CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS
COURSE MODIFICATION PROPOSAL

Courses must be submitted by November 2, 2009, to make the next catalog (2010-2011) production

DATE (CHANGE DATE EACH TIME REVISED): 9/29/2009 REV 11.2.09
PROGRAM AREA(S): CHEMISTRY
Directions: All sections of this form must be completed for course modifications. All documents are stand alone sources of course information.

1. Course Information.
[Follow accepted catalog format.] (Add additional prefixes if cross-listed)

<table>
<thead>
<tr>
<th>OLD</th>
<th>NEW</th>
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<tbody>
<tr>
<td>Prefix CHEM</td>
<td>Course# 316</td>
</tr>
<tr>
<td>ORGANIC CHEMISTRY II LEARNING COMMUNITY (1)</td>
<td>ORGANIC CHEMISTRY II PROBLEM SOLVING (1)</td>
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<tr>
<td>Units</td>
<td>Units</td>
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<tr>
<td>Lecture hours</td>
<td>Lecture hours</td>
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<td>1</td>
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<tr>
<td>Prerequisites:</td>
<td>Prerequisites:</td>
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<tr>
<td>Consent of Instructor Required for Enrollment</td>
<td>Consent of Instructor Required for Enrollment</td>
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<tr>
<td>Corequisites: CHEM 314</td>
<td>Corequisites: CHEM 314</td>
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Catalog Description (Do not use any symbols):
Interactive problem-solving session for students enrolled in CHEM 314 where students work in small groups on problems related to the content in CHEM 314.

Graded General Education Categories CR/NC Repeatable for up to units Total Completions
Lab Fee Requested A - F
Course Level: Undergraduate Optional Enrollment in same semester
Post-bac/Credential Graduate

2. Mode of Instruction (Hours per Unit are defaulted) Hegis Code(s) (Provided by the Dean)

<table>
<thead>
<tr>
<th>Existing</th>
<th>Proposed</th>
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<tbody>
<tr>
<td>Units</td>
<td>Units</td>
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<tr>
<td>Hours Per Unit</td>
<td>Hours Per Unit</td>
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<tr>
<td>Benchmark Enrollment</td>
<td>Benchmark Enrollment</td>
</tr>
<tr>
<td>Graded</td>
<td>Graded</td>
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</tbody>
</table>

| Lecture |   |   |   |
| Seminar |   |   |   |
| Lab |   |   |   |
| Activity | 2 |   |   |
| Field Studies |   |   |   |
| Indep Study |   |   |   |
| Other blank | 30 |   |   |

| Lecture |   |   |   |
| Seminar |   |   |   |
| Lab |   |   |   |
| Activity | 2 |   |   |
| Field Studies |   |   |   |
| Indep Study |   |   |   |
| Other discussion | 30 |   |   |

3. Course Attributes:

9.15.08 km2
General Education Categories: All courses with GE category notations (including deletions) must be submitted to the GE website: http://summit.csuci.edu/geapproval. Upon completion, the GE Committee will forward your documents to the Curriculum Committee for further processing.

A (English Language, Communication, Critical Thinking)
- A-1 Oral Communication
- A-2 English Writing
- A-3 Critical Thinking

B (Mathematics, Sciences & Technology)
- B-1 Physical Sciences
- B-2 Life Sciences – Biology
- B-3 Mathematics – Mathematics and Applications
- B-4 Computers and Information Technology

C (Fine Arts, Literature, Languages & Cultures)
- C-1 Art
- C-2 Literature Courses
- C-3a Language
- C-3b Multicultural

D (Social Perspectives)

E (Human Psychological and Physiological Perspectives)
UDIGE/INTD Interdisciplinary
Meets University Writing Requirement
Meets University Language Requirement

American Institutions, Title V Section 40404: Government US Constitution US History
Refer to website, Exec Order 405, for more information: http://senate.csuci.edu/comm/curriculum/resources.htm

Service Learning Course (Approval from the Center for Community Engagement must be received before you can request this course attribute).

