

Welcome to ePhysics

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The course

This course is one of four courses offered at HPA:

ePhysics

Honors Physics

AP Physics B

AP Physics C

This course is an engaging, hands-on physics course, using a combination of textbooks, computer aided simulations, online tests and lab-work with advanced computer tools. Math in this class is never more than basic algebra, with some trig from time to time for fun.

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 26 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

Grades will be based on three things: exams/quizzes, labs, and homework. More on these in a bit.

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.

Exams will be online interactive tests, where you are given ten questions with changing values. Each time you try the test, the numbers change. You are encouraged to work with your classmates on these interactive tests (IT exams), because one of the best ways to learn is to teach. About once a week, we'll

have an assigned test day when a new form of the test will come out, but if you've practiced well, you should do well on the test, since it is the same ten questions.

Weblogs and email

I communicate a great deal of information on the weblogs at <http://facstaff.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.

Online Grades

Your grades are available on my HPA web page at <http://facstaff.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 Giancoli textbook from the bookstore (Physics: Principles and Applications), or Amazon:

http://www.amazon.com/Physics-Principles-Applications-Douglas-Giancoli/dp/0131846612/ref=pd_bbs_1/102-3742433-5625726?ie=UTF8&s=books&qid=1187712184&sr=8-1

I've also purchased a class license AP Physics B online textbook "Principles of Physics" from Kinetic books:

http://kineticbooks.com/products/textbook/text_levels.html

along with the virtual labs set from the same company.

We can try using this as a teaching aid, it's the online book that the AP folks will be using. I don't want to change too many things at once, so we'll keep to the textbook for the most part.

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. 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

