CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

NEW COURSE PROPOSAL

PROGRAM: BIOLOGICAL AND PHYSICAL SCIENCES

1. Catalog Description of the Course. [Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of ___ units); time distribution (Lecture ___ hours, laboratory ___ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]

CHEM 344. ENERGY AND SOCIETY (3)
Three hours of lecture per week.
Survey of the physical, chemical, and engineering principles involved in the production of energy from current and potential sources and the economical, environmental, and political issues surrounding energy production. The course will also examine factors that influence worldwide energy policy. Examples of topics included: energy conservation, efficient usage and transportation of energy, energy resources, fossil fuels, active and passive solar energy, biomass, fuel cells, nuclear (fission and fusion) processes, and hydroelectric, tidal, geothermal, and wind power.
Same as PHYS 344. GenEd: B1 and Interdisciplinary

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2. Mode of Instruction.

<table>
<thead>
<tr>
<th>Units</th>
<th>Hours per Unit</th>
<th>Benchmark Enrollment</th>
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</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>3</td>
<td>1</td>
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<tr>
<td>Seminar</td>
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<td>Laboratory</td>
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<tr>
<td>Activity</td>
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3. Justification and Learning Objectives for the Course. (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) [Use as much space as necessary]

Elective and General Education course B1 and Upper division Interdisciplinary

Students who successfully complete this course will be able to:
- Describe the scientific method and how it is used to approach scientific problems
- Explain the basic physics and chemistry scientific principles that are involved in energy generation and distribution
- Integrate chemical and physical concepts as they relate to energy generation and utilization
- Explain the scientific principles behind and limitations of various energy sources
- Identify the environmental impact of various energy sources
- Evaluate current and future energy sources from the standpoints of efficiency, economic viability, and environmental impact

NEWCRSFR 9/30/02
4. **Is this a General Education Course**  
   **YES**  
   **NO**  
   If Yes, indicate GE category:  
   
   | A (English Language, Communication, Critical Thinking) |  
   | B (Mathematics & Sciences) | X  
   | C (Fine Arts, Literature, Languages & Cultures)  
   | D (Social Perspectives)  
   | E (Human Psychological and Physiological Perspectives)  

5. **Course Content in Outline Form.** [Be as brief as possible, but use as much space as necessary]

   - What is Energy?
   - Measurement and Conservation of Energy
   - Energy in the Biosphere
   - Primary Sources of Energy
   - Patterns of Consumption
   - Efficient Transportation of Energy
   - Energy Conversion
   - Energy Use
   - Oil and Gas
   - Coal
   - Electrical Energy and Electricity Production
   - Electricity Distribution
   - Nuclear Power - Fission
   - Nuclear Power - Fusion
   - Hydroelectric Power, Tidal Power and Wave Power
   - OTEC and Geothermal
   - Wind Power
   - Biomass
   - Solar Power – Photovoltaic
   - Solar Thermal
   - Energy Storage
   - Fuel Cells and Hydrogen Economy
   - Passive Solar Design
   - Energy Conservation
   - Energy Resources
   - Social and Economic Issues
   - Energy and the Environment
   - Energy and the Future

6. **References.** [Provide 3 - 5 references on which this course is based and/or support it]


7. **List Faculty Qualified to Teach This Course.**

   - Dr. Simone Aloisio, Dr. Philip Hampton, Dr. Geoff Dougherty

8. **Frequency.**  
   a. Projected semesters to be offered: Fall _____ Spring _____ Summer _____

9. **New Resources Required.**

   NEWCRSFR 9/30/02
None.

10. Consultation.
    Attach consultation sheet from all program areas, Library, and others (if necessary)
    *(See Attached Form)*

11. If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

___Philip Hampton________________________1/8/03_______________________
Proposer of Course                Date
Consultation:

Prof. Geoff Dougherty  Date