4. Justification and Requirements for the Course. [Make a brief statement to justify the need for the course]

OLD
This course accompanies the second semester organic chemistry course (CHEM 314) and provides students with an interactive, problem-solving session where students work in small teams to solve problems in organic chemistry.

NEW
This course accompanies the second semester organic chemistry course (CHEM 314) and provides students with an interactive, problem-solving session where students work in small teams to solve problems in organic chemistry.

Submit Program Modification if this course changes your program.

5. Learning Objectives. (List in numerical order. You may wish to visit resource information at the following website: http://senate.csuci.edu/comm/curriculum/resources.htm)
Upon completion of the course, the student will be able to:

OLD
Students who successfully complete this course will be able to:

- Outline the development of the field of organic chemistry from a historical perspective and how organic chemistry has impacted society
- Describe the scientific method and how it is used to approach the study of organic molecules
- Explain the behavior of organic reactions using their knowledge of thermodynamics and kinetics and the geometric and electronic structures of organic molecules

NEW

- Outline the development of the field of organic chemistry from a historical perspective and how organic chemistry has impacted society
- Describe the scientific method and how it is used to approach the study of organic molecules
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9.15.08 km2
• Interpret infrared, mass, and nuclear magnetic resonance spectra of molecules that have arene rings and/or multiple functional groups

• Identify the reactions and synthesis of alcohols, ethers, aldehydes, ketones, esters, carboxylic acids, amides, amines, carboxylic acid halides, carboxylic acid anhydrides, and enolates

• Contrast organic reactions with biological reactions

• Describe the structure, reactions, and properties of carbohydrates and amino acids

6. Course Content in Outline Form. (Be as brief as possible, but use as much space as necessary)

OLD

Aromaticity and Aromatic Compounds
Historical context of the structure of benzene and other organic molecules
Examples of aromatic and heteroaromatic compounds
Naming of aromatic compounds

Hückel’s Rule
Molecular orbital description of aromatic compounds
Aromatic ions and heterocycles
Spectroscopy of aromatic compounds
Reactions of Aromatic Compounds
Electrophilic aromatic substitution
Substituent effects on reactivity and regioselectivity
Synthesis of substituted benzenes
Reactions of substituents
Nucleophilic aromatic substitution
Synthesis and reactions of diazonium salts
Alcohols: Structures and Reactions
Naming of alcohols
Acid-base reactivity of alcohols and phenols and substituent effects on acidity
Synthesis of alcohols by addition reactions
Oxidation of alcohols
Biological examples alcohol synthesis and reactions
Spectroscopy of alcohols
Aldehydes and Ketones: Structures and Reaction
Naming of aldehydes and ketones
Addition and addition-elimination reactions of aldehydes and ketones
Biological examples aldehyde and ketone synthesis and reactions
Spectroscopy of aldehydes and ketones
Carboxylic Acids: Structures and Reactions
Naming of carboxylic acids
Acid-base reactions of carboxylic acids
Synthesis of carboxylic acids
Reactions of carboxylic acids
Fatty acids
Biological examples alcohol of carboxylic acid synthesis and

NEW

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Spectroscopy of aldehydes and ketones
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Naming of carboxylic acids
Acid-base reactions of carboxylic acids
Synthesis of carboxylic acids
Reactions of carboxylic acids
Fatty acids
Biological examples alcohol of carboxylic acid synthesis and
reactions
Spectroscopy of carboxylic acids
Carboxylic Acid Derivatives and their Preparation
Naming of esters, amides, acid halides, acid anhydrides, and nitriles
Nucleophilic acyl substitution mechanism and relative reactivity of carboxylic acid derivatives
Biological examples of carboxylic acid derivative synthesis and reactions
Synthesis and Reactions of Enols and Enolates
Enol-keto tautomerization
Acidity of \( \alpha \)-hydrogens of carbonyl compounds and synthesis of enolates
Halogenation and alkylation of enols and enolates
Aldol and Claisen condensation reactions
Michael reaction
Biological examples of the reactions of enols and enolates
Amines: Structures and Reactions
Naming of amines and amino acids
Acid-base reactions of amines and anilines
Synthesis and reactions of amines
Tetraalkylammonium salts as phase-transfer agents
Biological examples of amines, their synthesis and reactions
Spectroscopy of amines
Carbohydrates: Structures and Reactions
Names and structures of monosaccharides
Reactions of monosaccharides
Glycoside formation
Disaccharides and polysaccharides

