

PHYSICS 105: PHYSICS AND SOCIETY

Spring Semester 2007

CLASS TIME: Tuesdays & Thursdays, 12:30 - 13:45, Regener 114
TEXTBOOK: L. A. Bloomfield, *How Things Work: The Physics of Everyday Life*, Third Edition
TEACHER: Colston Chandler
OFFICE HOURS: to be arranged
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GOALS OF THE COURSE

- You will understand in general terms what science is and is not. You will be able to recognize and distinguish between scientific and unscientific statements.
- You will be able to recognize physics in the life of society and in your personal everyday life, and to understand the basic physics principles involved.
- You will understand something of the logical and quantitative analysis that physicists use in their quest to understand nature and why they use that analysis.
- You will be able to communicate effectively about physics subjects, both in writing and in speaking.
- You will have an historical perspective on physics.

IN THE CLASSROOM

In the classroom it will be assumed that you have completed the reading assignment (posted in Ereserves, the UNM Library electronic reserves) for the day. You are encouraged to ask any questions you have about the reading in advance (via personal contact or email) so that the instructor can be better prepared to address them in class. While the readings will be reviewed in class, much of the classroom time will be devoted to related material that may not be in the textbook.

Always ask questions in class!! If you don't understand, ask a question! If you understand, test your understanding by asking a question! If you are bored, ask a physics question that will make the class more interesting for you!

HOMEWORK

A list of weekly homework assignments will be posted in Ereserves. Papers are due at the beginning of class on the date due, in either electronic or paper form. Graded papers will usually be returned at the beginning of the following class, after which extended answers will be posted in Ereserves.

MIDTERM EXAM

The midterm exam on Thursday, 8 March, will be closed-book.

Roughly half the exam will consist of essay-type answers to two questions taken from a list posted in Ereserves on Tuesday, 27 February. The remaining half of the test will be questions about your homework problems.

FINAL EXAM

The final exam on Thursday, 10 May, will be closed-book.

Roughly thirty minutes of the exam will consist of essay-type answers to two questions taken from a list posted in Ereserves on Tuesday, 1 May. An additional thirty minutes will be questions about your homework problems since spring break. The remaining hour of the exam will consist of essay-type answers to questions similar to those on the two previously posted lists.

EXTRA-CREDIT

You may earn extra-credit points by making physics exhibits in ¡Explora! (the science museum in Old Town) work. You are to: (1) describe the apparatus (perhaps with a drawing); (2) describe what you did to make it work; and (3) record your observations of what the apparatus did. You are then (4) to explain briefly the physics of your experiment. Your one-or-two-page written report of all this can earn up to 2 extra-credit points. You may submit reports for up to five different *physics* exhibits, thus earning up to 10 extra-credit points.

Your extra-credit reports may be submitted (in electronic or paper form) at any time through class on Thursday, 26 April. No extra-credit reports will be accepted after that time.

LATE WORK

Late homework is not normally accepted. Make-up exams are given only in extremely unusual circumstances.

GRADING

All work will be graded mainly on the basis of the scientific accuracy and quality of reasoning (always based on physical law). The style of writing may, however, also be considered.

The course grade will be composed of the following elements:

- homework–50%;
- midterm exam–20%;
- final exam–30%;
- extra credit–10

The grade curve will be the following.

A: 90 – 110
B: 70 – 89
C: 50 – 69
D: 30 – 49
F: 0 – 29

Plus and minus grades will be assigned