Syllabus for Physics 1035 Energy
University of Minnesota Duluth, fall 2013
Class times and location:  M, W, F from 11:00 to 11:50 AM in MWAH 195
Professor:  Rik Gran  Office:  282 MWAH  Phone:  x7096  e-mail:  rgran@d.umn.edu
Office Hours:  Monday at noon, Wednesday at 3:30pm or by appointment.  To be confirmed.

Other reading material, outside the text, will be assigned from time to time.

All assignments and deadlines will be posted/updated on the course moodle website
Some assignments will also be submitted to that website, some on paper at beginning or end of class.

Energy is a fundamental topic for understanding both the natural and man made world. Will discuss
concepts of human production, transmission, storage, and utilization of energy, as well as how these
processes interact with natural pathways of energy such as the carbon cycle. Indeed, energy is the
fundamental building block of the Universe and everything in it.

Liberal Education Objectives:  successful completion of this course will develop and exercise abilities
in critical and creative thinking and in analytical methods applied problem solving and interpretation of
wide range of phenomena in the natural world as well as personal and public policy choices and
debates in this increasingly technological world  In addition, this course will satisfy the requirements
for a science course (without lab) and the sustainability concepts requirement.

Topics covered:  the principles of energy and energy conservation; sources and transmission of energy,
sustainable and unsustainable sources and use of energy.  These topics will be applied to systems
ranging from single atoms and simple mechanical systems, to global society, to the universe.

Headphone and cell phone use not permitted in class, except during certain group exercises.

Exams:  make up exams will be allowed only for verified emergencies.  There are two regular exams in
class and a comprehensive final exam on Thursday 19 December.  Exams are no book and no notes,
and will contain a combination of short answer, short calculation, long answer, and maybe multiple
choice questions.

Attendance:  attendance is required, because many class sessions will explore the issues with a
discussion style format. Attendance will be tracked through assignments turned in at the beginning or
at the end of class and graded as “class participation” on a yes/no scale. If you miss class, you miss the
points for those assignments, which will be worth the equivalent of a full letter grade.

Homework which is mostly reading:  The assigned reading should be done before class. The class will
not much be lecture that repeats the material from the text or other sources, it will be examples and
small & large group discussion that augment and probes the material and its consequences, or covers
local and regional examples of concepts in the book.

Homework which should be turned in:  Once a week, possibly more often, you will be assigned a set of
calculations or need to make quantitative argument about a topic or a choice or a controversy. The
assignment will be clear whether it should be turned in on paper in class or submitted electronically.
There will also be some in-class assignments or you will turn in a summary of group discussions.  Late
work will not be accepted, if you know you have a conflict with a due date, turn your work in early.

Grading scale:  
- A 90-100  
- A- 87-89  
- B+ 84-86  
- B 80-83  
- B- 77-79  
- C+ 74-76  
- C 70-73  
- C- 67-69  
- D+ 64-66  
- D 60-63  
- F 0-59%

Grading: assignments 30%, exams 60%, class participation 10%.

The basic rubric for grading assignments: Written work that is outstanding will present a well reasoned (not necessarily long) quantitative argument or interpretation of the question, and demonstrate insight beyond the simplest statement of the question or the related material from the reading. Work that is average will have a quantitatively substantive argument or interpretation, but probably addresses only the basic question. Work that is poor will have some attempt at an argument or interpretation with an incorrect or absent quantitative component, or will have the substance of average work but be poorly written. Many assignments will be graded on a 3-2-1-0 scale that corresponds to these thresholds. Students who aim to get an A or a high B in this course will need to be submitting outstanding work consistently after the first couple weeks. Notice that consistently average work will be good enough for a C, but consistently poor work will not be adequate to pass the class.

Mathematics: you will need to be able to do basic one-step algebra and calculations involving area, volume, density, rate, and averages. How to read a graph is important, including the ability to see and quantify the best fit line, linear slopes, quadratics, and exponentials, and draw conclusions.

Special needs: individuals who have a disability, either permanent or temporary, which might affect their ability to perform in this class are encouraged to inform the instructor.

Student Conduct Code:  
Appropriate classroom conduct promotes an environment of academic achievement and integrity. Disruptive classroom behavior that substantially or repeatedly interrupts either the instructor's ability to teach, or student learning, is prohibited. Student are expected adhere to Board of Regents Policy: Student Conduct Code:  
http://www1.umn.edu/regents/policies/academic/Student_Conduct_Code.pdf

Teaching & Learning: Instructor and Student Responsibilities:  
UMD is committed to providing a positive, safe, and inclusive place for all who study and work here. Instructors and students have mutual responsibility to insure that the environment in all of these settings supports teaching and learning, is respectful of the rights and freedoms of all members, and promotes a civil and open exchange of ideas. To reference the full policy please see: http://www.d.umn.edu/vcaa/TeachingLearning.html

Academic Integrity:  
Academic dishonesty tarnishes UMD’s reputation and discredits the accomplishments of students. Academic dishonesty is regarded as a serious offense by all members of the academic community. UMD’s Student Academic Integrity Policy can be found at: http://www.d.umn.edu/conduct/integrity/

Excused Absences:  
Students are expected to attend all scheduled class meetings. It is the responsibility of students to plan their schedules to avoid excessive conflict with course requirements. However, there are legitimate and verifiable circumstances that lead to excused student absence from the classroom. These are subpoenas, jury duty, military duty, religious observances, illness, bereavement for immediate family, and NCAA varsity intercollegiate athletics. For complete information, please see: http://www.d.umn.edu/vcaa/ExcusedAbsence.html

Appropriate Student Use of Class Notes and Course Materials:  
Taking notes is a means of recording information but more importantly of personally absorbing and integrating the educational experience. However, broadly disseminating class notes beyond the classroom community or accepting compensation for taking and distributing classroom notes undermines instructor interests in their intellectual work product while not substantially furthering instructor and student interests in effective learning. For additional information, please see: http://www.d.umn.edu/vcaa/ClassNotesAppropriateUseof.html