

**Bergen Community College**  
**Division of Mathematics, Science and Technology**  
**Department of Physical Sciences**  
**Course Syllabus**  
**Energy and Society – PHY 100**

Semester and year:

Course Number:

Meeting Times and Locations:

Instructor:

Office Location:

Phone:

Office Hours:

Email Address:

**COURSE DESCRIPTION:** This course provides an overview of the nature of energy, its uses, and its effect on the individual, society and the environment. The course will explore the use of energy in contemporary society and the development of renewable energy technologies. Emphasis is placed on conservation, energy efficiency, renewable energy sources and technologies that can be utilized to create a sustainable energy society. The laboratory part of the course will involve service learning projects that make direct contributions to creating a more sustainable environment at BCC and/or in the surrounding community.

**CREDITS/HOURS:** 4 credits {3 hr. lecture (3cr.) & 3 hr. lab (1 cr.)}

**PREREQUISITES AND CO-REQUISITES:** MAT - 011

**GENERAL EDUCATION COURSE:** Yes

**COURSE CONTENT:**

**TEXTBOOK:**

Energy, Environment and Climate: 3<sup>rd</sup> edition, Copyright 2018; Richard Wolfson; W.W. Norton Publishing; ISBN: 978-0-393-62291-1

Because it is a copyright violation, scans of the required textbook will not be posted online, nor e-mailed to you. This course is heavily dependent on the textbook. You must get the 3<sup>rd</sup> edition because most quizzes, assignments, and laboratory experiments refer to specific material in it. You do not need to purchase a new copy of the textbook. There are copies of the required textbook on reserve in the [BCC Library](#), which you can check out for one hour at a time.

**Laboratory Manual and equipment:** Provided by instructor

**Lecture Topics and Laboratory Activities:**  
**Tentative Schedule:**

<b>Week Number</b>	<b>Topic</b>	<b>Lecture Topics</b>	<b>Laboratory Activities</b>
1	1	Getting Started	Lab 1: A Mathematics Review
2	2	Intro to Energy – Part 1 (Preliminary Definition and History), Chapter 1	Lab 1A: Measuring Your Home Lab 2: Measurement Devices
3, 4, 5	3	Intro to Energy – Part 2 (Conservation Laws, Forms of Energy, Conversion of Energy, Heat and Work), Chapters 2, 3, 4	Lab 3: Analyzing Your Home Electricity Consumption Lab 4: Analyzing Your Home Heating
6, 7	4	Home Energy and Solar Energy, Chapters 5, 6	Lab 5: Solar Cells and Solar Electricity
8, 9	5	Fossil Fuel Energy and Consequences, Chapters 7, 8, 9	Lab 6: Tour of Meadowlands
10	6	Electricity: Generation and Transmission, Chapters 10, 11	Lab 7: Conservation of Energy
11	7	Electricity from Solar, Wind and Hydro Power, Chapter 12:	Lab 8: Electrical Circuits and Magnetism
12,13	8	Nuclear Fission Power, Fusion Chapters 13, 14, 15, 16	Lab 9: Heat and Work
14	9	Fusion, Biomass and Geothermal Power, Chapters 17, 18	Lab 10: Global Warming and Your Carbon Dioxide Footprint
15	10	Energy and Your Role, Chapter 19	Service Learning Project Report

**Graded Work for the Course:**

Quizzes (15% of course grade) - There are ten online quizzes. The quizzes are based on the chapters of the textbook. They are open-note and open-book but are timed with a 30 – 45 minute limit.

Discussions (10% of course grade) - There will be several Discussions throughout the semester concerning issues related to the reading material in the textbook as well as laboratory assignments and other classroom activities.

Laboratory Reports (25% of course grade) - Lab reports must be handed in one week after the experiment was performed. The lowest lab grade will be dropped. However, failure to submit a minimum of 70% of laboratory reports with a grade of 60 or better will result in automatic failure for the course.

Essays (15% of course grade) – Several short essays shall be required throughout the course. They will be checked by [Turnitin®](#) for plagiarism. If plagiarism is found, Bergen Community College’s plagiarism policy will be enforced and the student will receive a grade of F for the course.

Term Paper (20% of total grade) - A term paper written on a subject related to Energy and Society is required. This paper must be original, submitted electronically by the assigned deadline, and be in MLA format. It will be checked by [Turnitin®](#) for plagiarism. If plagiarism is found, Bergen Community College’s plagiarism policy will be enforced and the student will receive a grade of F for the course.

Service Learning Project and Discussion (15% of total grade) – Students are required to perform a semester long service learning project that makes a direct contribution toward creating a more sustainable environment at BCC and/or in the surrounding community. Students are graded on the quality of their project and the quality of their online discussion of it.

Opportunities for extra credit may be provided by the instructor throughout the course.

