

Energy and the Environment (PHYSC 110) Spring 2009

Lecture: Tue/Thur, 11:00am – 12:15pm, Room 312B

Lab: Tue or Thur, 12:30 – 2:10pm, Room 314D

Instructor: Ed Stermer
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Office Hours: M: 1:00 - 1:50pm
R: 4:00 – 4:50pm

T: 9:30 – 10:30 am
F: 11:00 – 11:50am

W: 11:00 - 11:50am

Course Description: This course provides students with an opportunity to study world energy and environmental problems while learning basic concepts of physical science (chemistry, earth science and physics).

Course Materials

Textbook: *Energy: Its Use and the Environment*. Hinrichs and Kleinbach (4th Edition)

Supplies: PENCILS, CALCULATOR (not a cell phone), colored pencils (blue, red), metric ruler

Educational Background: This is an introductory, survey-type course for non-majors. Consequently, this class is, by-and-large, qualitative and descriptive. However, some numerical facts and concepts are necessary to fully understand the class material. Thus in preparing the lectures/assignments and designing the laboratory exercises, you are assumed have high school level mathematical skills (geometry and algebra). ***If you are concerned about the math required for this class, browse through your text and look at the example mathematical problems. You will be required to solve similar problems.*** You will be assessed on your background math skills at the beginning and at the end of this course

Online Requirements: In order to take this online course you must have access to the internet through a reliable internet service provider. You must be familiar with using internet links and e-mail. Course announcements, assignments, quizzes, some exams, and grades will be managed using BLACKBOARD, which is accessible from the ICC main webpage (www.icc.edu). You must have a valid ICC username and password to use BLACKBOARD. If you need assistance in obtaining an ICC user account, please contact the Computer Services Helpdesk at **309-694-5457**. **Assistance is available to you Monday-Friday 8:00 a.m. to 4:30 p.m.**

Please note that you are responsible for your own Internet access and computing resources. A loss of connectivity is not an excuse for late assignments. If you wait until the last possible moment to submit an assignment you also run the risk of an unanticipated service disruption that prevents timely submission.

Software Requirements: Documents in this class will be published as pdf files or PowerPoint slides. If you do have the software to open these types of files, you can download the software for free via our class Blackboard page.

Communication: The primary mode of communication for this class is via e-mail. As a student at ICC, you have received an e-mail account from the school. You may use

this account or your personal e-mail for this class. Please note that I will be e-mailing you using Blackboard. Your Blackboard account is defaulted to your ICC E-mail Account. To change the address to your personal e-mail address, visit the Personal Information link under the Tools Button in Blackboard.

GRADING SCALE:

A: 90 - 100%	B: 80 - 89%	C: 68 - 79%
D: 58 - 67%	F: < 58%	

EVALUATION: Your course grade will be determined based on the following breakdown:

- Lecture Exams: 40%
- Lab: 25%
- Online Final Exam: 10%
- Class Activities: 10%
- Quizzes and Assignments: 15%

Lecture Exams: Five exams will consist of multiple choice and short answer questions based on the lecture slides and corresponding review sheets (see last section of syllabus). You will take these exams during the Thursday lab period on the scheduled week. ***If you miss an exam due to an emergency or illness, you must contact me within 24 hours on the exam time to schedule a make up exam.***

***** If your exam average is above 60% after exam 4, I will average your lowest exam score with your highest exam score and replace your lowest exam score with this average score.***

Lab: Attendance in Lab is Mandatory! If you miss three (3) or more lab sessions, you will not meet the basic requirement for PHYSC 110, and, therefore, will not receive a passing grade for the class.

- **Lab Activities:** All laboratory activities will be assigned and completed during the scheduled lab period. Your lab work will be evaluated before leaving the lab period. This is worth 40% of your lab grade.
- **Lab Quizzes:** A short lab quiz will be scheduled at the start of each lab. Each quiz will contain problems based on the objectives/results of the previous week's labs activities. This is worth 60% of your lab grade.

Class Activities: During the second week lab in the semester, you will be placed into groups of 3-4 people to accomplish the tasks listed below. More information on these tasks will be posted on Blackboard.

- **"Wedges in the News" Portfolio:** Your group will assemble a portfolio of recent research pertaining to the wedge strategies reduce carbon emissions and fossil fuel dependence.
- **Solar House Contest:** Your group will design and construct a working model solar house.
- **Wedge Strategies:** Your group will construct a stabilization triangle strategy to help reduce US carbon emissions and fossil fuel dependence.

