

COURSE DESCRIPTION

Instructor: Dr. David Kagan

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Office Hours: MW 8-8:50am, MW 1-1:50pm, Th 10-10:50am, and others times by appointment.

Materials: Text: D. Halliday, R. Resnick and J. Walker, FUNDAMENTALS OF PHYSICS (parts 3 & 4). 5th Edition.

Lab: Laboratory Notes for Physics 4B (available at first lab meeting for \$3.00).
5x5 Quadrille Ruled Spiral Bound Notebook
3.5" floppy disk

Prerequisites: A C- or better in Physics 4A. Differential and integral calculus will be used freely.

Summary of the Course: This course will cover Chapters 22-34. There will be three mid-term exams and a final. All exams will be comprehensive and will include text, lecture, and lab material. The exams will contain five problems similar to the assigned homework. The problem sets will be assigned at the beginning of each chapter and collected at the start of the first lecture on the following chapter. Your performance in the course will be dramatically improved if you work a couple of hours each evening on homework, instead of many hours one or two evenings. Five of the assigned problems will be graded at three points each. The first point will be awarded if the correct principles are stated and applied properly. These principles can be found in the chapter summary in lecture. The second point will be awarded for the complete and thoroughly explained, correct solution. The final point will be awarded for a written commentary on your solution. You will also be expected to complete an experiment each week during the laboratory meeting.

Grading:

Homework	15%
Laboratory	10%
3 Exams	15% each
Final Exam	30%

Assistance: If you find that you need help from time to time try:

1. Talking to me! (Office hours, come early to class, make an appointment, send an e-mail, etc.)
2. PhSc 110 - Physics Department tutors (hours to be announced).
3. Physics 4Y - Tutorial for Physics 4B (1 unit CR/NC MW 9-9:50am PS 106)
4. Lecture Notes (including old exams) are available as a packet from SPS in PS 110 (\$12.00)
These are also on reserve at the library.
5. Homework solutions - Posted outside my office and on my home page after they are collected.
6. Old Exams are posted on my home page.
7. Other text books are often useful - Meriam Library.

The Rules:

1. Late homework will not be accepted.
2. Missed exams and labs cannot be made up.
3. You will not pass this class if you miss more than one lab.
4. The only exceptions to the rules above must be made by PRIOR arrangement.

COURSE SCHEDULE

Lecture: PhSc 109 MWF 2:00-2:50pm

Labs: PhSc 108 Sect. 1 Th 11:00-1:50pm

Sect. 2 Th 2:00-4:50pm

DAY	DATE	TOPICS	LAB	PROBLEM SET
M W F	Jan 26 28 30	Chapter 22 - Electric Charge Chapter 23 - Electric Fields	Millikan's Oil Drop	PS #1 due
M W F	Feb 2 4 6		Error Propagation & Resistivity	
M W F	9 11 13	Chapter 24 - Gauss' Law	Ohm's Rule	PS #2 due
M W F	16 18 20	>>> FIRST EXAM <<< Chapter 25 - Electric Potential	Resistor Circuits <i>☞ LAST DAY TO DROP</i>	
M W F	23 25 27	Chapter 26 - Capacitance	Electric Potential & Gauss' Law	PS #4 due
M W F	Mar 2 4 6	Chapter 27 - Current & Resistance	Capacitors	PS #5 due
M W F	9 11 13	Chapter 28 - Circuits	The Oscilloscope	PS #6 due
M W F	16 18 20	>>> SECOND EXAM <<< Chapter 29 - Magnetic Fields	The RC Circuit	
M-F	23-27	*** <i>SPRING BREAK</i> ***		
M W F	30 Apr 1 3	Chapter 29 - Magnetic Fields (cont.)	The e/m Experiment	
M W F	6 8 10	Chapter 30 - B Fields Due to Currents	The Long Straight Wire	PS #8 due
M W F	13 15 17	*** <i>DRIVE DAY</i> *** Chapter 31 - Induction and Inductance	Electromagnetic Induction	PS #9 due
M W F	20 22 24	Chapter 32 - Magnetism of Matter & Maxwell's Equations	The Spinning Coil	PS #10 due
M W F	27 29 May 1	>>> THIRD EXAM <<< Chapter 33 - EM Oscillations & AC	The LR Circuit	
M W F	4 6 8		Free Oscillations of an LRC Circuit	
M W F	11 13 15	Chapter 34 - Electromagnetic Waves	Forced Oscillations of an LRC Circuit	PS #12 due
M	18	>>> FINAL EXAM <<<	2:00 - 3:50 p.m.	

PROBLEM SETS

No.	Chapter	Problems
PS #1	22	3, 5, 8, 10, 12, 20, 28, 29
PS #2	23	1, 2, 5, 8, 14, 19, 26, 30, 31, 35, 38, 39, 50, 58, 61, 62
PS #3	24	2, 3, 6, 10, 12, 19, 25, 27, 35, 43, 53, 54
PS #4	25	6, 7, 12, 17, 22, 28, 34, 36, 41, 50, 56, 63
PS #5	26	2, 3, 5, 7, 9, 15, 22, 26, 29, 61, 63, 64
PS #6	27	1, 8, 13, 19, 20, 35, 47, 54
PS #7	28	1, 9, 14, 17, 23, 38, 47, 53, 57, 66, 70, 75
PS #8	29	2, 5, 12, 14, 21, 30, 34, 37, 41, 45, 46, 49, 55, 60, 64, 69
PS #9	30	3, 12, 17, 19, 26, 37, 38, 47, 51, 54, 57, 64, 72
PS #10	31	1, 5, 11, 28, 35, 43, 51, 59, 70, 74, 83, 100
PS #11	32	3, 7, 11, 18, 20, 21, 22, 30, 31, 34, 38, 45
PS #12	33	3, 10, 17, 18, 31, 34, 39, 42, 56, 59, 61, 77, 80, 84, 85, 87
PS #13	34	2, 6, 8, 12, 16, 17, 20, 25, 28, 35, 45, 47