

LSC Use Only - Proposal No:

LJWJCC Use Only - Proposal No: 12-203

Prerequisites (if all that apply)

new Course#

Course Prefix and name

Section#

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I. CATALOG DESCRIPTION

PHYS 101 Energy and Our Environment

3c-01-3cr

An overview of the areas of energy, transportation, and pollution. These topics are approached via the relevant concepts of physical science and physics. A non-laboratory course for Liberal Studies requirements.

Course Syllabus

II. COURSE OBJECTIVES

Students will:

Objective 1:

Discuss issues associated with specific energy sources and their effect on the environment.

EUSLO 1:

Informed Learners

Rationale:

Review of articles as well as homework assignments will highlight important environmental issues. Students will describe these issues in written reviews as well as written homework assignments. Students will demonstrate knowledge and understanding of the interrelationships within and across disciplines in

the field of energy. Knowledge of energy use and production makes a learner informed.

Objective 2:

Relate physics concepts to environmental issues

EUSLO 1 and 2:

Objective 5:

Discuss the possible environmental conditions that would arise from various scenarios.

EUSLO 2 and 3:

Empowered Learners and Responsible Learners

Rationale:

PHYS 101 Energy and Our Environment – Modification to meet the new Liberal Studies curriculum

- 4. Waste Storage
- 5. Coal fired power plants
- 6. Relative Risks
- F. Alternate Energy Sources (4 hours)
 - 1. Solar
 - a. domestic applications
 - b. large systems / electricity
 - 2. Hydroelectric
 - 3. Wind
 - 4. Ocean / Tides
 - 5. Geothermal
 - 6. Storage of energy

- 2. Efficiency of appliances
- 3. Waste heat recovery
- 4. Recycling / Waste disposal/Incineration
- H. Plant and Food Production (4 hours)
 - 1. Photosynthesis
 - 2. Feeding the world's population
 - 3. Fuel from Biomass
- I. Transportation (4 hours)
 - 1. System needs: fuels, people, and freight
 - 2. System efficiencies: routing, mass transit
 - 3. Trucking, railroads, and air transport
- J. Production of Land, Air, and Water pollutants and their Effect (4 hours)
 - 1. Carbon Monoxide
 - 2. Nitrous oxide
 - 3. Photochemical smog
 - 4. Sulfur Dioxide

- 5. Carbon dioxide
- 6. Global warming

Terminating activity - paper submission and review (2 hours)

V. GRADING SCALE

A: $\geq 90\%$ B: 80-89% C: 70-79% D: 60-69% F: $<60\%$

VI. ATTENDANCE POLICY

Course attendance policy will be consistent with the Undergraduate Attendance Policy in the IUP Undergraduate Catalog.

VII. REQUIRED TEXTBOOKS, SUPPLEMENTAL BOOKS AND READINGS

Text Book

Energy: Its Use and the Environment, 5th Edition, Roger A. Hinrichs - State University of New York,
Orville Martin H. Kleinbeck - State University of New York, Ousey ISBN 10: 0405010955 ISBN 13:

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Troy, Austin *The Very Hungry City: Urban Energy Efficiency and the Economic Fate of Cities* (2014)
Yale University Press

Wolfram, Richard *Energy, Environment, and Climate* (2011) W. W. Norton & Company

Overview of changes from original syllabus of record – updating to new curriculum

The only significant change for this class is rewriting the objectives to be student-centered and mapping



PHYS 101: Energy and Our Environment - Modification to meet the Sustainability

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	3 points	2 points	1 point	Criteria
by unique local capabilities	All articles are described.	Only some articles are described.	No article	Dist. Spec. is st
ious types of	All energy types are	Some of the energy	No comparison of	Summarize the vas
single sources at times	... compared	sources are compared	... energy sources	... energy
collection of articles				



Liberal Studies Course Approval Checklist Instruction Sheet

Use this checklist for all Liberal Studies categories other than writing-intensive sections; a different checklist is available for this. If you have questions, contact the Liberal Studies Office, 103 Gull Hall.

telephone 357-5715

This checklist is intended to assist you in developing your course to meet IUP's Criteria for Liberal Studies and to arrange your proposal in a standard order for consideration by the Liberal Studies

Liberal Studies Course Approval General Information

On a separate sheet of paper, please answer these questions

(Do not include this sheet or copies of the questions in your proposal; submit only the answers)

- 1) There has been only section of this class offered since its inception, and there will continue to be only one section for the foreseeable future.