

IU Physics P110/120, Fall 2013, Course Information

Watch this page as we will update with new info, such as office hours, etc, that may be adjusted as semester progresses.

[Rex Tayloe](#)

Course Personnel

Instructor:

[Rex Tayloe](#)

Swain West 336

rtayloe@indiana.edu

Office Hours: (tentative, may adjust slightly)

11-noon, Tues/Thurs

1-3p, Thurs

Assistant Instructor:

Wen-Chao Dai

Swain West 340

Office Hours:

1:25-3:20p, Fri, in physics forum (SW 246)

Schedule

Lecture:

- 09:30a-10:45a, TR, Swain West (SW) 007
- P110 meets at same time up to and included week 10 (10/31).
- P120 is full 15 week version of course.

Course Materials

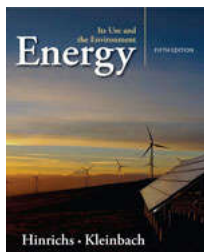
For this course you need to obtain the following items:

- Textbook: Energy: Its Use and the Environment, 5th Edition, Roger A. Hinrichs; Merlin H. Kleinbach.
- Clicker: Turning Technologies ResponseCard RF, RF LCD, or NXT.

These items are listed as required at the bookstores for this course. The bookstore personnel can help you find proper items and more details may be found below. In addition you'll probably want to get:

- A calculator is needed for some of the numerical calculations. A scientific calculator is best in order to do scientific notation, but it needn't be too fancy. The one on an iphone is or on your computer is probably fine. We'll talk about what is needed for exams.
- A computer in order to access the online materials (on Oncourse).

Textbook



[Energy: Its Use and the Environment, 5th Edition,](#)

by Roger A. Hinrichs; Merlin H. Kleinbach.

ISBN-10: 1111990832, ISBN-13: 9781111990831

The looseleaf edition (ISBN-13:9781285883557) is fine also (and a bit cheaper). Also watch out for international editions, the HW problems are sometimes in different order.

The textbook will be used as a guide through the material. Many important concepts are explained, examples are provided, and questions are asked to test your grasp of material. Readings from this book will be assigned with expectation that they are read before we discuss those topics in lecture. To encourage reading and feedback, there will be a short online assignment due before class. In addition, many of the homework problems will come from this book.

The Etextbook (online vesion) is available from:

http://www.coursesmart.com/IR/1944869/9781111990831?__hdv=6.8 . If you dont mind just renting a digital version (for ~1/2 price), it is satisfactory for the course.

Will put a copy on reserve in Swain Hall Library.

Clickers

A Turning Technologies ResponseCard RF, ResponseCard RF LCD, or ResponseCard NXT.

Either of those 3 types will work, if another course requires one of those specific types, then get that. One should work for all your classes at IUB. We *cannot* use the ResponseWare Web App (no cellphones or laptops), sorry. See the [IU KB article on clickers](#). There is a lot of other info in KB on clickers as well. More detailed info on clicker use is given below in this document.

Course Overview

Physics 110/120 is a course for non-experts interested in the basic concepts and issues involved with all aspects of energy. We will study the underlying physics principles required to better understand energy production, consumption, conservation as well as the associated technology and problems.

This course will be presented with only simple mathematics (a little algebra, scientific notation) and we will help you relearn these things as needed. We will ask that you have a curiosity and desire to learn the subject and put a bit of work into the class.

There are no prerequisites for the class. However, you should count on spending about 6-10 hours per week on the material which includes reading and homework assignments. Our topic is important and has many aspects, it takes a bit of work to understand!

P120 is a full semester course worth three credits. P110 is a 10 week course worth two credits. P120 and P110 run concurrently during the first 10 weeks of the semester and carry out the same assignments.

Here is a rough schedule of topics that we'll cover through the semester. We will likely adjust as we go along and will use the Oncourse Calendar Tool as our syllabus, check there for details on reading, HW etc.

Week	Topics
1	Introduction and Overview
2	Mechanical Energy
3	Conservation of Energy
4	Heat and Work
5	Review, Exam 1
6	Heat Flow
7	Solar Energy

8	Fossil Fuels
9	Air Pollution and Global Warming
10	Review, Exam 2
11	Electrical Energy
12	Solar, Wind, Hydro power
13	Bio Fuels
14	Geothermal Power
15	Nuclear Power
Finals	Final Exam Tues, 10:15a

Course Components

We will study the subject of energy via reading assignments, lectures, (online) homework assignments, two mid-term exams, a final exam, and answers to in-class questions (clickers). You can also do a project for extra credit. The idea is, like with any subject, to get you to think about the concepts and then to work through your own answers. The assignment details will be posted on Oncourse under the Calendar Tool, check there for details on reading, HW etc.

