

UC 10512 09F

CBM003 ADD/CHANGE FORM

APPROVED DEC 9 2009

Undergraduate Council
 New Course Course Change
 Core Category: Nat Sci Effective Fall 2010

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or

Graduate/Professional Studies Council
 New Course Course Change
 Effective Fall _____

RECEIVED OCT 16 2009

1. Department: PHYS College: NSM
2. Faculty Contact Person: Gorman Telephone: 33558 Email: gorman@uh.edu
3. Course Information on New/Revised course:
 - Instructional Area / Course Number / Long Course Title:
PHYS / 1307 / Physics of Energy and Climate in the 21st Century
 - Instructional Area / Course Number / Short Course Title (30 characters max.)
PHYS / 1307 / PHYSICS OF ENERGY
 - SCH: 3.00 Level: FR CIP Code: 40.0801.00 Lect Hrs: 3 Lab Hrs: 0
4. Justification for adding/changing course: To provide for new discipline areas
5. Was the proposed/revised course previously offered as a special topics course? Yes No
 If Yes, please complete:
 - Instructional Area / Course Number / Long Course Title:
____ / ____ / ____
 - Course ID: _____ Effective Date (currently active row): _____
6. Authorized Degree Program(s): _____
 - Does this course affect major/minor requirements in the College/Department? Yes No
 - Does this course affect major/minor requirements in other Colleges/Departments? Yes No
 - Can the course be repeated for credit? Yes No (if yes, include in course description)
7. Grade Option: Letter (A, B, C ...) Instruction Type: lecture ONLY (Note: Lect/Lab info. must match item 3, above.)
8. If this form involves a change to an existing course, please obtain the following information from the course inventory: Instructional Area / Course Number / Long Course Title
 ____ / ____ / ____
 • Course ID: _____ Effective Date (currently active row): _____
9. Proposed Catalog Description: (If there are no prerequisites, type in "none".)
 Cr: 3. (3-0). Prerequisites: Math 1310. Description (30 words max.): Physics principles of mechanics, thermodynamics, electricity, and magnetism as they relate to the problems of energy and climate in the 21st century.

10. Dean's Signature: _____ Date: 13 Oct '09
 Print/Type Name: Dean John Bear

U N I V E R S I T Y of H O U S T O N

CORE CURRICULUM COURSE REQUEST

Originating Department/College: Natural Sciences and Mathematics

Person making request: Michael Gorman Telephone: 713-743-3538

E-mail: gorman@uh.edu

Dean's signature: _____ Date: _____

I. General Information:

Course number and title: Phys 1307 - Physics of Energy in the 21st Century

Catalog description must be included on completed CBM 003 form and attached to this document.

Physics principles of mechanics, thermodynamics, electricity, and magnetism as they relate to the problems of energy and climate in the 21st century.

Category of Core for which course is being proposed (mark only one):

- Communication
- Mathematics
- Mathematics/Reasoning (IDO)
- American History
- Government
- Humanities
- Visual/Performing Arts Critical
- Visual/Performing Arts Experiential
- Natural Sciences
- Social/Behavioral Sciences
- Writing in the Disciplines (IDO)

II. Objectives and Evaluation (respond on one or more separate sheets):

Call ext. 3-0919 for a copy of "Guidelines for Requesting and Evaluating Core Courses" or visit the website at www.uh.edu/academics/corecurriculum

- A. How does the proposed course meet the appropriate Exemplary Educational Objectives (see **Guidelines**). Attach a syllabus and supporting materials for the objectives the syllabus does not make clear.

Energy is defining issues of the 21st century, intellectually and practically. This topic is principally in the domain of Natural Science, although its implementation and consequences extend to engineering, sociology, economics, and political science. The physical principles underlying this topic are subjects

of classical physics and in order to appreciate the issues concerning the creation and use of energy the scientific principles of physics must be understood. This course will be scientific and quantitative and will be geared to the background and the abilities of non-science majors. I would expect that this course would be most valuable to students from the social sciences whose education would be enhanced because of the relevance of this course to important current issues in their discipline. This course will compliment the already existing course offered in the Department of Earth and Atmospheric Sciences, GEOL1302: Introduction to Global Climate Change. This course meets all the requirements and goals of courses in the Natural Science core curriculum as set out by undergraduate curriculum committee.

- B. Specify the processes and procedures for evaluating course effectiveness in regard to its goals.

