Phys221, Spring 2016, Spentzouris

Lecture is 11:25 to 12:40 am on Tuesday/Thursday SB 113
CP = Check Point (all due 8:00 am), **PL** = Pre-lecture (all due 8:00 am)
HW = Homework (all due at noon, regardless of due date)
Homework is due on Wednesdays and Fridays, although those are not class days.

Date	Assignment due	Lecture topic
Week 1:		
1/12	(PL1, CP1)	Orientation and Coulomb's law
1/14	8:00 am, **PL1, CP1, PL2, CP2**	Coulomb's law, Electric Fields
1/15	noon (12:00 pm), **HW1**	Coulomb's law
Week 2:		
1/19	8:00 am, **PL3, CP3**	Electric flux and field lines
1/20	noon, **HW2**	Electric Fields
1/21	8:00 am, **PL4, CP4**	Gauss' law
1/22	noon, **HW3**	Electric flux and field lines
Week 3:		
1/26	8:00 am, **PL5, CP5**	Gauss' law
1/28	8:00 am, **PL6, CP6**	Electric Potential Energy, Electric Potential
1/29	noon, **HW4**	Gauss' law
Week 4:		
2/2	8:00 am, **PL7, CP7**	Conductors and Capacitance
2/3	noon, **HW5**	Electric Potential Energy
2/4	8:00 am, **PL8, CP8**	Capacitors, and electric current
2/5	noon, **HW6**	Electric Potential
Week 5:		
2/9	8:00 am, **PL9, CP9**	Exam review and electric current
2/10	noon, **HW7**	Conductors and Capacitance
2/11	**HOURLY EXAM 1, Units 1-7**	*Exam*
Week 6:		
2/16	8:00 am, **PL10, CP10**	Kirchhoff's rules
2/17	noon, **HW8**	Capacitors
2/18	8:00 am, **PL11, CP11**	RC Circuits
2/19	noon, **HW9**	Electric currents
Week 7:		
2/23	8:00 am, **PL12, CP12**	Magnetism
2/24	noon, **HW10**	Kirchhoff's rules
2/25	8:00 am **PL13, CP13**	Forces and torques on currents
2/26	noon, **HW11**	RC Circuits

Date	Assignment due	Lecture topic
Week 8:		
3/1	8:00 am, **PL14, CP14**	Biot-Savart law
3/2	noon, **HW12**	Magnetism
3/3	8:00 am, **PL15, CP15**	Ampere's law
3/4	noon, **HW13**	Forces and torques on currents
Week 9:		
3/8	8:00 am, **PL16, CP16**	Simple Harmonic Motion
3/9	noon, **HW14**	Biot-Savart law
3/10	8:00 am, **PL17, CP17**	Motational EMF
3/11	noon, **HW15**	Ampere's law
3/14-3/19	*SPRING BREAK*	
Week 10:		
3/22	8:00 am, **PL18, CP18**	Review, Faraday's law
3/24	**HOURLY EXAM 2, Units 8-15**	*Exam*
Week 11:		
3/29	8:00 am, **PL19, CP19**	Induction and RL circuits
3/30	noon, **HW16**	Simple Harmonic Motion
3/31	8:00 am, **PL20, CP20**	LC and RLC circuits
4/1	noon, **HW17**	Motational EMF
Week 12:		
4/5	8:00 am, **PL21, CP21**	AC circuits
4/6	noon, **HW18**	Faraday's law
4/7	8:00 am, **PL22, CP22**	Resonance and power
4/8	noon, **HW19**	Induction and RL circuits
Week 13:		
4/12	8:00 am, **PL23, CP23**	Displacement current and EM waves
4/13	noon, **HW20**	LC and RLC circuits
4/14	8:00 am, **PL24, CP24**	Properties of electromagnetic waves
4/15	noon, **HW21**	AC circuits
Week 14:		
4/19	8:00 am **PL25, CP25**	EM waves and Polarization
4/20	noon, **HW22**	Resonance and power
4/22	noon, **HW23**	Displacement current and EM waves
Week 15:		
4/26		Exam review
4/27	noon, **HW24**	Properties of electromagnetic waves
4/28		Exam review
Final exam week	TBD	

Phys221 Course Objectives:

1. Understand how electric charges, fields and forces are represented in various basic configurations.
2. Understand how to simplify calculations of various electric and magnetic characteristics by taking advantage of special symmetries in conjunction with laws like Gauss, Amperes and Biot-Savart.
3. Understand how we establish electrical & magnetic energy in various types of materials and how that energy is used to move charges or perform external work in devices like generators and motors.
4. Understand how circuit components like resistors, capacitors & inductors can be modified or combined to affect electrical and magnetic fields & energies and how these values change over time and location.
5. Understand how electromagnetic waves are generated and how they change over space and time.
6. Understand how to apply mathematics to better represent & evaluate what happens in real applications.
7. Translate concepts and formulas to real-world applications by developing laboratory methods, conducting experiments, taking and recording accurate measurements, analyzing and synthesizing data and communicating your results effectively to an external audience.