

**DEPARTMENT OF PHYSICS
PHYS 1020
ENERGY**

SPRING 2017

Course Information

Textbook:	ENERGY AND THE ENVIRONMENT 2 nd Edition, Ristenen and Kraushaar, John Wiley & Sons, Inc., 2006 ISBN: 978-0-471-73989-0
Instructor	Tonya Triplett, SER 234, 797-8308, tonya.triplett@usu.edu
Classroom	ESLC 130
Time	12:00 – 1:15 Tuesday and Thursday
Office hours	T/H 9-11:30 or by appointment
Website	Use USU's Canvas program

Course Goals

The purpose of the course is to educate you on aspects of energy management for the benefit of mankind on a national/global basis. By energy management I mean the discovery, extraction, conversion, distribution and utilization of energy resources historically, now and in the future. This involves considerations of science, engineering, economics, social science and politics. It is clearly a subject with great breadth and depth. In the time available in one semester it is only possible to provide a broad overview of events leading to the present energy situation and prospects for energy management in the future. The course is not intended to be a physics or engineering course, but it will be necessary to address some of the basic physics and practical engineering considerations which play a role in energy management.

My goal as far as you are concerned is that you will emerge from the course with enough background knowledge to give you a better understanding of the many issues involving the utilization of energy for the benefit of humanity. This topic will continue to be discussed in State legislatures, Congress, the United Nations and other international meetings and consequently will obtain significant media exposure.

I hope that you will leave the class with a better understanding of the importance of energy to our civilization, and will become a more thoughtful user of this precious resource, essential to the maintenance and improvement of many aspects of our standard of living.

Tests

There will be four tests given as listed in the calendar. The tests will have multiple choice answers, and will be taken in the USU Testing Center during the time block established. Each test will have 50 questions and comprise 60% of the overall grade.

On-Line Quizzes/Homework

The Canvas quiz tool will be used to grade your homework. They are NOT surprises and you will know the questions before you open the quiz; it is simply a way to grade them. All assignments and due dates are available on Canvas. You will be able to drop your lowest 2 scores. Homework will comprise 15% of the overall grade.

Term Project

Energy is a complex subject and is broad in scope. You will look at a very small piece of the energy picture and produce a project that describes it in depth and explains it in some format to a general consumer/citizen audience. You may work alone or in a small group to produce the final product. Portions of the project will be due throughout the semester to discourage procrastination and to allow intervention in a timely manner if problems come up. Ultimately, the project will be graded for understanding of the topic chosen, the complexities of it, the consequences, the alternatives, and the problems/promise of that idea.

The first task is to select a topic. I will post on Canvas many possible topics, and you may choose one from there, or request a completely different one. You will also decide at this point whether you prefer to work alone or in a small group (no larger than 3 people.) You must also submit a description of the proposed final product. Final products could be short research papers, an original piece of art depicting an energy topic, a short movie, a poster, or similar items. Keep in mind that if you work in a group, you will be expected to produce a “larger” outcome in proportion to your group size. (If a 3 page paper is appropriate for one person, 6 would be expected for 2, and so forth.)

The next task will be research of your topic. I expect that you will use academic peer-reviewed scientific articles as the majority of your research. You will produce a summary of this material including appropriate bibliographic information and submit this as the second assignment. A sample will be provided for you to view.

You will then make an appointment to meet with me to talk about your topic and get feedback on your work so far. You should come to this meeting ready to discuss your research and to present a verbal description of how you see your project in its final state. I will help you with misconceptions and other valuable feedback on the topic, research, and final presentation.

Presentations will be given during the last 2 weeks of class. In the event that the presentation is written only, it will be due for grading on April 25.

An **Undergraduate Teaching Fellow, Maryanna Coburn** has been assigned to this course to assist in management of your group project.

Composition of Final Grade

Exams	60%
On-line quizzes/homework	15%
Project	25%

The assignment of letter grades will be as shown in the table below:

Letter grade	A	A-	B+	B	B-	C+	C	C-	D+	D
Percent Total	94.0	90.0	87.0	84.0	80.0	77.0	74.0	70.0	67.0	60.0

The scores represent the lower bound for the adjacent letter grades. Marks of 59.9% and below will be graded F.

Supplemental Instruction (SI)

This class has a Supplemental Instructor (SI) to assist individuals and groups. This is an excellent opportunity to go over homework problems, discuss topics that were unclear to you and learn general study skills. There is a historical precedent for higher grades for students who attend SI. Meeting times and places will be announced.

Course Fee

A fee has been assessed for this course to pay for assistants and demonstration materials.

Materials for Persons with Disabilities

Students with ADA-documented physical, sensory, emotional or medical impairments may be eligible for reasonable accommodations. Veterans may also be eligible for services. All accommodations are coordinated through the Disability Resource Center (DRC) in Room 101 of the University Inn, (435)797-2444. Please contact the DRC as early in the semester as possible. Alternate format materials (Braille, large print, digital, or audio) are available with advance notice.

CALENDAR Spring Semester 2017

Jan	10 T	Introduction	Information, Energy fundamentals
	12 R	Ch 9	Air pollution
	17 T	Ch 9	Air pollution
	19 R	Ch 9	Air pollution
	24 T	Ch 10	Global effects
	26 R	Ch 10	Global effects
		TEST 1	Chapter 9,10 (Open in Testing Center Thursday-Monday)
	31 T	Ch 1	Energy use
Feb	2 R	Ch.1	Energy use (Topic Choice Due on Canvas)
	7 T	Ch.1	Energy use
	9 R	Ch 1, Ch 2	Energy use
	14 T	Ch 2	Fossil fuels
	16 R	Ch 2	Fossil fuels
	21 T	Holiday	Attend Monday Classes

	23 R	Ch 2	Fossil fuels	
		TEST 2	Chapter 1, 2 (Open in Testing Center Thursday-Monday)	
	28 T	Ch.4	Solar energy	
Mar	2 R	Ch.4	Solar energy	
	6-10	Spring Break	No classes this week	
	14 T	Ch 3	Heat engines (Research Summary Due on Canvas)	
	16 R	Ch 3	Heat engines	
	21 T	Ch 3	Heat engines (Appointments Begin- cont. until April 4)	
	23 R	Ch.5	Alternative energy	
	28 T	Ch 5	Alternative energy	
		TEST 3	Chapters 3,4,5 (Open in Testing Center Tuesday-Friday)	
	30 R	Ch 7	Energy conservation	
Apr	4 T	Ch 7	Energy conservation	
	6 R	Ch 8	Transportation	
	11 T	Ch 8	Transportation	
	13 R	Ch.6	Nuclear energy, Fundamentals	
	18 T	Ch 6	Nuclear energy	Project Presentations
	20 R	Ch 6	Nuclear energy, Reactors	Project Presentations
	25 T	Ch.6	Nuclear energy, Accidents	Project Presentations
	27 R	Ch 6	Nuclear energy	Project Presentations
May	2 T 11:30- 1:20	Test 4 (Final)	Chapters 6,7,8 (Open in Testing Center Monday-Wednesday)	