

Physics 220 Fall 2010 Course Assignment Schedule

The reading assignments associated with a given lecture topic are to be completed before every lecture (due online 15 minutes before class). Quizzes on the reading and lecture material will be given in class. The study guide units and homework assignments associated with a given lecture topic are due before class on the following class day (due online 15 minutes before class). Study guide units are occasionally replaced by sample exams (SE) or problems from *What Does it Mean to Integrate?* (INT). Reading assignments and study guide units are completed "on-your-honor" and accounted for as part of the quizzes. Each lab report is due in the submission box by 9:00 PM on the last evening that it is available. Each exam will be made available in the testing center on the day that we review for it in class, and will remain available until closing time on the following lecture day. In the event of exam schedule changes, you can always check RouteY for exact beginning and ending dates and times.

DATE	LEC	READING	LECTURE CONCEPTS	GUIDE	HW	LAB
M Aug 30	1	Course syllabus Serway sections 23:1-2	Electric charge, induced charge Insulators and conductors	23:A-C		
W Sep 1	2	Serway sections 23:3-4 <i>Chap. Summaries:</i> Math Review material on vectors Lab 1 description	Vectors: magnitude, direction, components, addition, dot and cross products Electric force and field vectors Coulomb's law	23:D-F	1	
F Sep 3	3	<i>What does it mean to integrate?</i>	Continuous charge distributions Scalar differentials and integration	INT:1-7	2	
W Sep 8	4	<i>Chap. Summaries:</i> Math Review material on calculus	Review for EXAM 1 (Math Review)	SE: MR		
F Sep 10	5	Serway sections 23:5	Electric dipole fields E from continuous charge distributions Vector differentials and integration	23:G-K	3	1
M Sep 13	6	Serway sections 23:6-7	Electric field lines Charged particle motion in an E-field	23:L	4	
W Sep 15	7	Serway sections 24:1-2	Area as a vector Electric flux Gauss's law	24:A-D	5	
F Sep 17	8	Serway sections 24:3-4	Electric field near a conductor Gauss's law applied to insulators/conductors	24:E-F	6	
M Sep 20	9	Serway sections 25:1-3	Forces, fields, potential, energy, and work Charged-particle kinematics in an E-field Potential -- uniform E and point charges	25:A-C	7	
W Sep 22	10	Serway sections 25:4 Lab 2 description	Field lines, gradients, equipotential surfaces	25:D-G	8	
F Sep 24	11	Serway sections 25:5-6	Potentials from charge distributions and charged conductors		9	2
M Sep 27	12	<i>Chap. Summaries:</i> 23-25	Review for EXAM 2	SE:23-25		
W Sep 29	13	Serway sections 26:1-3 Lab 3 description	Calculating capacitance Capacitor combinations	26:A-B	10	
F Oct 1	14	Serway sections 26:4-6 Lab 4 description	Energy storage in a capacitor Dielectrics Dipole interaction with an E-field	26:C-D	11	
M Oct 4	15	Serway sections 27:1-3 Lab 5 description	Current, current density, resistivity, conduc. Ohm's law	27:A-B	12	
W Oct 6	16	Serway sections 27:4-6	Temperature dependence of resistivity Superconductors Electrical energy and power dissipation	27:C-E	13	
F Oct 8	17	Serway sections 28:1-2 Lab 6 description	Electromotive force (emf) Batteries, internal resistance Resistor combinations	28:A-B	14	3-4
M Oct 11	18	Serway sections 28:2-3	Kirchoff's rules	28:C	15	

			Multiloop circuits			
W Oct 13	19	Serway sections 28:4-6	RC circuits and time constants Electrical instruments, household safety	28:D	16	
F Oct 15	20	<i>Chap. Summaries: 26-28</i>	Review for EXAM 3	SE:26-28		5-6
M Oct 18	21	Serway sections 29:1, 30.7 5th-6th Ed. 29:1, 30.9	Magnetic fields and forces The magnetic field of the Earth	29:A	17	
W Oct 20	22	Serway sections 29:4-5 5th-6th Ed. 29:2-3 Lab 7 description	Magnetic force on a current-carrying wire Magnetic torque on a current-carrying loop	29:B	18	
F Oct 22	23	Serway sections 29:2-3, 6 5th-6th Ed. 29:4-6 Lab 8 description	Motion of charge particle in a B-field The q/m ratio of the electron The Hall effect	29:C-D	19	7
M Oct 25	24	Serway sections 30:1-2	Biot-Savart law Magnetic force -- current-carrying wires	30:A-B	20	
W Oct 27	25	Serway sections 30:3-4	Ampere's law Relationship to Biot-Savart law Solenoids, toroids, etc.	30:C	21	
F Oct 29	26	Serway sections 30:5 5th-6th Ed. 30:5-6	Magnetic flux Gauss's law of magnetism	30:D-F	22	8
M Nov 1	27	Serway sections 30:6 5th-6th Ed. 30:8	Magnetization (M), magnetic induction (H) Magnetic permeability (μ), susceptibility (χ) Magnetization curves and Curie's law	30:H-J	23	
W Nov 3	28	<i>Chap. Summaries: 29-30</i>	Review for EXAM 4	SE:29-30		
F Nov 5	29	Serway sections 31:1,4	Faraday's law Induced emf -- changing B fields AC generators -- $NBA\omega$	31:A-B	24	
M Nov 8	30	Serway sections 31:2-3	Lenz's law AC generators -- torque/power	31:C-D	25	
W Nov 10	31	Serway sections 31:5-6 Lab 9 description	Motional emf --sliding bar/moving loop Eddy currents DC homopolar motor	31:E	26	
F Nov 12	32	Serway sections 32:1-3 Lab 10 description	Self-inductance and inductors RL circuits and time constants Energy in a magnetic field	32:A-C	27	9
M Nov 15	33	Serway sections 32:5-6	Mass-spring in viscous fluid analogy LC circuits – oscillations Natural LRC oscillator	32:D-E	28	
W Nov 17	34	Serway sections 33:1-4	Average and rms AC quantities Resistance, reactance and impedance Phasors	33:A	29	
F Nov 19	35	Serway sections 33:5-7 Lab 11 description	Driven LRC circuits Resonance AC power	33:B	30	
M Nov 22	36	Serway sections 33:8	Transformers, power transmission	33:C	31	
Tu Nov 23	37	<i>Chap. Summaries: 31-33</i>	Review for EXAM 5	SE:31-33		10-11
M Nov 29	38	Serway sections 34:1-2 5th-6th Ed. 30:7, 31:7	Displacement current Maxwell's equations	SG:30G	32	
W Dec 1	39	Serway sections 34:2-3, 7 6th Ed. 34:1-2, 6 5th Ed. 34:1-2, 7 Lab 12 description	Travelling wave motion and properties Electromagnetic waves Electromagnetic spectrum	34:A	33	
F Dec 3	40	Serway sections 34:4-5 5th-6th Ed. 34:3-4	Electromagnetic energy density, flow, momentum and pressure	34:B	34	
M Dec 6	41	Serway sections 34:6 6th Ed. 34:5	Dipole antenna radiation	34:C	35	12
W Dec 8	42	<i>Chap. Summaries: 34</i>	Review for FINAL EXAM	SE:30,34 SE: Final		