### **Instructor’s grading policy:**

**Late laboratory reports that are late by no more than one week will be penalized by 20%. After one week of lateness a laboratory report is no longer accepted. No late quizzes or discussions are available. Late essays and term papers are not accepted. The link to submit a quiz, essay or discussion will disappear after the deadline, so make sure you don’t wait until the last minute. There can be no incomplete grade for the course.**

### **Grading scheme:**

The student’s numeric course grade is computed by the following weighted average:

Numeric Course Grade = (0.15×Quiz Average) + (0.10× Discussions Average) + (0.25×Laboratory Reports Average) + (0.15×Essay Average) + (0.20×Term Paper Grade) + (0.15×Service Learning Project and Discussion) + Extra Credit. This numeric weighted average is then converted to a lettered course grade according to the following:

A	90 - 100
B+	87 - 89.9
B	80 - 86.9
C+	77 - 79.9
C	70 - 76.9
D	65 - 69.9
F	0 - 64.9

### **OTHER REQUIREMENTS:**

A scientific calculator is required. Cell phones cannot be used for calculations.

**ATTENDANCE/LATENESS POLICY:**

Be on time! Safety guidelines are discussed at the beginning of the lab, therefore, will not guarantee inclusion into a lab group. **Missed labs cannot be made up.**

**Communication Policies:**

All assignments and communication related to the course should be transmitted to me using either email or the Moodle messaging tool. Include specific information in the “Subject” line of your message about the content of your message. Assignments should be submitted through Moodle.

From Monday through Friday, you should usually expect a response to your questions within 24 hours. On Saturday and Sunday, my responses will most likely be a little slower. You may meet with me in person during the office hours indicated at the top of this syllabus.

Please treat each other with kindness and civility in all course communication. Having a spirited debate is okay; treating others with disrespect in a discussion is not. This will result in a score of zero for that discussion. A future infraction will result in a zero score for all discussions.

**Additional Hardware and Computer Software You Need:**

You must obtain or borrow a digital imaging camera to document laboratory procedures and a service learning project. The camera should have a flash. Most cell phone cameras will be of adequate quality.

You may also wish to obtain or borrow a digital video camera to service learning project. These may be uploaded to [YouTube](#) and linked to during the course discussions on these topics.

Most computers have Adobe Reader installed to view PDF files but if you don't have it on your computer, you can download it for free from [www.adobe.com](http://www.adobe.com).

Laboratory reports, essays and term papers will need document processing. You may use [Word](#), or the free document editing software of [OpenOffice](#) or [Google Docs](#).

Laboratory reports, essays and term papers will also require the graphical plotting of data. You may use [Excel](#) or [OpenOffice](#) for these.

Some Laboratory Reports will require 2-D and 3-D drawings. You may do these by hand, and scan them, and insert them into your lab report.

**OTHER POLICIES:**

**Electronic Devices:** The use of portable electronic devices such as cell phones is not permitted while class is in session. Please silence these devices before entering class.

**STUDENT AND FACULTY SUPPORT SERVICES:**

Bergen Community College aims to create inclusive learning environments where all students have maximum opportunities for success. Any student who feels he or she may need an accommodation based on the impact of a disability should contact the Office of Specialized Services at 201-612-5269 or via email at [ossinfo@bergen.edu](mailto:ossinfo@bergen.edu) for assistance.

The [Writing Center](#) will help you improve your writing for the assignments you will have in this class and is located in the main building in Room C-110.

The [Online Writing Lab \(OWL\)](#) is an extension of the Writing Center and includes links to web sites for improving writing.

Students experiencing difficulty with the arithmetic or problem solving aspects of this course should acquaint themselves with the services of the [Tutoring Center](#). Also, free online tutoring is available through [Smarthinking](#). The [Tutoring Center](#) offers free tutoring, supplemental instruction, and online tutoring for all subjects offered at BCC. It is located in Room L-125, or you can call them at (201) 447-7489.

The [BCC Library](#) is an excellent resource with outstanding staff to help you with your research needs. In addition to the books, magazines, videos, etc., available in the library, students with a current BCC ID number can access a broad range of electronic databases from home by going to the library web site.

In person office hours may be a productive vehicle for assistance in understanding the course material. You may meet with your instructor in person during the office hours indicated at the top of this syllabus.

### **Bergen Community College** **Core Competencies**

<u>Competency</u>	<u>Student Learning Objectives</u>
1. Communication	5, 14, 16, 22
2. Quantitative Reasoning	4, 5, 7, 17, 21
3. Critical Thinking	1, 2, 5, 6, 7, 8, 11, 16, 19
4. Civic Responsibility	12, 22, 23
5. Technological and Information Fluency	6, 19
6. Personal Skills	9, 14, 16
7. Interpersonal Skills	23
8. Applied Knowledge	3, 9, 13, 14, 17
9. Creativity and Aesthetic Appreciation	15, 18, 23

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All BCC students enrolled in credit courses are entitled to a WebAdvisor account. With WebAdvisor, you may register online, check your schedule, room assignments, GPA, and find out what courses you need to take. To find out more about WebAdvisor or to sign up online, visit <http://go.bergen.edu>! While there, please make sure you give us your preferred email address. You'll find directions how to do this at <http://go.bergen.edu/email>