Objectives of Course
1. To provide a broad background for the non-science student with energy.
2. To present an overview of the interplay between energy and the nation’s environment and economy.
3. To develop an awareness of energy usage by the student on a personal basis.
4. To investigate conservation measures both for each individual and for the nation.
5. To discuss present research in energy.

Grades: Your term grade will be based on your performance on four tests (one/week), laboratory, and either a term paper, short oral presentation, or a laboratory project. The relative proportion of your grade of each is as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Tests</td>
<td>60%</td>
</tr>
<tr>
<td>Laboratory</td>
<td>25%</td>
</tr>
<tr>
<td>Short oral presentation, term paper, or laboratory project</td>
<td>15%</td>
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The Grading Scale is established by the following standards:

- Above 90%: A
- 87-89%: A-
- 84-86%: B+
- 80-83%: B
- 77-79%: B-
- 74-76%: C+
- 70-73%: C
- 67-69%: C-
- 64-66%: D+
- 60-63%: D
- Below 60%: F

Text:

Tests
Tests will be held normally on Thursdays and will last about 45 minutes. Everyone should have available a simple calculator. All tests will be closed book.

Laboratory
The tentative schedule includes six laboratories in the course: Excel programming and graphing, Heat & Temperature, Power, Personal Energy Usage, Energy Audit of a Building or Home, and Specific Heat Capacity.

Short Oral Presentation, Term Project, or Laboratory Project
You have an option for choosing any one of these for your remaining 15% credit for the course. However, please make a choice as to which of the three you prefer by Thursday, June 12.

The short oral presentation will be given before the class on an energy topic of special interest to you. The time of the presentation should not exceed 15 minutes with a short interlude of questions (and answers???) to follow. The presentations will be made most likely on Wednesday, June 25.

The term paper should be an energy topic of special interest to you. The length should be from 5 to 7 pages but should mainly be determined by how long it takes you to develop your topic. Include your sources at end, be sure to refer to your sources throughout your paper, and provide connection to our text and/or class discussion throughout. Include references at end of paper and connect as best you can to class. There will also be a “tough topic” component in grading. Term papers will be due no later than Wednesday, June 25.

A laboratory project can also be performed. You may work on this project at home and/or in the physics laboratory during the afternoons. I shall be happy to try to answer your questions and to provide encouragement along the way, but you will propose the project and will do the work. Due date is also Wednesday, June 25.

The proposal for the lab project and the topics or the short oral presentations and term papers should be approved (please!) by J. Artz no later than Thursday, June 19.

Office Hours and comments: I shall try to be available immediately before class for questions; and for sure, after class for approx. a half hour or as long as you have questions. IF YOU EVER HAVE CONCERNS, PROBLEMS, GRIPES, ETC. SEE ME, SEE ME, SEE ME! PLEASE DON’T EVEN THINK OF MISSING A SINGLE CLASS! THIS COURSE IS PACKED AND INTENSE with a wealth of material for life-long learning. GOOD LUCK, WORK HARD, AND HAVE FUN! J. Artz Office: RS 126, Office Phone #651-523-2256. (NOTE: We will try to have tutoring and student help available if requested.) My webpage: http://physics.hamline.edu/~jartz. My email: jartz@hamline.edu