

## Welcome to AP Physics

Dr. Bill Wiecking

[bill@hpa.edu](mailto:bill@hpa.edu)

885-7196 (home, before 9PM)

<http://physics.hpa.edu>

<http://facstaff.hpa.edu/weblog/bwiecking>

### The course

This course is one of four courses offered at HPA:

ePhysics

Honors Physics

**AP Physics B**

AP Physics C

This course represents a first year physics course at any university in the world, aimed at non-calculus students such as pre-med or general students. It's a great course, that skips nothing in the classical physics text. In our case, we'll be using a digital textbook. How does this work? You purchase a license for a web login to a certain site that has our textbook online. You will use this online textbook with exercises and labs from anywhere there is an internet connection. I've also purchased a lab set of the same textbook installed on our laptops in class. It's a new way to learn, and we'll be experimenting with it together. We always have the trusty textbooks should we get frustrated with this method of learning.

We'll also be using online simulations, that include exercises with solutions, as well as AP prep textbooks with sample exams.

How will you do? Last year's group of 8 students had five perfect scores of 5. If you made it into this class, you must be a smart character, and I'll do my best to keep things interesting for you.

### Physics

Physics is the study of matter, motion, forces, and electricity, not always in that order, and often combined. One interesting thing about those who love physics is they do very well with History classes, because both are involved in the study of cause and effect. I'm sure you'll find it as fun as I do, and I'm a fanatic about physics.

### About the instructor

I've been teaching physics for 27 years. I got my BA from UC Berkeley in Physics long ago, a Masters in Educational Philosophy (why we teach), and a PhD in Physiology and neuroscience. I really believe that we never stop learning, and I'll do my best to cultivate and honor this in you. I love physics, and it is a new subject for me every year.

### **Grades, exams, labs and stuff**

We will have frequent quizzes, usually at the beginning of each class period. Our labs will be specific to the material covered, and will follow the guidelines of the AP exam, so don't worry, we'll keep on track in preparing you for the exam.

Our exams will be timed versions of parts of the AP exam, which is both multiple choice and free-response. You'll go into the exam in May 2009 with great confidence.

We are compelled to make sure that the progress you make in the course mirrors your success on the AP exam, so if you are doing well in the class, you will surely do well on the exam.

Percentages for each (exams, labs, quizzes) will roughly fall into a 50/30/20 percentage, but we can shift this as we go along. My main goal with the grading is to motivate you and evaluate your progress.

If there is one drawback to the AP nature of the course, it's that we have to be on a schedule to cover all of the material in the allotted time. We'll move briskly but not so fast that you find yourself underwater.

If you DO find yourself underwater, come and see me right away. One saying about this level of science is that it relentlessly tramples stragglers. The sooner you seek out help, the better off you will be. It's also excellent practice for college, where finding the professor can be a challenge. I've taught in the university system, and I know how to prepare you to not just survive, but to thrive.

### **Weblogs, email, and X period**

I communicate a great deal of information on the weblogs at <http://physics.hpa.edu/weblog/bwiecking>

It's a good idea to check this weblog every night at about 9 PM, which is the latest I would make any changes to our class plans (exams, hw due, etc.). Check your HPA email every day as well, I keep a mailing list of the class, and send out updates and references you will need for classes.

X period is a new animal to all of us, but know that AP will be using the X period a great deal. Here's why: The College Board specifies that we should be meeting a minimum of 245 minutes per week. On our best weeks, we meet about 200 minutes. Where to get those missing minutes? X period. I'll fill you in more on this as I know more myself.

### **Online Grades**

Your grades are available on my HPA web page at <http://physics.hpa.edu/~bwiecking/grades>

You can suggest that your parents check this out from time to time, to see how smart you are.

### **Textbooks**

Our main resource will be the AP Physics B online textbook "Principles of Physics" from Kinetic books:

[http://kineticbooks.com/products/textbook/text\\_levels.html](http://kineticbooks.com/products/textbook/text_levels.html)

You will purchase a web license that will enable you to study anywhere there is web access, as well as a printed version we will have access to in the labs or if you are traveling. The ISBN number for this is:

66865-1-1.WA

Which can be purchased for \$34.95 from their website at:

[http://kineticbooks.com/products/prod\\_purchinfo.html](http://kineticbooks.com/products/prod_purchinfo.html)

We will also use the Princeton Review AP Physics, available at the HPA bookstore, or online for \$12.95 from Amazon:

[http://www.amazon.com/Cracking-Physics-Exams-2006-2007-College/dp/0375765409/ref=pd\\_bbs\\_sr\\_1/102-3742433-5625726?ie=UTF8&s=books&qid=1187678982&sr=8-1](http://www.amazon.com/Cracking-Physics-Exams-2006-2007-College/dp/0375765409/ref=pd_bbs_sr_1/102-3742433-5625726?ie=UTF8&s=books&qid=1187678982&sr=8-1)

### **Study Skills**

If there is one common thread in the comments I hear from returning college freshmen it is this: Take better notes, read the textbook before class, and ask questions before you get lost. To help with your notes, I'll be providing a pdf file you can use to print out a note taking paper common in universities. The trick is to take notes in the larger section, then review them in the smaller section. More on this in class.

### **Lab hardware**

We'll be using the Vernier set of probes and software in class, which will enable you to do labs that were impossible in even most colleges just a few years ago. These use probes and analysis programs that will help you no matter where you attend college, as well as being a lot of fun to use. We will begin our studies of motion with just these devices. I'll pass out a CD for you with the software on it, should you want to do your own analysis at home for lab work.

### **Lab Format**

Our labs follow the University of California system format, not because I went there, but because it has become the college standard:

Title

Purpose

Background

Materials

Procedure

Data

Observations

Analysis

Conclusions

Here's a summary of each:

Title-what the lab is about, should be short and to the point

Purpose-what you hope to accomplish. Should be later addressed in conclusions

Background-any information that will make your lab easier to understand for the reader, a sense of context.

Materials-non-obvious things you will need to do the lab (you need not list oxygen, table, floor, etc.)

Procedure-detailed steps to follow to duplicate your lab. Think of it this way: could you follow these instructions and complete the lab if you were absent that day?

Data-anything you gather that is not in words: graphs, tables, results

Observations-any results not in numeric form, e.g. "My partner ran fastest when he was on fire"

Analysis-look at your data: does it make sense? Is your experiment a failure in what you were trying to find, but a success in finding something else?

Conclusions-address the purpose, and list ways you could improve the lab for the next person.

### **Due dates/late work**

All work is due on the date specified. No credit is given for late work, as in college. Remember that when you walk in the AP classroom, you are in a college environment. In University problem sets will be due at a certain time without variance. If you set your lab partner on fire, this is another matter, of course.

### **Conclusion**

This will be fun, let me know how we can make it better.

Dr. Bill Wiecking

