CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

COURSE MODIFICATION PROPOSAL

Courses must be submitted by October 15, 2013, and finalized by the end of the fall semester to make the next catalog (2014-15) production

DATE (CHANGE DATE EACH TIME REVISED): 10/14/2013; REV 11.13.13

PROGRAM AREA(S) : CHEMISTRY

Directions: All of sections of this form must be completed for course modifications. Use YELLOWED areas to enter data. All documents are stand alone sources of course information.

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1. Indicate Changes and Justification for Each. *[Mark an X by all change areas that apply then please follow-up your X's with justification(s) for each marked item. Be as brief as possible but, use as much space as necessary.]*

- Course title
- Prefix/suffix
- Course number
- Units
- Staffing formula and enrollment limits
- x Prerequisites/Corequisites
- X Catalog description
- x Mode of Instruction
- Course Content
- Course Learning Outcomes
- References
- GE
- Other
- Reactivate Course

Justification: We want to remove CHEM 305 from all of the pre-requisites that require it. The department decided it was not necessary and hindered student progress towards degree completion. We are standardizing the language on these classes too, for example, removing consent of instructor since this is the case for all classes. Lab cap adjusted to reflect department practice.

2. Course Information.

[Follow accepted catalog format.] ***(Add additional prefixes i f cross-listed)***

OLD

Prefix CHEM Course# 410
Title **ADVANCED ORGANIC SYNTHESIS** Units (4)

3 hours lecture per week
3 hours lab per week

x Prerequisites: CHEM 305 (or concurrent enrollment), CHEM 314, and CHEM 315 or consent of the instructor
Consent of Instructor Required for Enrollment
Corequisites:
Catalog Description (Do not use any symbols):
This course will examine modern synthetic reactions and approaches in the design of complex organic molecules. The laboratory introduces students to advanced synthetic reactions and techniques, including inert-atmosphere techniques. Lab fee required.
General Education Categories:
Grading Scheme (Select one below):
A – F
Credit/No Credit
Optional (Student's Choice)
Repeatable for up to units
Total Completions
Multiple Enrollment in Same Semester Y/N
Course Level:
x Undergraduate
Post-Baccalaureate
Graduate

NEW

Prefix CHEM Course# 410
Title **ADVANCED ORGANIC SYNTHESIS** Units (4)
3 hours lecture per week
3hours lab per week

x Prerequisites: CHEM 314 and CHEM 315 with a grade of C or better.
Consent of Instructor Required for Enrollment
Corequisites:
Catalog Description (Do not use any symbols)**:**
Examines modern synthetic reactions and approaches in the design of complex organic molecules. The laboratory introduces students to advanced synthetic reactions and techniques, including inert-atmosphere techniques. Lab fee required.
General Education Categories:
Grading Scheme (Select one below):
x A – F
Credit/No Credit
Optional (Student's Choice)
Repeatable for up to units
Total Completions
Multiple Enrollment in Same Semester Y/N
Course Level:
x Undergraduate
Post-Baccalaureate
Graduate

3. Mode of Instruction (Hours per Unit are defaulted) **Hegis Code(s)**_____
(Provided by the Provost Office)

Existing

	Units	Hours Per Unit	Default Section Size	Graded
Lecture	3	1	36	x
Seminar		1		
Lab	1	3	12	x
Activity		2		
Field Studies				
Indep Study				
Other blank				
Online				

Proposed

	Units	Hours Per Unit	Default Section Size	Graded	CS No. (filled out by Provost Office)
Lecture	3	1	36	x	
Seminar		1			
Lab	1	3	12	x	
Activity		2			
Field Studies					
Indep Study					
Other blank					
Online					

4. Course Attributes:

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 (Graduation Writing Assessment Requirement)

Meets University Language Requirement

American Institutions, Title V Section 40404: Government US Constitution US History
Regarding 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).

Online Course (Answer YES if the course is ALWAYS delivered online).

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

OLD

This course is typically taken by Chemistry majors, as well as other science majors, who are interested in understanding more advanced synthetic reactions and techniques. Students interested in graduate study in Organic and Medicinal Chemistry should consider taking this course which is an upper-division elective for chemistry majors.

Requirement for the Major/Minor
x Elective for the Major/Minor
Free Elective

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Requirement for the Major/Minor
x Elective for the Major/Minor
Free Elective

Submit Program Modification if this course changes your program.

6. Student Learning Outcomes. (List in numerical order. Please refer to the Curriculum Committee's "Learning Outcomes" guideline for measurable outcomes that reflect elements of Bloom's Taxonomy: *http://senate.csuci.edu/comm/curriculum/resources.htm*. The committee recommends 4 to 8 student learning outcomes, unless governed by an external agency (e.g., Nursing).

Upon completion of the course, the student will be able to:

OLD

•Outline the development of the field of organic synthesis
•Describe how molecular shape, electronic structure, thermodynamics, kinetics, and intermolecular interactions affect the reactivity of organic molecules and their types of reactions.
•Discuss the reactivity of various functional groups found in organic molecules and how they can be converted into other functional groups.
•Demonstrate a breadth and depth of understanding of the reactions of organic molecules.
•Evaluate which reagent or reaction sequence would be the best approach to a synthetic target.
•Interpret, discuss, and evaluate a primary literature article
•Demonstrate the ability to understand journal articles on organic synthesis.
•Compare strengths and limitations of various reagents and reaction conditions.
•Perform modern synthetic reactions and characterize the products of the reactions.
•Demonstrate proficiency at modern synthetic reactions and laboratory techniques.

Upon completion of the course, the student will be able to:

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•Describe how molecular shape, electronic structure, thermodynamics, kinetics, and intermolecular interactions affect the reactivity of organic molecules and their types of reactions.
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•Perform modern synthetic reactions and characterize the products of the reactions.
•Demonstrate proficiency at modern synthetic reactions and laboratory techniques.

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

OLD

Stereochemistry and Conformations Synthetic Strategies and Retrosynthesis Reading the Synthetic Literature Acids, Bases, and Functional Group Exchange Reactions Oxidation Reduction Hydroboration Stereocontrol and Ring Formation Protecting Groups Nucleophiles and their Use in Carbon-Carbon Bond Formation Electrophiles and their Use in Carbon-Carbon Bond Formation Pericyclic Reactions and their Use in Carbon-Carbon Bond Formation Radical Reactions and their Use in Carbon-Carbon Bond Formation Organometallic Chemistry in Synthesis Total Synthesis and Biomimetic Syntheses Green Approaches to Synthesis

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

Overlapping courses require Chairs' signatures.

8. Cross-listed Courses (Please note each prefix in item No. 1) *Beyond three disciplines consult with the Curriculum Committee.*

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:

9. References. *[Provide 3-5 references]*

OLD Sundberg, R. J.; Carey, F. A. *Advanced Organic Chemistry, Fourth Edition - Part A: Structure and Mechanisms*, Plenum, 4th Ed., 2001.
Sundberg, R. J.; Carey, F. A. *Advanced Organic Chemistry, Fourth Edition - