

EVSP320

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Course Summary

Course : EVSP320 **Title :** Energy and Resource Sustainability

Length of Course : 8

Prerequisites : **Credit Hours :** 3

Description

Course Description: This course will introduce students to current and future trends in energy technology, policy, and sustainability. It will address topics such as resource sustainability, relevant aspects of economics, sociology of innovation diffusion, product design principles, and the environmental impacts of existing and emerging energy technologies. Analysis of the range of current and future energy choices will be stressed, as well as the role of energy in determining local environmental conditions and the global climate.

Course Scope:

This course will explore the principles of energy and resource sustainability in the United States. The student will learn the fundamentals of renewable energy through the use of case studies. The student will be challenged to assess current success and viability of various types of renewable energy at the end of this course.

Objectives

After successfully completing this course, you will be able to:

- LO-1 List the primary physical, technical, and societal factors related to energy supply and demand issues.
 - LO-2 Evaluate important impacts of current and emerging energy technologies.
 - LO-3 Examine key strategies for the development of more sustainable energy systems.
 - LO-4 Describe factors influencing strategies and choices in the implementation of more sustainable energy systems.
 - LO-5 Analyze the implications of energy decisions from a variety of standpoints (environmental, economic, social, cultural).
 - LO-6 Explain the concepts and theory of resource sustainability and their application.
 - LO-7 Analyze current scientific literature related to energy and resource sustainability.
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Outline

Week 1: An Overview U.S. Energy Issues

Learning Objectives

LO-7.

Readings

Reading Assignment #1:

Bent, Orr, and Baker (2002) - Introduction

***The Myth of Energy Independence*, US News & World Report**

Read and respond to Forum #1 in the Forums tool.

Assignments

Forum: Virtual Introduction

AND

Forum #1

Week 2: World Energy Needs and Resources

Learning Objectives

LO-1.

LO-2.

LO-3.

LO-5.

LO-7

Readings

Reading Assignment #2:

Bent, Orr, and Baker (2002) - Chapters 1 & 2

***Geothermal Energy From the Earth: Its Potential Impact as an Environmentally Sustainable Resource*, Mock et.al, 1997.**

Assignments

Forum #2

Renewable Energy Case Study I

Week 3: Environmental Impacts of Energy Use

Learning Objectives

LO-2.

LO-3.

LO-5.

LO-7.

Readings

Reading Assignment #3:

Bent, Orr, and Baker (2002) - Chapter 3

Environmental Impacts of Renewable Energy Technologies, Union of Concerned Scientists

GAO Report: *Impacts of Wind Power on Wildlife*

Wind Energy Resource Atlas of the United States

Assignments

Forum #3

Submit Final Research Paper Topic for approval

Renewable Energy Case Study II

Week 4: Culture and Energy Consumption

Learning Objectives

LO-1.

LO-4.

LO-6.

Readings

Reading Assignment # 4:

Bent, Orr, and Baker (2002) - Chapter 4

Focus: Wave, Kinetic, and Tidal Energy

Scientific American: *It Came From the Sea—Renewable Energy, That Is, Tidal Energy*, Gorlov (2001).

Assignments

Forum #4

MIDTERM ASSIGNMENT DUE

Week 5: Energy Policy and Public Perception

Learning Objectives

LO-6.

Readings

Reading Assignment # 5:

Bent, Orr, and Baker (2002) - Chapter 5

Focus: Fossil Fuel: Oil, Coal & Gas Energy

Coal Power in a Warming World, Union of Concerned Scientists,

Clean Fossil-Fuelled Power Generation, Oliver (2008).

Assignments

Forum #5

Final Research Paper Outline

DUE

Week 6: Energy and Sustainable Growth

Learning Objectives

LO-2.

LO-3.

LO-5.

LO-6.

LO-7.

Readings

Reading Assignment # 6:

Bent, Orr, and Baker (2002) - Chapter 6

Course Materials Folder – Readings Week 6:

Nuclear Power in a Warming World, Union of Concerned Scientists

Assignments

Forum #6

Renewable Energy Case Study III

Week 7: Energy Security Our Energy Future

Learning Objectives

LO-2.

LO-3.

LO-5.

LO-7.

Readings

Reading Assignment # 7:

Bent, Orr, and Baker (2002) - Chapter 7 and Conclusion

GAO Report: *Biofuels – DOE Lacks a Strategic Approach*

Biofuels – Transporting Us to a Fossil-Free Future? Bank Sarasin Report.

Assignments

Forum #7

Renewable Energy Case Study IV

Week 8: Synthesis

Learning Objectives

LO-2.

LO-3.

LO-5.

LO-7.

Readings

Reading Assignment # 8:

Focus: Hydrogen Energy

Sustainable Hydrogen Economy, Turner, 2004.

Assignments

Forum #8

FINAL RESEARCH PAPER DUE

Evaluation

Grades for this course will be based upon 17 graded assignments. There is one weekly discussion question that is provided in the **Forums** except for Week 1, where there are 2 Forums to which to respond. The student will respond to the posting of at least two other students or the instructor. Initial posts must be a minimum of 250 words in length and must be cited with legitimate academic sources. Students are expected to submit senior level academic work for all assignments and written communications.

Students that do not have Excel, PowerPoint or Word may download free software at openoffice.org that is

compatible with the MS programs.

