

Welcome to AP Environmental Science

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Course Home Page: <http://physics.hpa.edu>

Weblog: <http://physics.hpa.edu/users/apes/>

Course folders: <http://physics.hpa.edu/physics/apenvsci/>

Online exams: <https://www.eztestonline.com/207829/index1.tpx>

Online text resources: http://highered.mcgraw-hill.com/sites/0073383201/student_view0/

Online grades: <http://physics.hpa.edu/~admin/grades/apes/>

Course 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. We strive to investigate three global challenges: food, water, energy and culture. HPA's Go Green projects and Energy Lab are unique resources in our study of Environmental Science. This course covers topics including renewable energy, resource depletion, pollution, population, global footprint, and sustainability among others. Colleges evaluate this course as equal to other college science courses, and successful completion should prepare students to be fluent in all major concepts and challenges facing the environment, and be an asset to any future work in this field and much more. This should also lead to an excellent score on the AP exams in May.

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.

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 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 2011 (see list

below). We'll be using several resources: the review book, a traditional textbook (Enger, 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.

What will we do in here?

Our tools will include computers, sensors, iPad/iPod/nanos and other gear to deliver all sorts of media for your study. We will meet in several different modes: lab section is where we will do lab work, often in the field. Lecture section will involve class discussions, and presentation of new material into a fabric that we will all weave together into a unique tapestry of the course for this year. Discussion section will enable you to ask questions on the homework, and delve deeper into some concepts better done in a small group. This format is very much like college, though we are able to work much more individually, with more hands-on projects.

When and where will we meet?

We will follow a 10 day cycle, which covers two weeks of classes. We meet in the energy lab, in various locations around the lab, as well as outside. We'll also plan field trips to Mauna Loa, NELHA, Hawaii Volcano Observatory and Mauna Kea, among others.

How will my progress be assessed?

This is an AP course, which means that all students must take the AP exam in May. This dictates to some degree what we cover in the class, but not completely. We are responsible for giving regular AP level exams in the class, to make sure that we are meeting the rigor of an AP course. Along with these regular AP simulation exams, we'll evaluate your written lab manuals, your homework, and your text/video outlines. You should plan for an equal amount of homework each week as we have class/lab time, which again matches the load in college.

What is my responsibility?

We have pdf files online of several reading and video sources online, which you will access via the weblog from on or off campus. You will need to bring a flash drive to class, as a container for your digital media. You must keep a lab notebook, and regularly check our online sources for updated assignments, lab notes, and videos to watch for your questions. I will try to find sources that are engaging to you, and meet the requirements of the course. Late work will not be accepted, for several reasons we can go into if you wish. I request that any question you have about grading be done outside of class, either during my office hours or at another time we can mutually meet. This is to protect your privacy, as well as respect the limited contact time of your classmates.

What are the topics we'll cover and when?

Our first quarter will involve ethics, risk, the three big challenges: energy, water and food, as well as a basic review of matter and energy.

Our second quarter will cover ecosystems, biodiversity and populations.

We'll have an AP style exam at the end of each quarter, and a larger one at the semester exam point.

Our third quarter will cover energy, food, water, soil and air

Finally, we'll conclude with pollution and a review for the AP exam in May

Course Materials

Textbook:

Environmental Science 12th Edition, Enger and Bradley, 2009, 978-0073383200

Amazon: \$107, textbooks.com: \$83 (used)

Review Texts:

Cracking the AP Environmental Science exam, 978-0375429446

Barron's AP Environmental Science, 978-0764145711

Online eBooks: Kaplan AP Environmental Science

We may use other books in part or in whole as the year progresses

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 quarter and semester 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 2012 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 is 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.

Working in the Energy Lab

We will be sharing the resources of the Energy Lab with other classes. When possible, we will have our own classroom, but we may use other parts of the facility as needed. I expect you to conduct yourself with good manners, return anything you use (computers, iPads, tools) to their original location, and chargers, and to leave your work area at least as clean as it was when you began work. Food and drinks are not to be in the work rooms, and there is no gum permitted in the lab. Hats and hoods are to be off, behave as you would as a guest elsewhere.

You may be asked to show visitors around: please respect their curiosity and conduct yourself accordingly. Imagine that you were new to the school, and how you'd like to be treated.

Collaboration

While I encourage collaboration, anything you turn in, either on your weblog or in print must be your own work. I may ask you at times to explain your work-this is one of the best ways to evaluate your learning, far more accurate than some other evaluation methods. Copying is prevalent in our culture, but it is not permitted in our class. Again, anything you turn in as your own work must be your own work. If you have questions on attribution, let's discuss in class.

Weblogs and email

I communicate a great deal of information on the weblog at

<http://physics.hpa.edu/users/apes/>

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 at the Energy Lab. 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 here:

<http://physics.hpa.edu/~admin/grades/apes/>

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.

Class Calendar

This may change during the course, but our class schedule can be found here:

<webcal://www.me.com/ca/sharesubscribe/1.38451379/8C0AF6E1-28E3-4DD4-8479-B584F9BD278E.ics>

Emergency Procedures

In case of emergency, we exit the Energy Lab downhill, we will meet near the faculty cottages, 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, 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 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