PHYSICS 207
Fall 1992

Prerequisites: Calculus (Math 221 or equivalent). Algebra, trigonometry and calculus will be used extensively.

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

Lab manual: Rollefson and Richards, *Laboratory Experiments in General Physics*, 1992 edition.

Lab notebook: preferably hard bound with cross-hatched ruling. Bring it 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, 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 section 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. The lab is in 4300 Sterling Hall.

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. Feel free to discuss the homework with others, but make sure the paper you turn in is not simply copied from someone else. The solutions will be discussed in your discussion section and placed on reserve in the Physics Library (4220 Chamberlin Hall).

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

October 2, Chapters 1-6
October 30, Chapters 7-12
December 4, Chapters 13-18

The exams will be closed-book, but you will be allowed one 8 1/2 x 11-inch sheet of notes. The exams will be graded and handed back in your first discussion section 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 2:45 pm on Wednesday, December 16 (room to be announced). It will cover the entire course (Chapters 1-22) with equal weight. You will be allowed two 8 1/2 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 1402 Sterling is staffed by TA's from Physics 207 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.

Complaints and Concerns: If you have a non-subject matter question or concern that cannot be resolved by your TA or professor, contact Jean Buehlman, Instructional Program Manager (afternoons in 2520 Sterling Hall, 262-2629).

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, *General Physics*
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.

PHYSICS 207
FALL 1992
SYLLABUS

References are to Serway, *Physics*, 3rd edition.
Lab manual is Rollefson and Richards, 1992 edition.

| Week | Reading | Problems | Lab |
|---|---|---|---|
| 8/31 | Ch 1 | 1:8,14,26,49,53 | no lab |
| 9/7 | Ch 2 | 2:7,12,20,35,50 | no lab |
| 9/14 | Ch 3,4 | 3:2,17,31,45,69; 4:3,8,11,36,54 | M1 |
| 9/21 | 5,6 | 5:4,15,26,56,66; 6:7,22,24,29,39 | M4 |
| 9/28 | Review | Exam (10/2) Chapters 1-6 | M5 |
| 10/5 | Ch 7,8 | 7:9,16,27,40,70; 8:1,10,25,30,49 | M6 |
| 10/12 | Ch 9,10 | 9:11,18,26,53,83; 10:5,15,17,29,39 | M9 |
| 10/19 | Ch 11,12 | 11:3,8,21,31,36; 12:6,10,22,24,35 | M3 |
| 10/26 | Review | Exam (10/30) Chapters 7-12 | M7 |
| 11/2 | Ch 13,14 | 13:8,15,29,39,46; 14:10,20,22,34,58 | M15 |
| 11/9 | Ch 15,16 | 15:6,12,28,41,56; 16:1,17,24,35,53 | S1 |
| 11/16 | Ch 17,18 | 17:7,15,23,31,49; 18:7,10,30,45,60 | S3 |
| 11/23 | Ch 19,20 | 19:2,11,18,41,62; 20:3,25,31,60,71 | makeup |
| 11/30 | Review | Exam (12/4) Chapters 13-18 | H2 |
| 12/7 | Ch 21,22 | 21:3,14,39,45,65; 22:3,11,20,42,49 | H4 |
| 12/14 | Review | Final (2:45 pm 12/16) Chapters 1-22 | makeup |

Physics 207

Fall 1992

Special Friday Lectures

(Tentative)

| | |
|---|---|
| Sep 4 | Sprott - Problem Solving and Error Analysis |
| Sep 11 | Baraschall - Units and Measurements: From Digits to Lasers |
| Sep 18 | Frames of Reference (film) |
| Sep 25 | Feynman - The Pleasure of Finding Things Out (video) |
| Oct 2 | Exam (Chap 1 - 6) |
| Oct 9 | Sprott - Seasons, Tides, and Phases of the Moon |
| Oct 16 | Cameron - Physics of Imagination and Creativity |
| Oct 23 | Baraschall - Bubbles and Einstein's Footprints |
| Oct 30 | Exam (Chap 7 - 12) |
| Nov 6 | Sprott - Chaos and Randomness |
| Nov 13 | Baraschall - The Physics of Music |
| Nov 20 | Fry - Physics of the Violin |
| Nov 27 | Thanksgiving |
| Dec 4 | Exam (Chap 13 - 18) |
| Dec 11 | Sprott - The Wonders of Physics (Fun lecture) |