Online Textbook Quizzes: Nine online quizzes are scheduled during the semester and will consist of 10 multiple-choice and true/false questions focusing on a chapter in the textbook (See the class schedule). The quizzes will be posted on the “Quiz” tab on Blackboard. Each quiz will be open book/notes and you will have 30 minute time limit. **If you exceed the time limit your score will be reduced by 1 point per minute – You will not receive credit for your quiz if your time exceeds three minutes. I strongly encourage you to read the chapters before the quiz.

Each quiz will be available from 12:00pm Monday to 5:00pm Friday. You must take the quiz during the assigned time period. NO MAKE UP QUIZZES WILL BE GIVEN; HOWEVER, YOUR LOWEST QUIZ GRADE WILL BE DROPPED.

Assignments: Ten assignments are scheduled throughout the semester (see class schedule). Assignments are due at the START of class on the Thursday of the week that that are assigned (see class schedule). **NO LATE ASSIGNMENTS WILL BE ACCEPTED!!!!**

Online Final Exam: There will also be a comprehensive, online final exam which will have 50 questions from all the chapters discussed in class. This one hour exam will be open book and notes.

OTHER IMPORTANT INFORMATION

What is a “General Education” Course? All associate degrees and most certificate programs have general education courses as an essential component. According to the Illinois General Education Core Curriculum Handbook of Accreditation, the purpose of the General Education curriculum is “to impart common knowledge, intellectual concepts, and attitudes that every educated person should possess.” The following General Education goals have been identified for this course:

1. The student is able to read and think critically.
2. The student has the ability to use mathematical skills.
3. The student can work collaboratively.
4. The student has the attitudes and skills required to function in a technological society.

Academic Honesty: You are also responsible for knowing and adhering to all forms of academic honesty as stated in the Student Handbook: *“Matters relating to academic honesty or contrary action such as cheating, plagiarism, or giving unauthorized help on examinations or assignments may result in an instructor giving a student a failing grade for the assignment or test, and also recommending the student be given a failing grade for the course and/or be subject to dismissal.”*

Responsibilities: As in any college course both the student and the faculty bear certain responsibilities to make sure that the course is a good learning experience. My responsibilities are to make this course informative and intellectually challenging; treat you fairly and with respect; always be prepared for class; return

graded materials to you in a timely fashion; provide information in a clear and concise manner; and clearly answer all pertinent questions.

Your responsibilities are to always attend class; arrive for class on-time; come to class prepared; be attentive in class; turn in all assignments by the due date; take part in group work and class discussion; ask questions if any part of the course does not make sense; and treat your peers and instructor with respect.

"Netiquette" (Courtesy Expectations): Students are expected to conduct all online conversations in a mature, professional manner. This class is conducted partially online, yet I expect you to be as courteous and respectful to me and to your classmates as you would be in person in a classroom setting. Emails and discussion board posts cannot be "taken back" (though when apologies are appropriate, you should make them). So, please write all of your correspondence with care and courtesy; don't send emails or posts that you might later regret - in terms of content, words, and tone.

Wireless Communications During Class: Prior to the beginning of each class ALL student cellular phones will either be turned off or placed on silent mode. The ringing of cell phones in class causes a disruption and will not be tolerated. Further, in the event that any student is found to be "texting" while class is in session will be asked to leave the class. Any student found to be "texting" during an examination will have their test confiscated and will receive a grade of "0" for that test.

Blackboard Frequently Asked Questions:

- What if I forget my password? Go to the Blackboard login page and use the Forgot My Password link. After entering security information, your password will be sent to your E-mail address on file.
- Do I have to use the assigned ICC E-mail Account? No. Your Blackboard account is defaulted to your ICC E-mail Account. To change the address, visit the Personal Information link on the My Institution page or under the Tools Button of your course.
- Can I change my Blackboard username? No. Your username is assigned by the college and must be used as your Blackboard login as well as the username of your Student E-mail account; username@lab.icc.edu.
- Who do I call for Blackboard technical assistance? The Help Desk at 309-694-5457 between the hours of 8:00 am and 4:30 pm Monday through Friday or visit an open computer lab on an ICC Campus.