Energy, assumed to be inexhaustible, is not and it is important to educate the populous on it bearing on the future of this world. The outcome of this course is to provide knowledge of physics as it relates to energy. To evaluate the courses contribution to the core curriculum, an evaluation of the students' achievements is attained through samples of students' work. Students' communication of solutions on final examinations must be logical and organized. They must also demonstrate the ability to properly use a reasonable level of mathematics to obtain solutions.

Also, to evaluate the courses contribution to the core curriculum, an end of the semester course evaluation form designed for this new course will be administered. The form will consist of 20 questions which will cover the quality of the information covered in the course as well as course organization. The questions will emphasize the quality of the instructor, including instructor-student interaction, instructor's overall knowledge of the material covered and the instructor's effectiveness for the course. The form also includes a comment section in which students can write in any additional comments regarding the course, which were not covered by the questions on the evaluation.

- C. Delineate how these evaluation results will be used to improve the course.

Samples of student exams will be evaluated by the faculty to determine if the expected outcomes of the course are met. In addition, statistics from the course evaluation forms are collected at the end of the semester. These results will be disseminated to the undergraduate studies committee of the department so that the necessary course adjustments can be made.



UNIVERSITY of HOUSTON

COLLEGE OF NATURAL SCIENCES & MATHEMATICS

HTTP://NSM.UH.EDU

COURSE TITLE/SECTION: Physics 1307 - Physical Principles for Energy and Climate in the 21st Century

TIME: 10 – 11:00 am MWF

LOCATION: SR 1 room 516

FACULTY: Dr. Michael Gorman

OFFICE HOURS: 2-3 pm MW and by appointment
Science and Research #1, Rm. 531 C

E-mail: gorman@uh.edu

Phone: (713) 743-3538

FAX: (713) 743-3589

I. Course: Physics 1307 - Physical Principles for Energy in the 21st Century

A. Catalog Description: Physics principles of mechanics, thermodynamics, electricity, and magnetism as they relate to the problems of energy in the 21st century.

B. Prerequisites: Math 1310

II. Course Objectives: The objective of this course is to teach physical principles underlying the topics of energy. In order to appreciate the issues concerning the creation and use of energy the scientific principles of physics must be understood. This course will be scientific and quantitative and will be geared to the background and the abilities of non-science majors.

Upon completion of this course, students will be able to:

1. make connections between physics principles and energy
2. obtain an overview of the energy situation in US and the World
3. comprehend how energy relate to modern day events

III. Course Content: This course will include the following topical areas (not necessarily in this order):

1. Motion, Forces and Friction
2. Mechanical Energy
3. Basic Principles of Thermodynamics

As they apply to

1. Fossil Fuel Energy
2. Electricity, Magnetism, and Transformers

3. Atomic, Nuclear Structure and Nuclear Energy
4. Electromagnetic Waves
5. Solar Energy—Thermal and Electrical
6. Fluid Dynamics—Wind energy
7. Overview of US Energy
8. Sources and Uses
9. Greenhouse Effect

V. Textbooks

To be selected

VI. Course Requirements

- B. Written Assignments:** Homework Problems and Factoid Multiple Choice Quizzes
- C. Exams:** There will be three **regular exams** and a **final exam** for a total of four exams for the class.

The **regular exams** will be given during the lecture time and the date of each exam will be announced one week in advance.

The **final exam** will be comprehensive covering all chapters covered for the course.

VII. Evaluation and Grading

- 30% Homework
- 15% Regular Exam I
- 15% Regular Exam II
- 15% Regular Exam III
- 25% Final Exam

Grading scale:

100-90%	A	79-70%	C	59%- below	F
89-80%	B	69-60%	D		

Policy on grades of I (Incomplete): Incompletes will be given only when documentation has been submitted to support the need to receive an incomplete, i.e., medical statements.

VIII. Consultation

My office is located in room 531-B of Science and Research #1. My mailbox is located in

the Physic office, room 617 in Science and Research # 1. My office hours will be from 2 - 3 pm on Mondays and Wednesdays. If you can not see me during those times, you may schedule an appointment with me by calling me at (713) 743-3538 or e-mailing me at gorman@uh.edu.

Addendum: Whenever possible, and in accordance with 504/ADA guidelines, the University of Houston will attempt to provide reasonable academic accommodations to students who request and require them. Please call 713-743-5400 for more assistance.

Standard Disclaimer: This syllabus is subject to change at the discretion of the instructor.

ORIGINAL