Does this course content overlap with a course offered in your academic program? Yes ☑ No ☒
If YES, what course(s) and provide a justification of the overlap. 

Does this course content overlap a course offered in another academic area? Yes ☑ No ☒
If YES, what course(s) and provide a justification of the overlap. 

Overlapping courses require Chairs' signatures.

7. Cross-listed Courses (Please note each prefix in item No. 1)
   A. List cross-listed courses (Signature of Academic Chair(s) of the other academic area(s) is required).
   B. List each cross-listed prefix for the course: 
   C. Program responsible for staffing: 

8. References. [Provide 3-5 references]

OLD


NEW

9. Tenure Track Faculty qualified to teach this course.
   Phil Hampton

10. Requested Effective Date or First Semester offered: **Fall 2010**

11. New Resource Requested: Yes □ No □
    If YES, list the resources needed.
    A. Computer Needs (data processing, audio visual, broadcasting, other equipment, etc.)
    B. Library Needs (streaming media, video hosting, databases, exhibit space, etc.)
    C. Facility/Space/Transportation Needs:
    D. Lab Fee Requested: Yes □ No □ (Refer to the Dean’s Office for additional processing)
    E. Other.

12. Indicate Changes and Justification for Each. [Check all that apply and follow with justification. Be as brief as possible but, use as much space as necessary.]

<table>
<thead>
<tr>
<th>Course title</th>
<th>Course Content</th>
<th>Course Learning Objectives</th>
</tr>
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<tbody>
<tr>
<td>Prefix/suffix</td>
<td>Course number</td>
<td>References</td>
</tr>
<tr>
<td>Units</td>
<td>Enrollments</td>
<td>GE</td>
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<tr>
<td>Staffing</td>
<td>Prerequisites</td>
<td>Other</td>
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<tr>
<td>Prerequisites/Corequisites</td>
<td>Catalog description</td>
<td>Reactivate Course</td>
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<tr>
<td>Units</td>
<td>Mode of Instruction</td>
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</table>

   **Justification:** The department met and decided that credit/no-credit was a more appropriate grading scheme for this type of course. Students typically either did the work required or did not. Also, the mode of instruction was incorrectly listed in the original course proposal. We have also taught it as a one-hour discussion course.

13. Will this course modification alter any degree, credential, certificate, or minor in your program? Yes □ No □
    If, YES attach a program update or program modification form for all programs affected.
    Priority deadline for New Minors and Programs: **October 5, 2009** of preceding year.
    Priority deadline for Course Proposals and Modifications: **November 2, 2009**.
    Last day to submit forms to be considered during the current academic year: **April 15th**.

   **Simone Aloisio**
   Proposer(s) of Course Modification
   9/29/2009
   Date
   Type in name. Signatures will be collected after Curriculum approval.
Approval Sheet

Course: [ ]

If your course has a General Education Component or involves Center affiliation, the Center will also sign off during the approval process.

Multiple Chair fields are available for cross-listed courses.

<table>
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<th>Program Chair</th>
<th>Signature</th>
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<td>General Education Chair</td>
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<td>Center for Intl Affairs Director</td>
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<td>Center for Integrative Studies Director</td>
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<td>Center for Multicultural Engagement Director</td>
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<td>Center for Civic Engagement and Service Learning Director</td>
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<td>Curriculum Chair</td>
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<tr>
<td>Dean of Faculty</td>
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