

PHYSICS 208
Spring 1995

Prerequisites: Physics 207 or equivalent. Algebra, trigonometry and calculus will be used extensively.

Materials Needed: Text: Serway, *Physics for Scientists & Engineers with Modern Physics*, third edition (updated).

Lab manual: Rollefson and Richards, *Laboratory Experiments in General Physics*

Lab notebook: preferably hard bound with cross-hatched ruling. Bring to your first laboratory meeting.

Calculator: preferably with trigonometric, exponential, and logarithmic functions. Know how to use it, and make sure batteries are charged for exams.

Lectures: 8:50 am MWF in 1300 Sterling Hall. Prof. J. C. Sprott (Office: 3285 Chamberlin Hall, sprott@juno.physics.wisc.edu, 263-4449). The lectures supplement but do not substitute for the reading. Read the assigned material before lecture. The Friday lectures are optional except for exams and for honors students. Everyone is encouraged to attend.

Discussion sections: Your discussion section will be led by your TA who will be your prime contact and source of assistance. General questions about the homework are allowed before it is due, but don't expect your TA to work out the solutions for you in advance. Quizzes will occasionally be given in your discussion session and will count toward your grade.

Laboratory: Follow the "General Instructions" in the laboratory manual (pages 1-3). The experiments are to be written up during the laboratory period in the lab notebook. Have your lab instructor initial and date the work before you leave the lab. The lab notebook is not to be taken from the lab except with permission of your instructor.

Homework: The homework problems are assigned in the syllabus for each week and should be handed in at the first discussion section the following week. Late problem sets will not be accepted. Homework will count toward your grade. You may work with others on the homework, but make sure the paper you turn in is not simply copied from someone else. The solutions will be discussed in your discussion session and placed on reserve in the Physics Library (4220 Chamberlin).

Hour Exams: Exams will be given during the Friday lecture as follows:

February 24, Chapters 23-30
March 31, Chapters 31-37
April 28, Chapters 38-43

The exams will be closed-book, but you will be allowed one 8½ x 11-inch sheet of notes. The exams will be graded and handed back in your first discussion session of the following week. Solutions will be discussed and placed on reserve in the Physics Library (4220 Chamberlin Hall). There will be no makeup exams.

Final Exam: The final exam will be at 12:25 pm on Sunday, May 14 (room to be announced). The exam will cover the entire course (Chapters 23-47) with equal weight. You will be allowed two 8½ x 11-inch sheet of notes.

Grading: The course grade will consist of the following components:

3 hour exams	300 points
Final exam	200 points
Laboratory	100 points
Homework & discussion	100 points
TOTAL	700 points

Lab, homework and discussion grades will be assigned by your TA and will be normalized to the distribution on the hour exams. Letter grades will be assigned based on the total number of points accumulated.

Consultation Room: Room 2312 Sterling is staffed by TA's from Physics 202 and 208 during much of the week. See the schedule card on the door. You may ask questions of any of the TA's or come during the hours that your TA is there. You may also make an appointment with your TA at any mutually convenient time and place.

Alternate References: To see the same topics explained differently, try the following (on reserve in Physics library - 4220 Chamberlin):

Halliday and Resnick, *Fundamentals of Physics*
Giancoli, *Physics for Scientists and Engineers*
Rusbult, *Tools for Problem-Solving*

General Advice: Physics is not something you read and memorize, rather it is something you learn how to do. Try the following study procedure:

- 1) Read the chapter prior to lecture, so that you will know what it's about.
- 2) Listen carefully to the lecture and take notes.
- 3) This is crucial: Do not go back and read and re-read the chapter until you "understand it." Rather, start working problems, going back through the chapter to clarify points as they come up.

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 SYLLABUS

References are to Serway, Physics, 3rd edition (updated).
 Lab manual is Rollefson and Richards

<u>Week</u>	<u>Reading</u>	<u>Problems</u>	<u>Lab</u>
1/23	Ch 23,24	23:13,14,29,50,67,70; 24:8,12,26,44,53,56	no lab
1/30	Ch 25,26	25:9,11,32,41,42,54; 26:7,24,38,49,63,90	E1
2/6	Ch 27,28	27:8,21,38,46,53,59; 28:20,29,47,65,75,82	E2
2/13	Ch 29,30	29:3,20,27,35,49,55; 30:9,16,27,38,50,61	E3
2/20	Ch 31	31:14,23,38,42,53,60	E6
		Exam (2/24) Chapters 23-30	
2/27	Ch 32,33	32:13,24,39,50,62,83; 33:1,12,19,29,38,69	E7
3/6	Ch 34,35	34:2,20,30,34,42,53; 35:7,11,31,34,44,51	E8
3/20	Ch 36,37	36:10,25,30,42,49,77; 37:10,22,40,48,51,59	E9
3/27	Ch 38	38:5,24,30,50,66,69	E10
		Exam (3/31) Chapters 31-37	
4/3	Ch 39	39:3,14,18,30,42,47	L2
4/10	Ch 40,41	40:9,24,28,39,46,65; 41:4,18,20,31,51,58	L1
4/17	Ch 42,43	42:2,16,25,27,35,39; 43:1,10,14,23,29,35	L5,6,7
4/24	Ch 44	44:2,8,11,17,22,27	L8
		Exam (4/28) Chapters 38-43	
5/1	Ch 45,46	45:4,21,25,29,45,62; 46:6,9,15,21,30,33	N1
5/8	Ch 47	47:2,5,12,13,19,25	makeup
		Final (5/14) Chapters 23-47	

Physics 208

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Special Friday Lectures

(Tentative)

- 1/27 Richards - Electrostatic Accelerators
- 2/3 Tour of Nuclear Physics Laboratory
- 2/10 Richards - Atmospheric Electricity
- 2/17 Sprott - Fractals
- 2/24 Exam #1 (Chap 23-30)
- 3/3 Sprott - Plasma Physics
- 3/10 Tour of Plasma Physics Laboratory
- 3/17 Spring Break
- 3/24 Sprott - Radio Communications
- 3/31 Exam #2 (Chap 31-37)
- 4/7 Richards - Rainbows, Halos, and Glories
- 4/14 Good Friday holiday
- 4/21 Cameron - Biological Hazards of Radiation
- 4/28 Exam #3 (Chap 38-43)
- 5/5 Barschall - Development of the A-bomb
- 5/12 Review for Final