New Course

Proposal Reference Number: 252
Version No: 8
Submitted By: Dr. Gonzalo Cosa
Edited By: Prof. David M. Ronis

Program Affected? N
Program Revision Form Submitted?

Subject/Course/Term CHEM 319
- one term

Credit Weight or CEU's 3 credits

Course Activities

<table>
<thead>
<tr>
<th>Schedule Type</th>
<th>Hours per week</th>
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<tr>
<td>A - Lecture</td>
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Total Hours per Week: 3
Total Number of Weeks: 13

Course Title

| Official Course Title          | Chem of Energy Storage & Util |
| course in Calendar:           | Chemistry of Energy, Storage and Utilization |

Rationale

Science, in particular Chemistry, is uniquely positioned to tackle the tremendous challenge of developing novel materials for the production and storage of renewable energy in the coming decades. There is a need to update our curricula in order to be responsive to the emerging societal needs. I have identified the necessity for developing a course in Energy, where non-renewable and renewable energy and fuels will be discussed, the impact of the emissions will be addressed, the role of chemistry in designing and developing the necessary materials will be presented within the context of interdisciplinary research, and where open discussion and literature review (both academic and popular press) will be emphasized. The course will consist of three major parts: 1) Rising Awareness: 2) Current Non-renewable and Renewable Energy Resources, Advantages and Pitfalls: 3) Chemistry Solutions to the Challenge of Sustainable Energy Production and Storage: Whereas some of the concepts described may be found in Environmental Sciences courses, the emphasis on practical methods to generate and store energy upon thorough understanding and careful design and use of novel materials is unique to Chemistry.

Responsible Instructor Gonzalo Cosa

Course Description

Energy consumption and human development; Green house gases; Primary and secondary sources of energy, fuels vs. electricity; Energy transport and storage; Fossil fuels; Nuclear energy; Fusion and fission: Bioenergetics, Natural and artificial Photosynthesis: Novel materials; Nanocomposites; Photochemistry; Electrochemistry; Photovoltaics and batteries; Fuel cells; Catalysis and biomass;

Teaching Dept. 0287: Chemistry

Administering Faculty/Unit SC: Faculty of Science
Prerequisites
CHEM 212 Org. Chem. 1; CHEM 223 Intro Phys. Chem. 1 and CHEM 243 Intro Phys. Chem. 2 or CHEM 204 Phys. Chem. for Biol. Sciences or CHEM 203 Survey of Physical Chemistry; or Instructor Permission
Web Registration Blocked?: N

Corequisites

Restrictions

Supplementary Calendar Info

Additional Course Charges

Campus
Downtown

Projected Enrollment
40

Requires Resources Not Currently Available
N

Explanation for Required Resources

Consultation Reports Attached?
Y
- consult1.txt
- consult2.txt
- consult3.txt

Effective Term of Implementation
200901

File Attachments
- Syllabus and Literature proposed course.doc

To be completed by the Faculty

For Continuing Education Use

Approvals Summary

<table>
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<tr>
<th>Version No.</th>
<th>Departmental Curriculum Committee</th>
<th>Departmental Meeting</th>
<th>Departmental Chair</th>
<th>Other Faculty</th>
<th>Curric/Academic Committee</th>
<th>Faculty</th>
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<td>Meeting Date: Feb 18 2008 Approval Date: Mar 6 2008 View Comments</td>
<td>Approved David M Ronis Meeting Date: Mar 06 2008 Approval Date: Mar 6 2008 View Comments</td>
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