

PHY 100: “Elements of Physical Science”

Fall 2008

Section 2: Mon Wed Fri 1:00 - 1:50 Boucher 109

Course description: This course deals with basic physical principles such as force, motion, energy, and light. These concepts along with their associated laws govern the way the universe behaves on scales ranging from the nucleus of an atom to the way galaxies flow through the cosmos. We will touch on a broad range of topics and discuss how they affect our lives, often in ways we take for granted.

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Office hours: MWF 4:00-5:00 PM; Thurs 9:00-11:00 AM; also by appointment

Textbook: *Physics: A World View* (6th ed.) by L. Kirkpatrick and G. Francis

Web page/Syllabus: <http://www.courseweb.upenn.edu/rthornton/>

Grading:

Exam 1: 15%; Exam 2: 15%; Exam 3: 15% (45% total)

Homework: 15%

Final Exam: 30%

5 minute presentation: 10%

Total: 100%

Attendance: Attendance is an important part of the class. Three unexcused absences are allowed. After you miss more than three classes with no excuse, each additional unexcused absence will result in your course average being lowered by 2%. If you have good reason to miss class, your absence will be considered an excused absence and will not lower your grade. Excused absences are limited to those due to participation in University sanctioned events (see policy in the WCU undergraduate catalog) or those accompanied by written confirmation from a doctor, the Dean of Students, etc. An unexcused absence on the day of a quiz or exam will result in a grade of zero for that quiz or exam. Finally, whether your absence is excused or unexcused (or if you are late to class), you will be responsible for any material covered and any announcements that were made in class that day.

Homework: There will be approximately 6-10 homework assignments throughout the semester. Points will be deducted from homeworks handed in late. Once homeworks have been graded and returned, no late homeworks will be accepted.

Reading: Students are expected to read the sections in the textbook associated with each lecture soon before that lecture or by the next lecture. Pop-quizzes may be given to enforce this.

Disability: West Chester University is committed to making accommodations for persons with disabilities. Please make your needs known by contacting your instructor and the Office of Students with Disabilities. Sufficient notice is needed in order to make the accommodations possible. The University desires to comply with the ADA of 1990.

Course Coverage (might be revised as the semester progresses)

There are 28 chapters in the text, many more than we'll have time to cover during the semester. Below is a list of the chapters we'll focus on. Scheduling exactly how many classes we'll spend on each chapter and topic is difficult. But to give you some idea of the pace, there are about 15 chapters listed below. Allowing for several lectures at the end of the semester to be dedicated to presentations (see below), this leaves approximately 2 lectures for each chapter.

Chapter 1 - Introduction

Chapters 2-4 Motion (speed, acceleration, Newton's Laws, weight)

Chapter 5 Gravity

Chapters 6 – 8 Momentum, energy, and angular momentum

Chapter 10 Einstein relativity (we will talk about this only briefly)

Chapter 15 Vibrations and Waves

Chapter 17 Light

Chapters 20-22 Electricity & Magnetism

Chapters 24-26 Atomic & Nuclear Physics (we'll see if we get to this by semester's end)

Exam material (tentative):

Exam 1: Chapters 1-4

Exam 2: Chapters 5-8, 10

Exam 3: Chapters 15, 17, 20-22

Final: Cumulative

Presentations

Purpose: The purpose of the presentation is to draw a connection between a physical phenomenon we touched upon in class to your everyday life. The presentations should last 5 minutes and will be followed up by one minute of questions from other students. You can use any format you like (blackboard, PowerPoint, etc).

Presentation Participation: Every student will be expected to ask questions at the end of the presentations. Please try to ask at least one question. It reflects poorly on the presenter if nobody asks them a question.

Evaluation: Your presentation will be graded on how well you know the topic as well as make connections to ideas we have already discussed in class. With this in mind, limit your presentation to concepts that you have a firm grasp of. It is better to keep it simple, but know what you are talking about, than to discuss complex ideas that you don't totally understand.

Choosing a Topic: Please choose a topic that you have some interest in or you are curious about. Be careful not to choose a topic that is too challenging or based on ideas we have not covered in the course. When you have chosen a topic, run it by me and I'll help you determine whether it's appropriate. Some example topics are:

- Roller coasters
- Riding on an airplane
- Power cords
- Rainbows
- Ocean tides

Finally, feel free to stop by my office if you run into any problems or you wish to iron out some ideas. Good luck!