Lectures There are two 75-minute lectures each week meeting in SW007 starting at 9:30am. The lectures will roughly follow the topics in the textbook. However, they will also include important additional information and insights not provided in the text and will omit some information contained in the text. You are responsible for both the assigned materials in the text and what is covered in class. Thus, you are strongly urged to attend every lecture. You may wish to take notes, however, the lecture notes will be posted on Oncourse under "Resources".

Reading Assignments Readings from our text books will be assigned before each lecture. To encourage reading and feedback, we will start each lecture with a clicker question or two about the reading.

Homework You will be required to do homework assignments approximately weekly for a total of around 12 assignments. You will be allowed to drop the lowest 2 scores. The assignments will appear on Oncourse and you will submit them online. The due dates/times will be friday afternoons.

Exams We will have a mid-term exams during the 5th and 10th week of the semester (two total). They

will both be multiple choice on topics that we have practiced over the semester (i.e. like homework). They will administered during a lecture period. We will discuss and you'll get examples so you know what to expect. We will also have a final exam at our assigned final exam time (Tues of finals week, 10:15-12:15). It will be like the other 2 exams, but a bit longer. It will cover a combination of new material as well as some comprehensive.

Clickers In order to encourage class participation and to get feedback on the concepts we are studying, we will use the student response pads (Clickers) in class. Your clicker responses will be recorded for part of your grade (see below). 50% of score will be on participation (any answer to question). In order to encourage your best responses, the other 50% of score will be for correct answers to clicker questions for questions that have a correct answer. For questions that are surveys, opinions etc, full credit is given for any answer. You will be allowed to drop 5 days, to allow for clicker problems or a missed class or two. We will have the first week (two lectures) before clickers are required, so there will be time to practice and to get the bugs out.

Final Project You can also do a final project in this course for extra credit. The idea of the project will be to apply the material that you have studied in class to real world problems you find interesting. With these projects you will show how physics, in particular the topics you are studying, apply to real world problems related to energy production, consumption, technology, etc. Examples of good completed projects will be shared as well as ideas for your project.

Your completed project will consist of a report in presentation format(Power Point or equivalent), 10 or so slides in length. It should contain pictures, text, and perhaps even short movies. You will not have to orally give the presentation, just hand it in. But you can come to me and talk about it. You can work with others on the project if the work you hand in is not the same as others in the group. The due date around the last week of class. It will be for extra credit and can be used to replace your lowest exam score, except you can't replace a zero grade for a no-show.

Grading The course grade will be based on all components of the class using the following scheme:

Component	#Assignments	# dropped	grade weighting
Homework	12	2	20%
Clickers	30	5	10%
Midterm Exam I	1	0	20%

Midterm Exam II	1	0	20%
Final Exam	1	0	30%
Final Project	1	0	EC

- For P110, these components will be adjusted to those assignments completed before the end of the 10-week period (part of HW/clickers, exams 1/2).
- Clicker scores will be 1/2 participation and 1/2 correct answers (for problems that have a correct answer). You can drop 5 lectures total with no penalty.
- For letter grades, we will use a straight scale of >90% for A, >80% for B, >70% for C, >60% for D. In addition, if needed, the exam scores will be scaled to the class average. We will post all scores in gradebook on Oncourse, please check your records to that gradebook occasionally and notify the instructor of any problems.

Clicker Details

The clickers will be used to enhance classroom discussions and to explore common misconceptions. Each student is required to purchase a clicker. Clickers may be obtained at the University Bookstore for a nominal price and will be unique for each student. You may use either of these types: Turning Technologies ResponseCard RF, ResponseCard RF LCD, or ResponseCard NXT. Either of those 3 types will work, if another course requires one of those specific types, then get that and you should be able to use for all of your classes at IUB. We *cannot* use the ResponseWare Web App (no cellphones or laptops), sorry. See the [IU KB article on clickers](#)

Students are reminded that there is a code of conduct associated with the use of clickers. In particular, only the student who is registered for a clicker should use it to submit responses. Please see <http://www.indiana.edu/~code/code/responsibilities/academic/index.shtml> for a full description of student rights and responsibilities.

Purchasing a clicker

1. The Turning Technologies XRC-01 model can be purchased at the IU bookstore ISBN:9781934931059.
2. You can also purchase the clicker from the Turning Technologies online store (<https://store.turningtechnologies.com>). With basic shipping the price is better than the

bookstore. The IUB school code is: 0BjE (the first character is zero and the j is lowercase)

Clicker registration

1. Log into Oncourse CL: <https://oncourse.iu.edu/>
2. Go to the course in which you want to register your device and from the menubar, select Turning Technologies.
3. If you have not registered a device, a pop-up window will appear, reminder you to register. Click OK.
4. Click ResponseCard.
5. On the back of the device underneath the bar code, you will see a six-digit numeric or alpha-numeric code. Enter this in the Device ID field.
6. Choose whether you want to register the device in Just this course or All courses.
Note: If you choose All courses, you will not be able to share the device with another student as it will automatically be associated with you in any course. If you choose, Just this course, you will need to manually register the device in each of your other courses.
7. Click Register
If you need to change the Device ID after you have registered, click the Device ID under My Registered Devices, make your changes, and click update. (You cannot change your Just this or All Courses selection.)