The grade instruments, points assigned to each instrument and relative percentage of final grade, are provided below.

Grade Instruments: % of Final Grade

Forums (8) 40 %

Assignments (4) 20 %

Quizzes (4) 20 %

Final Assessment 20 %

100 %

Grading:

Name	Grade %
Forums	24.00 %
Forum 1	3.00 %
Forum 2	3.00 %
Forum 3	3.00 %
Forum 4	3.00 %
Forum 5	3.00 %
Forum 6	3.00 %
Forum 7	3.00 %
Forum 8	3.00 %
Case Studies	40.00 %
Geothermal Energy	10.00 %
Wind Energy	10.00 %
Nuclear Energy	10.00 %
Biomass Energy	10.00 %
Midterm Assignment	10.00 %
Midterm	10.00 %
Final Paper Outline	6.00 %
Research Paper Outline	6.00 %
Final Research Paper	20.00 %
Final Research Paper	20.00 %

Materials

Book Title: Energy: Science, Policy, and the Pursuit of Sustainability-E-book available in the APUS Online Library

Author: Bent, Robert / Orr, Lloyd / Baker, Randall (Eds.)

Publication Info: Island Press

ISBN: 9781559639118

Book Title: To find the library e-book(s) req'd for your course, please visit <http://apus.libguides.com/er.php> to locate the eReserve by course #. You must be logged in to eCampus first to access the links.

Author: N/A

Publication Info: N/A

ISBN: N/A

Additional Resources

This course will also use web resources, original research papers, and instructor-provided papers and documents as supplemental course materials.

Websites

Please abide by the university's academic honesty policy when using Internet sources as well. Note web site addresses are subject to change.

Films:

The 11th Hour <http://11thhouraction.com/seethefilm>

An Inconvenient Truth <http://www.climatecrisis.net/>

Science Magazine's Special Energy and Sustainability issue, February 9, 2007

<http://www.sciencemag.org/sciext/sustainability/>

Free Online Books and Reports:

The National Academies Summit on America's Energy Future: http://www.nap.edu/catalog.php?record_id=12450

Our Common Journey: A Transition Toward Sustainability:

http://www.nap.edu/catalog.php?record_id=9690

Transitions to Alternative Transportation Technologies--A Focus on Hydrogen:

http://www.nap.edu/catalog.php?record_id=12222

Other Reading Materials:

Scientific American, Special Issue "Energy's Future," Vol. 295, No.3, September 2006.

C. Morris, "Energy Switch," 2006.

J. Farley, J. Erickson, H. E. Daly, "Ecological Economics: A Workbook for Problem-Based Learning," 2005

B. J. Hanson, "Energy Power Shift," 2004.

E. S. Cassedy and P. Z. Grossman, "Introduction to Energy," 1998.

J. Gever, R. Kaufmann, D. Skole, C. Vörösmarty, "Beyond Oil," 1987.

D. Yergin, "The Prize," 1991.

W. Sachs, "For Love of the Automobile: Looking Back into the History of Our Desires," 1992.

J. J. Kraushaar and R. A. Ristinen, "Energy and Problems of a Technical Society," 1993.

Scientific American, Special Issue "Energy for Planet Earth," Vol. 263, No.3, September 1990.

Residential and Commercial Energy Conservation - <http://hes.lbl.gov/>; <http://www.usgbc.org/>;
<http://www.eere.energy.gov/buildings/>; http://www.eere.energy.gov/features/dept_energy.html

Oil Addiction and Global Warming - <http://news.bbc.co.uk/2/hi/science/nature/6532323.stm>;
<http://www.ipcc.ch/>

Hydrogen Economy and Fuel Cells - <http://www1.eere.energy.gov/hydrogenandfuelcells/>

Renewable Energy Technologies 1 (Introduction and Biomass Power) - <http://www.nrel.gov/learning/> ;
http://www.nrel.gov/learning/re_biomass.html; http://www.biomassenergycentre.org.uk/portal/page?_pageid=73.1&_dad=portal&_schema=PORTAL

Renewable Energy Technologies 2 (Solar Power) http://www.nrel.gov/learning/re_solar.html;
<http://www.ases.org/>

Renewable Energy Technologies 3 (Wind Power) http://www.nrel.gov/learning/re_wind.html;
<http://www.world-wind-energy.info/>

Websites for Energy Savings in All Sectors - http://www.eia.doe.gov/emeu/efficiency/energy_savings.htm

Transportation Energy Conservation- <http://www.fueleconomy.gov/feg/why.shtml>;
http://www.teslamotors.com/display_data/twentyfirstcenturycar.pdf

Crossword Puzzles:

http://www.energyquest.ca.gov/games/crossword_puzzles/

Course Guidelines

Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Tutoring

- [Tutor.com](http://www.tutor.com) offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

Late Assignments

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 20% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

Submission Guidelines

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

Disclaimer Statement

- Course content may vary from the outline to meet the needs of this particular group.

Communicating on the Forum

- Forums are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the forum. The purpose of the forums is to actively participate in an on-going discussion about the assigned content.
- “Substantive” means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says “I agree” is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting view points, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

University Policies

[Student Handbook](#)

- [Drop/Withdrawal policy](#)
- [Extension Requests](#)
- [Academic Probation](#)
- [Appeals](#)
- [Disability Accommodations](#)

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