

Physics 270 Course Schedule

Fall 2014 — Professor Shawhan

<i>Homework due:</i>				<i>Book sections</i>	
<i>Online</i>	<i>Paper</i>	<i>Lecture topic(s)</i>		<i>(Knight 3rd ed.)</i>	<i>(Knight 2nd ed.)</i>
		Sep 3	Course intro; Magnets	32.1-2	33.1-2
		Sep 5	Magnetic force on charged particles	32.7	33.7
Sep 7	Sep 8	Sep 8	Applications of magnetic force	32.8-9	33.8-9
		Sep 10	Generation of magnetic field: Biot-Savart law	32.3-5	33.3-5
		Sep 12	Calculation of magnetic field: Ampere's law	32.6	33.6
Sep 14	Sep 15	Sep 15	Magnetic properties of materials	32.10+lecture	33.10+lecture
		Sep 17	Magnetically induced currents	33.1-3	34.1-3
		Sep 19	Faraday's Law and Lenz's Law	33.4-6	34.4-6
Sep 21	Sep 22	Sep 22	Applications of induction; Transformers	33.7	34.7
		Sep 24	Inductance & inductors; Review of circuits	33.8, Ch. 31	34.8, Ch. 32
		Sep 26	RC, LC and LR circuits	31.9, 33.9-10	32.9, 34.9-10
Sep 28	Sep 29	Sep 29	RLC circuits; AC circuit fundamentals	35.1-4	36.1-4
		Oct 1	AC driven RLC circuits	35.5-6	36.5-6
		Oct 3	Discussion		
Oct 5	Oct 6	Oct 6	Exam 1		
		Oct 8	Maxwell's equations	34.2-4	35.2-4
		Oct 10	Electromagnetic waves and their properties	34.5-7	35.5-7
Oct 12	Oct 13	Oct 13	Foundations of relativity	34.1, 36.1-4	35.1, 37.1-4
		Oct 15	Implications: time dilation, length contraction	36.6-7	37.6-7
		Oct 17	Lorentz transform; Addition of velocities	36.8	37.8
Oct 19	Oct 20	Oct 20	Relativistic momentum and energy	36.9-10	37.9-10
		Oct 22	General relativity	lecture	lecture
		Oct 24	Light and reflections	23.1-2, 23.8	23.1-2, 23.8
Oct 26	Oct 27	Oct 27	Refraction and total internal reflection	23.3-4	23.3-4
		Oct 29	Lenses	23.6-7	23.6-7
		Oct 31	Discussion		
Nov 2	Nov 3	Nov 3	Exam 2		
		Nov 5	Optical assemblies	24.1-3	24.1-3
		Nov 7	Optical instruments	24.4-5	24.4-5
Nov 9	Nov 10	Nov 10	Interference of light	22.1-2	22.1-2
		Nov 12	Diffraction	22.3-5	22.3-5
		Nov 14	Applications of interference and diffraction	22.6	22.6
Nov 16	Nov 17	Nov 17	Breakdown of classical physics: radiation	37.1-2	38.1, 38.8
		Nov 19	The photoelectric effect	38.1-3	39.1-3
		Nov 21	The wave nature of matter	38.4, 39.1-2, 39.5-6	39.4, 40.1-2, 40.5-6
Nov 23	Nov 24	Nov 24	Schrödinger quantum mechanics	40.1-2, 40.7	41.1-2, 41.7
		Nov 26	Particles in potential wells	40.3-6	41.3-6
		Nov 28	** Thanksgiving holiday — No class **		
Dec 2	Dec 3	Dec 1	Quantum harmonic oscillator; Tunneling	40.8, 40.10	41.8, 41.10
		Dec 3	Lasers; Discussion	41.8	42.8
		Dec 5	Exam 3		
Dec 11	Dec 12	Dec 8	Atomic spectra and applications	38.6-7, 41.6	39.6-7, 42.6
		Dec 10	Cosmology and nucleosynthesis	lecture	lecture
		Dec 12	Course review and discussion		
		Dec 17	Final exam, 6:30-8:30 pm, in lecture halls 1410/1412		