Clicker Policies

Please read and note well the clicker policies that will be in effect for this course:

1. It is the responsibility of the student to ensure proper clicker operation. It is strongly advisable to carry spare batteries and to be aware of battery life. Students are required to be familiar with clicker operation and registration this information is included with your clicker upon purchase.
2. Do not lose or damage your clicker! These devices are easily misplaced, so take great care to keep track of its location at all times. In general, the clickers are quite robust and will function properly for a long period of time if treated well. Avoid rough treatment to keep it operating correctly. In the event of loss, the student will be required to obtain another device from the IU Bookstore and register the new clicker via oncourse.

3. Students are responsible for correct login procedures. Answers submitted on alternate channels cannot be collected or graded, and students will NOT be granted credit for these responses after the conclusion of the lecture period for any reason. Turn your clicker on a few minutes before class begins to allow ample time for your device to properly join.
4. Responses will be GRADED and posted on OnCourse. Questions from each lecture will be graded for correctness simply entering a response will not receive full credit. Extra credit points will be updated periodically on OnCourse.
5. Questions will be TIMED. Many questions will have a response time limit. Be diligent and aware of time constraints responses entered after the timer expires will NOT be recorded or graded.
6. Questions will be posed at EACH lecture. For this reason, attendance is imperative!

Academic Integrity

All work done in this class must be your own. This includes exams, projects, and all online assignments. You may discuss the assignments with fellow students and that is encouraged, but the work that you turn in must be your original work. You are also not allowed to do someone else's work such as entering clicker responses when they are not there.

You are advised to read the Code of Student Rights, Responsibilities and Conduct especially Part II: "Student Responsibilities It is available on-line at <http://www.indiana.edu/~code/code/responsibilities/academic/index.shtml>.

Academic dishonesty will not be tolerated. Academic dishonesty will result in severe penalties and will be reported to the Dean of Students for full disciplinary action.

Absentee Policy

If you have a valid university excuse for any missed assignments then your grade for that assignment will be replaced by your average on the other assignments. Valid university excuses include illness or injury, family emergencies, and university approved curricular and extracurricular activities, and religious holidays. There will be a maximum of three excused absences. If you need to miss more than this amount of work you will not be obtaining the full benefit of the course. Exceptions to this policy will rarely be granted and can only be obtained by scheduling a personal meeting with the course instructor.

Illness or injury excuses require a note from a physician, physician's assistant, or a nurse practitioner stating that you were unable to attend at the time of the activity. The note must

contain the words "unable to attend". The note must be provided within one week of the missed activity. In the case of extended illnesses the note must be provided within a week of the end of the illness and specify the period of your inability to attend the course.

Family emergencies will be treated only as an excused absence if verifiable documentation is provided. Family emergencies include a death in your immediate family, death of a close friend, sudden hospitalization of a close family member for a grave illness. You should notify the instructor for your activity as soon as possible of your absence. Preferably you should notify the instructor in advance by e-mail. Documentation of the emergency must be provided no later than one week after the absence.

Excuses for university-approved curricular and extra-curricular activities require the student obtain from the unit or department sponsoring the activity a letter (or class absence form) indicating the anticipated absence's). The letter must be presented to the instructor at least one week prior to the first absence.

In the case of religious holidays, the student should notify the instructor by the third week of the course of any potential conflicts.

Makeup exams can not be offered.

Late Policy The course meetings will begin and end promptly at the assigned times. Late arrival or early departure from the lectures is disruptive and unfair to the other students in the class. Therefore, please try and arrive at these class activities a few minutes early.

Homework, reading assignments, projects should be entered via OnCourse. The due date for these assignments appears both on the course web site and the assignment. Late assignments can not be accepted.

Special Accommodations If any student requires assistance or appropriate academic accommodations for a disability, please contact the instructors after class, during office hours, or by individual appointment. You must have established your eligibility for disability support services through the Office of Disabled Student Services in 096 Franklin Hall, 855-7578.

The Physics Department disabilities representative is Dan Beeker. You are encouraged to contact him if you have questions about or difficulties with departmental accommodations.

Additional Help

The instructors offer office hours that you can use to get additional, more personal, help. We can't always guarantee one-on-one as this is large class, but we will do our best if that is what you require. In addition, undergraduate physics students may find additional help in SW246, the Physics Forum. It is staffed by graduate students and faculty and provides free tutoring help.

Scheduling

All course scheduling matters are handled through the Physics Academic Services Office in Swain West 129. Their office hours are 9:00 - 11:55 a.m. and 1:00 - 4:00 p.m. See the [IU official calendar](#) for the various registration deadline dates. If anyone want to switch from P110 to P120 (or visa versa), it is a class change and you must go through drop add procedure.
