

**Phy 100: “Elements of Physical Science”**  
**Spring 2009**  
**Sec 5: Mon Wed Fri 2:00 - 2:50 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.

**Instructor: Bob Thornton**

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Office hours: MWF 3:00-4:00 PM; Tu 9:00-11:00 AM; also by appointment

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

**Course Web page:** Syllabus and related material will be on Blackboard.

**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, and will be taken on random days. 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%. 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. If you are sick, you MUST obtain a doctor's note. 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.

An unexcused absence on the day of a test will result of a grade of zero for that test. If you have an excused absence on the day of one of the three tests, the average of your other two tests will be used as a substitute for the exam you missed. No make-ups will be given. You may only miss one exam due to an excused absence. The final exam is mandatory. Missing the final exam will result in a zero for the exam unless EXTREME circumstances apply. Even in that case, extra questions will be added to the make-up final.

**Homework:** There will approximately 6-8 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.

## **West Chester University General Education Goals:**

This course strives to have students meet the following general education goals:

1. Ability to communicate effectively
2. Ability to employ quantitative concepts and mathematical methods
3. Ability to think critically and analytically

### **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 14 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 15 Vibrations and Waves

Chapter 16 Sound and Music

Chapters 20-22 Electricity & Magnetism

Chapter 23 Atoms and Radiation

### **Exam material (tentative):**

Exam 1: Chapters 1-5

Exam 2: Chapters 6-8, 15&16

Exam 3: Chapters 20-23

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:

- a. Your choice of a clear, well-defined topic.
- b. General organization and clarity.
- c. How well you understand what you are talking about. It is MUCH better to present on a very simple topic and visibly know what you are talking about, than to discuss complex ideas that you don't totally understand.
- d. How familiar you are with your presentation. Try not to read completely off of your slides or note cards the entire time. Words on slides should be primarily talking points. That is, you should be able to look at your audience and expand on/give examples of what is listed on your slides.
- e. How well you can make connections to ideas we have already discussed in class.
- f. You should be sure to include at least one equation in your presentation.
- g. Time. You might lose points if your talk is less than about 4 or more than 6 minutes.

*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 at all. 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
- Guitars and strings
- Physics of a particular sport
- Ocean tides
- Sledding
- Bungee jumping

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