PHYSC 110: Lecture Exam Topics

Review sheets will be posted on Blackboard for each lecture topic under the "Lecture Material" tab. Although these will not be collected, I would strongly urge you to treat the review sheet questions as a weekly homework assignment. Do not wait until the night before an exam to try to attempt these questions. A discussion board will be available on Blackboard for you to discuss these questions with other people in the class.

EXAM 1 (THURSDAY, FEB. 12)

- Introduction
- Science and Technology
- Newton's Laws
- Energy and Power
- Conservation of Energy

EXAM 2 (THURSDAY, MARCH 5)

- Atomic Theory
- Energy and the Atom
- Heat
- Heating The Earth
- Solar Heating Systems

EXAM 3 (THURSDAY, APRIL 9)

- Electricity Energy
- Generation of Electricity
- Carbon Cycle
- Coal
- Petroleum

EXAM 4 (THURSDAY, APRIL 30)

- Refining and Gasoline
- Mobile Air Pollution
- Stationary Air Pollution
- Climate System
- Climate Change Part 1

EXAM 5 (TUESDAY, MAY 19)

- Climate Change Part 2
- Solar Electricity
- Nuclear Electricity
- Alternative Fuels
- The Wedge Strategy

PHYS 110: CLASS SCHEDULE, SPRING 2009

WEEK	LECTURE TOPICS	TEXT READINGS	ONLINE QUIZZES ASSIGNMENTS	LAB ACTIVITIES
1 (1/18)	Introduction Science and Technology	Chapter 1 Chapter 2 (A-B)	Online Assessment	Conversions and Measurements
2 (1/25)	Newton's Laws Energy and Power	Chapter 2 (D-G)	Chapter1 Quiz Assignment #1	Graphing Data
3 (2/1)	Conservation of Energy	Chapter 3	Chapter 2 Quiz Assignment #2	Energy Experiments
4 (2/8)	Atomic Theory EXAM 1	Chapter 13 (A – D)		Power Experiment
WEEK 4: LECTURE EXAM 1 - THURSDAY, FEB. 12				
5 (2/18)	Energy from the Atom Heat	Chapter 4	Chapter 13 Quiz Assignment #3	Heat Experiments
6 (2/22)	Heating The Earth Solar Heating Systems	Chapter 6	Chapter 4 Quiz Assignment #4	Passive Solar Heating
7 (3/1)	Home Energy Conservation EXAM 2	Chapter 5 (A – E)		Earth –Sun Relationships
WEEK 7: LECTURE EXAM 2 - THURSDAY, MARCH 5				
8 (3/8)	Electricity Energy Generation of Electricity	Chapter 10 (C-G) Chapter 11 (A-D)	Chapter 6 Quiz Assignment #5	Electrical Circuits
WEEK 8: ENERGY PORTFOLIO DUE ON TUESDAY MARCH 10				

SPRING BREAK (WEEK OF MARCH 15)

PHYSC 110: CLASS SCHEDULE, FALL 2009

WEEK	LECTURE TOPICS	TEXT READINGS	ONLINE QUIZZES	LAB ACTIVITIES
9 (3/22)	The Carbon Cycle Coal	Chapter 7	Chapters 10 /11 Quiz Assignment #6	Minerals and Rocks
10 (3/29)	Petroleum Refining and Gasoline	Chapter 7	Chapter 7 Quiz Assignment #7	“CRUDE”
11 (4/5)	Mobile Air Pollution EXAM 3	Chapter 8		Smog City
WEEK 11: LECTURE EXAM 3, THURSDAY, APRIL 9				
12 (4/12)	Stationary Air Pollution The Climate System	Chapter 8 (F) Chapter 9 (A – B)	Assignment #8	Carbon Sequestration
WEEK 12: SOLAR HOUSE DUE THURSDAY, APRIL 16				
13 (4/19)	Climate Change Part 1 Climate Change Part 2	Online Reading	Chapter 8 Quiz Assignment #9	Solar House Contest
14 (4/26)	Solar Electricity EXAM 4	Chapter 12		ICC HIKE
WEEK 14: LECTURE EXAM 4: THURSDAY, APRIL 30				
15 (5/3)	Nuclear Electricity Alternative Fuels	Chapter 14 (A – G) Chapter 17 (A-C)	Chapter 12 Quiz Assignment #10	Wedge Presentations
16 (5/10)	The Wedge Strategy	Chapter 19		NO LAB
TAKE ONLINE FINAL EXAM: MAY 11 – MAY 15				
EXAM 5: TUESDAY, MAY 19				

