010	Photons; waves & uncertainty; Heisenberg			2.3.3-4, supplemental
Sep 14, 2010	Wave mechanics; double-slit			2.3.4, supplemental
Sep 16, 2010	de Broglie & Matter waves; Schrodinger's equation			2.4.1-5
Sep 21, 2010	EXAM 1			---
Sep 23, 2010	Wavefunctions, 1D potentials			2.4.4-7
Sep 28, 2010	more 1D potentials (well/barrier)			2.4.7-8; 2.5
Sep 30, 2010	Classical atoms; Bohr & quantization			3.1, 3.2.1
Oct 5, 2010	More about Bohr	angular momentum; reduced mass		3.2.1-2, supplemental
Oct 7, 2010	Hydrogen atom in 3D			3.3.1
Oct 12, 2010	Radial equation solution			3.3.1, 3.5 + supplemental
Oct 14, 2010	Spherical harmonics, angular momentum	quantum numbers	shell structure	3.3.1, 3.5, supplemental
Oct 19, 2010	angular momentum & magnetic moments	Zeeman & spin	dipole selection rules	3.2.2; finish bits of 3.3; 3.4.1-2
Oct 21, 2010	EXAM 2			
Oct 26, 2010	total angular momentum	spin-orbit	fine structure in atomic spectra	3.4.3, 3.4.6 + supplemental
Oct 28, 2010	more fine structure; Pauli exclusion	periodic table in brief	spin, identical particles, statistics	3.4.4-5 + supplemental
Nov 2, 2010	levels in multi-electron atoms	levels & bonding in molecules		3.4.5-8; 4.2 + supplemental
Nov 4, 2010	variational method	molecules		supplementary notes
Nov 9, 2010	Band theory	insulators/metals/semiconductors		6.4.3-5; 6.4.7
Nov 11, 2010	Periodic solids, effective mass & number of electrons			3.4.5; 6.4.1-2
Nov 16, 2010	Identical particles & statistics			6.4.7-9 + supplemental
Nov 18, 2010	NO CLASSES			
Nov 23, 2010	Applications: semiconductors, p-n junctions			6.3
Nov 25, 2010	NO CLASSES			
Nov 30, 2010	Applications: Lasers	measuring laser wavelength/dispersion demo		6.1
Dec 2, 2010	Viewer's choice	Alt Application: information storage		TBD
Dec 10, 2010	FINAL EXAM 8-10:30am !!!!!			