

2007-2008 spring semester syllabus for:

PHYS 115 (Energy)

version: 30 Jan 2008

General Information:

Classroom: B239 Van Vleck

Class web page:

http://cow.physics.wisc.edu/~ogelman/physics115_2.html

Library reserves page:

login via myuw portal

Class times: M W F at 09:55

Instructor

Prof. Hakkı Ögelman

- Instructors Room: **6203 Chamberlin**
- classroom: **B239 Van Vlec**
- Phone: 265-2052
- e-mail: ogelman@cow.physics.wisc.edu

Textbook

“Energy and problems of a technical society”

by J. Kraushaar and Robert A. Ristinien, 2nd ed. *Wiley and Sons Inc.* ISBN 0-471-57310-8

We will follow this book closely some chapter numbers and titles are:

- Ch1 Energy Fundamentals
- Ch2 Energy from fossil Fuels
- Ch3 Heat Engines & Electric Power
- Ch4 Nuclear Energy
- Ch5 Environmental & Safety Aspects of Nuclear Energy
- Ch6 Uses of Solar Energy
- Ch7 alternative sources of energy

- Ch8 energy storage
- Ch10 Plant& Food Production
- Ch13 Pollution of the Atmosphere
- Ch14 Water the resource and its pollution

Additional Reading Material, Required

“Ishmael”

ISBN:0-533-37540-7, Bantam turner pocketbook

Exams

- There will be 2 hour exams during the semester
- Hour-exams will be during class hour in class
- You can bring a single sided one page “*cheat-sheet*” to the exams
- The First Hour-Exam will be on **imar07fri**
- This exam will cover chapters 1, 2, 3, 4 and 5 from the textbook plus lecture notes
- The exams will last 45 minutes 9:55 to 10:45
- The second Hour-Exam will be on **apr30wed**
- This exam will cover chapters 6, 7, 8, 9, 10, 13, 14; from the textbook plus lecture notes
- Questions will be true-false, multiple choice and/or fill in the blank type and/or a one sentence answers
- There will be no make-up for the hour exams; make sure you are in Madison to take them
- There will be no final exam for the course
- The book “Ishmael” You are expected to read at your leisure
- Make sure you are finished by the end ofaprilafter which we will also discuss Ishmael in class
- Past years exams will be on reserve in the Physics Library
- You can see the exams via and library reserves.
- you get into course library reserves via myuw portal
- also on course reserves is a useful manuscript called “science in the context of energy”
- written by the course instructor
- A useful web page :is that of the union of concerned scientist of the usa is: <http://www.ucsusa.org>
- the textbook and the recommended books will also be on reserve

- last day of classes is may09fri
- by may21wed the grades are due (information for the instructor)
- near the end of the semester you have to hand in 2 items by May02fri **IMPORTANT DATE !!! TERM PAPER: You will be required to submit a term-paper concerning a topic of your choice covered in the course (3-4 pages double spaced with figures & references where appropriate).** Please talk with me about your paper topic, early in the semester
- **Collected set of problem solutions, stapled or bound together. I would like the term=paper submittd via e-mail as a word.doc document name your paper with your last name.doc**

You will be required to make a 3 min oral summary of your term-paper, in class on may05 or 07

the answers to the assigned problems will be in library reserves

Office hours

Any time during the day. You can come in anytime and talk if I am not doing anything urgent. Better yet make an appointment via telephone or e-mail.

Grading

The course will be graded 30% on your exams and 60% on your term paper, 10% instructor opinion (based on class participation and homework)

Date	Comments	Topic	Prob assignment
1stweek			
jan23wed	First class	General info	
jan25fri		energy basics	
jan28mon		energy basics	p128-1,2,3,4
2nd tweek			
jan30wed		energy basics	
feb01fri		problem solutions	p29-18,19,20'22,'23
3rd tweek			
feb04mon		fossil fuels	
feb06wed		term-paper-discussions	
feb08fri		fossil-fuels	p83-1,4,
4th tweek			
feb11mon		energy in human history	
feb13wed		heat-engines	
feb15fri		electric-power	p-119-8,9
5th tweek			
feb18mon		nuclear physics	
feb20wed		nuclear radiation	
feb22fri		inuclear stability	p143-2,3,5,6
6th tweek			
feb25mon		nuclear-reactors	
fe27wed		radiation safety	
7th tweek			
febfeb29fri		reactor safety	
mar03mon		clean -coal	
mar05wed		rev ex1	
mar07fri		EX1	p182-1,2,3,4
8th tweek			
mar10mon		renewable-energy	
mar12wed		hydroelectric	
mar14fri	beginspring recess	wind energy	
9th tweek			

	Comments	Topic	Prob assignment
8thweek			
mar24mon		heat transfer	
mar26wed		solar-radiation	p83-1,4,100
9th tweek			
mar28fri	solar-availability		
9th tweek			
mar31mon		flat-plate-col	
apr02wed		solar-passive	p211p-4,8
apr04fri		solar-concentrators	
apr07mon		photovoltaics	
10th tweek			
apr09wed		devices of modern electronics	
apr11fri		digital-revolution	
apr14mon		atmosphere & its pollution	
11th tweek			
apr16wed		ozone hole	
apr18fri			
apr21mon		global-warming	
apr23wed		energy conservation	
apr25fri		hydrogen fuel	
apr28mon		review EX2	
12th tweek			
apr30wed		EX2	
may02fri	TERMPAPERS	PROBLEM SOLUTIONS DUE	
may05mon		ishmael discussion	
may07wed		termpaper talks	
may09fri		last-class	evaluations