

ENVI 120 – Home Energy Basics

Term:	Fall 2011
Course Title:	Home Energy Basics
Dept. & Num:	ENVI120
Credits:	1
Prerequisites:	None
Dates:	TBD
Days and Times:	Fri 6pm-8pm, Sat 9am-6pm, Sun 9am-4pm
Location:	UAF BBC, Dillingham and Bristol Bay campuses

Instructor:	Dr. Tom Marsik
Office Location:	UAF Bristol Bay Campus, Room 117
Position:	Assistant Professor
Phone:	842-5109
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Hours Available:	Available during the days the course is offered

Required Text:	Material provided by instructor: 1) ; 2) Energy Savers: Tips on Saving Energy & Money at Home, DOE NREL, 2001 3) Selected parts (Part 2 – The balance sheet, Part III. Heating II) of Sustainable Energy – without the hot air by David J.C. MacKay, MIT Cambridge, 2008, ISBN 0786495445293-3. Available for Selected parts (Chapter 2 Building Science) of Alaska Residential Building Manual by Rich Seifert et al. UAF Cooperative Extension Service, 2008. Available free online from http://www.afc.state.ak.us/reference/alaska_residential_building_manual.cfm
Recommended Text:	Consumer Guide to Home Energy Savings, ACEEE, 2007

Course Description:

Basics of space heating and electricity use and production for Alaskan homes. Topics include fundamentals of physics related to home energy, lighting and appliances, energy bills, building science, retrofits, home renewable energy systems. Course emphasizes how to decrease fossil fuel consumption of homes.

Course Goals:

The general goals of this course are to provide education that will help students understand energy flows in a home and make educated decisions regarding home energy use and production.

Student Learning Outcomes:

- Upon successful completion of this course, the student will be able to
- Recognize basic science concepts (such as transformations between forms of energy) related to home energy flows.
 - Identify types of basic home energy monitoring tools and demonstrate their use
 - Discuss home energy improvement options with respect to both space heating and electricity.
 - Describe the procedure of setting up a renewable energy system for a home
 - Actively participate in setting up a residential scale solar/wind hybrid system

Instructional Methods:

- Lectures
- Project
- Discussions
- Homework
- Readings
- Handouts

Course Calendar:

Friday

6:00pm-7:00pm Course introduction

7:00pm-8:00pm Energy flows in a typical home and ways to affect the flows

Reading assignment: Read through the whole first book Energy Savers Tips for Rural Alaska

Saturday

9:00am-10:45am Basic physics related to energy, electricity and heat

10:45am-11:00am Break

11:00am-12:00pm Energy monitoring tools

12:00pm-1:00pm Understanding energy bills

1:00pm-2:00pm Lunch break

2:00pm-3:00pm Basic building science, air flow, moisture, condensation

3:00pm-3:45pm Home retrofits

3:45pm-4:00pm Break

4:00pm-6:00pm Lighting and appliances at home

Reading assignment: Read through the whole second book *Energy Savers: Tips on Saving Energy & Money at Home*

Sunday

9:00am-10:45am Home renewable energy, passive and active

10:45am-11:00am Break

11:00am-1:00pm Class project, setting up a solar/wind hybrid system

1:00pm-2:00pm Lunch break

2:00pm-3:00pm Review

3:00pm-4:00pm Final exam

Course Policies:

1. UAF requires students to conduct themselves honestly and responsibly, and to respect the rights of others.
2. Attendance is mandatory.
3. Late assignments will not be accepted without prior approval of instructor.
4. The instructor reserves the right to amend this course outline as needed.

Evaluation:

Final grades are calculated from the points earned in the following areas:

Attendance and Participation.....



are eligible, please visit <http://www.uaf.edu/chc/disability.html> on the web or contact a student affairs staff person at your nearest local campus. You can also contact Disability Services on the Fairbanks Campus at (907) 437-1450 or disso@uaf.edu