

Welcome to AP Environmental Science

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Course catalog description:

Term: 2 Semesters

Credit: 1.0

Prerequisites: B+ in Biology or teacher recommendation and Algebra II Trigonometry or concurrent enrollment

Sustainability is one of the fastest growing topics in the world today, and colleges are getting the message, with more courses aimed at students interested in renewable energy, resource management, and the impact of mankind on the ecosystem. HPA's Go Green projects and Energy Center are prime resources in our study of Environmental Science, our newest AP course. This course covers topics including renewable energy, resource depletion, pollution, population impact, global footprints, and sustainability. Colleges evaluate this course as equal to other AP science courses, and successful completion of this course should lead to an excellent score on the AP exams in May.

The course: content

This is a college level course in Environmental Science, different from our other courses at HPA in several ways: first, we are accountable to an AP exam usually given in May. Any student taking any AP course at HPA is required to take some sort of final exam at the end of the course. This is supposed to be the AP exam, but if for some reason you do not take the AP exam, we will create a final for you. Second, this course moves at a pace designed to match a similar course at any college or university. One reason students take AP courses is to demonstrate to colleges that they can complete college level work. For this reason, we will treat you as college students when you are in this class. There will be labs, readings, and you will be expected to take notes at all times. This is how you will demonstrate to the colleges that you are ready, but I hope to make all of this fun at the same time. I have taught at the university level, and know what it takes to help you succeed there. Worry not, I'm on your side.

How is this course different from environmental science class? More labs, college level readings, and a faster pace. We'll be working with the env sci class on field projects though, which should be familiar to you.

Our goal in this course should be more than just a perfect score on the AP exam, but should be a chance to work in a great place doing exciting things you are passionate about. I'd like you to share with me your passion for the environment, and we can learn together.

Environmental Science

Environmental Science is the study of- you guessed it: the environment. We'll follow a course outline much like that in the AP review texts, in particular the Barron's AP prep guide for 2009 (see list below). We'll be using several resources: the review book, a traditional textbook (Cunningham, see below), as well as online resources such as the Encyclopedia of Earth and Wikipedia.

If you ask any instructor of environmental science in high school what their biggest issue is, it would probably be shabby textbooks: poor science, many errors, too political. I've chosen a college level text, but it's not perfect. I think it offers us the best prep for your exam in May, and should be really interesting as well.

I've chosen several resources as some students like online stuff, others prefer the traditional text. I'll listen carefully to what works best for you.

We'll be doing a series of labs (see syllabus below), some of which can only be done on the big island of Hawai'i. We are truly blessed in our location, and you will find yourself far better prepared for any college course in environmental studies after working here.

About the instructor

I've been teaching physics for 29 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 teaching, and it is a new experience for me every year.

Course Materials:

We'll be using the following resources:

Barron's AP Environmental Science 2009: ISBN 978-0764140525

Environmental Science, A Global Concern, by Cunningham and Cunningham, 2009, ISBN 978-0073383217. (note, since this book is not yet out, I will provide online pdf resources until the release date of Sept. 25, 2009)

Encyclopedia of Earth (eearth.org): <http://www.eearth.org/>

Wikipedia: http://en.wikipedia.org/wiki/Main_Page

You may also choose to purchase the Princeton Review "Cracking the AP" text 2009 edition (ISBN 978-0375428906)

All of the printed texts are available on Amazon, I'll be working with the bookstore to get in copies of these as well.

Course Weblog: <http://physics.hpa.edu/weblog/bwiecking/>

Calculator: anything you are comfortable with, must include scientific notation (EE button) and logarithm keys (log and ln)

Course Policies:

- a. Classroom Rules of Conduct: All phones and other personal music/digital devices must be off and out of sight. No computers are allowed in class unless part of the class process (data gathering, research). I expect you not to use computers or other devices for note taking, more on this below.
- b. Plagiarism/Academic Integrity (Refer to Honor System, Section 5 of the [Student - Parent Handbook](#))
- c. Department/course homework Policy: some homework is done online and emailed to me for feedback. Other work is done on paper and turned in at the beginning of class. Whenever possible, you must show any calculations for credit. No late homework is accepted. This is both for your sake and mine. You are responsible for all work if you miss a class. This includes sports, drama and field trips.
- d. Class participation: you are expected to take notes in class in a notebook that you keep for the class, which you can leave with me for overnight grading. This means a spiral or composition notebook that is dedicated to this class, not a section in your binder, or part of another notebook. I know this may be a hassle, but the habits here will really help you in college in a few years. I expect you to take notes in class, and email an outline of your notes (for credit) before 8 PM the night of each class. This will reinforce the material in your mind. You may want to use the Cornell note format, which is setup for this.
- e. Class preparation: I will post assignments on the weblog and in class. Please check the weblog each night before class, as I often post updates to assignments and things to read before the class. I will do my best to make any changes early, so you are not surprised. You will be responsible for reading assigned work before class, so our process might look like this: You read/view resources -> we discuss in class, do labs or other work -> you synthesize these into your work.
- f. Lab reports: we will be using the UC system standard lab format (see below). I expect all labs to be typed and turned in online as well as on paper. This is so you can refer to your work in exams and also so I can make notes for you to improve your work for credit.
- g. Computer Acceptable Use (See Student Handbook at link above).

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 2010 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. I'll also be including a progress and participation aspect, though this may wind up in your subject report at first.

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 and email

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 215 minutes. Where to get those missing minutes? X period. I'll fill you in more on this as I know more myself.

You'll find the best way to keep up is to drop by at lunch, when I am often in my office. If you have questions about your grade, I'll expect that we discuss this in private, not in class. This is the norm in college as well.

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. I may also email out student reports from these pages to your advisor, parents and of course, you.

Study Skills/How to do well in this class

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. A link to this paper is here: <http://www.eleven21.com/notetaker/>

More on this in class.

Emergency Procedures

In case of emergency, we exit the building downhill, we will meet at the base of the hill, where I am required to take roll (refer to the map in our classroom). Please do not linger in the classroom or other clever hiding places, and when we assemble at the bottom of the hill, please be quiet and remain with the class. In other matters of emergency, listen and follow the instructions of your instructor and remain calm.

Course assessment

You will be asked to assess this course several times each semester. I am committed to making this class a better experience for each of us, so please share any suggestions or issues when they arise, so that together we can improve the 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 great deal of fun to use. We will begin our studies of energy with just these devices. When you bring in your USB drive, I will share the software with you, 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.

IMPORTANT: The single most important thing I am looking for in your lab reports is your understanding of the cause and effect nature of what we are studying. Filling a lab report with terms will be graded much lower than one that actually demonstrates an understanding of the causal relationship we are studying.

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