

PHYSICS 100: *Energy in Today's World*

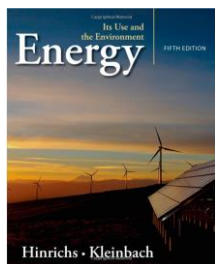
Spring 2017 [Schedule](#) Online Syllabus: <http://www.uwsp.edu/physastr/Documents/kmenning/Physics100.pdf>
 WebAssign: <https://www.webassign.net/login.html> [WebAssign Hints](#)

Instructor:	Dr. Ken Menningen	Office hours:	<u>M</u>	<u>T</u>	<u>W</u>	<u>R</u>	<u>F</u>
Office:	B101 Science Building	9:00am – 9:50am	☺	☺	☺	☺	☺
Phone:	(715) 346-4871	11:00am – 11:50am	☺	☺		☺	
		1:00pm – 1:50pm		☺		☺	
email:	Ken.Menningen@uwsp.edu	By appointment	☺	☺	☺	☺	☺

Course Prerequisites: none

Required text: *Energy: Its Use and the Environment*, Hinrichs and Kleinbach, 5th edition (available at Text Rental)

Other required materials: Scientific calculator (graphing capability is **not** necessary), and a laboratory manual (purchase at bookstore \$8). Recommended materials include a [WebAssign](#) access code (provided via special course fee), and a [TurningPoint QT Device](#) (“clicker”) that requires an \$8 lease.



Course Objectives: *Energy in Today's world* is a fast-paced course offering a survey of the physics of energy and its impact on society. Upon completing this course you should be able to:

- Explain the fundamental concepts of the physics of energy
- Use algebra and graphs to explain measurements and make predictions
- Describe the issues surrounding energy production, storage, and use
- Explain ways you can personally change your energy footprint

General Education: This course satisfies the learning outcomes for the [Quantitative Literacy](#) component of the general education program. Upon completing this course you should be able to:

- Select, analyze, and interpret appropriate numerical data used in everyday life in numerical and graphical format.
- Identify and apply appropriate strategies of quantitative problem solving in theoretical and practical applications.
- Construct a conclusion using quantitative justification.

This course also satisfies the learning outcomes for the [Environmental Responsibility](#) component of the general education program. Upon completing this course you should be able to:

- Recognize areas of interaction between human society and the natural environment.
- Identify the individual, social, cultural, and ecological factors that influence environmental sustainability.
- Evaluate competing scientific claims that inform environmental debates.

Attendance: Attendance is not required but it is a disadvantage to miss any lectures because the lectures, demonstrations, and in-class activities will greatly enhance your ability to understand the material. There will often be quizzes or assignments done in class that are worth points. If you are ill, please contact me *before class* to make arrangements. Late quizzes are not allowed without permission, but I drop the lowest quiz grade. Late exams are not allowed, but in special cases, and with my permission, you may take an exam early.

Grading policy: The grade you earn in this class will be based upon the five assignment types listed below. A grading scale is also given for your reference. Grades are not curved, encouraging you to work together, but I expect each student to hand in their own work. The lowest lab, homework and in-class grades will be dropped at the end of the semester.

Grading Scale		Grade Breakdown	
<u>Letter</u>	<u>Score</u>	<u>Assignment</u>	<u>Weight</u>
A	90-100	Midterm exams	30%
B	75-89	Final exam	20%
C	60-74	Homework	15%
D	50-59	In-class work	10%
F	0-49	Labs	25%

Exams: Midterm exams are scheduled to occur on **February 22, March 29, and April 26**. These dates may change but it's not likely. The comprehensive final exam is scheduled for **Tuesday, May 16 at 2:45 pm**.

Homework: Two types of assignments go into the homework category. The **chapter assignments** will be handed in using the [WebAssign](#) system that allows multiple submissions and gives instant feedback but will not allow late entries. There may also be questions about occasional **news articles** that I will ask you to read. To avoid a zero for late homework you must warn me by phone or email **before they are due** and make special arrangements. If you are too ill to complete the assignment, please see a doctor, and have the doctor write a note of excuse. You should not believe that the homework problems are sufficient practice for the exam. Instead I recommend that you work out at least five additional problems for each chapter from the text, and review the in-class questions that are posted on the internet.

In-class work: During nearly every lecture I will present some **response questions** for which you may earn points by using the TurningPoint system. The [TurningPoint clickers](#) are available for an **\$8 rental fee**. This semester lease fee will be automatically added to your UWSP student bill. You will need your UWSP Student ID to lease a clicker. Clickers are available through UWSP's IT Service Desk, located in the basement of the LRC, room 023 ([hours](#)).

Labs: The lab grades will be determined from in-lab assessments such as a graph that you have prepared or your answers to some questions. The labs are designed to illustrate and expand upon the topics we cover in the lecture portion of the course. Make sure you complete the entire lab and that you understand the concepts underlying the lab activity.

Course Schedule: For a detailed course schedule with links to lecture content, see the [online course schedule](#).

<u>Week</u>	<u>Chs</u>	<u>Description</u>
Unit I: Mechanical and Thermal Energy		
1	2	Mechanical Energy
2	3	Conservation of energy
3	4	Heat and the First Law
4	4	Heat Engines and the Second Law
<u>Exam I: Wednesday, February 22; Chs. 2, 3, 4</u>		
Unit II: Electrical and Nuclear Energy		
5	10	Electric circuits
6	10,11	Electromagnetism
7	11	Production and distribution of electricity
8	13,14	Radioactive decay and nuclear fission
<u>Exam II: Wednesday, March 29; Chs. 10, 11, 13, 14</u>		
Unit III: Fossil Fuels and Solar Energy		
9	7	Energy from fossil fuels
10	8,9	Environmental consequences
11	6,12	Solar thermal and electrical energy
12	12	Wind energy
<u>Exam III: Wednesday, April 26; Chs. 6, 7, 8, 9, 12</u>		
Unit IV: Future Energy Sources		
13	17,18	Biomass and geothermal energy
14	10,16	Nuclear fusion and fuel cells
15		The hydrogen economy
<u>Final Exam: Tuesday, May 16; Chs. 16-18 and comprehensive</u>		

Community Rights & Responsibilities:

Students with special needs should contact the [Disability and Assistive Technology Center](#) during the first two weeks of the semester in order to request accommodation. An [Exam Accommodation Request Form](#) is available online. Religious beliefs will be accommodated according to UWS 22.03 as long as the student notifies the instructor about the conflict within the first three weeks of class. Students are expected to maintain the highest standards of academic integrity for their work in this course. The University of Wisconsin-Stevens Point dedicated to a safe, supportive and non-discriminatory learning environment. It is the responsibility of all students to familiarize themselves with University policies regarding special accommodations, misconduct, religious beliefs accommodation, discrimination and absence for university sponsored events. (For details please refer to the [Community Rights & Responsibilities](#) documents, including the [Student Academic Standards and Disciplinary Procedures](#) document.)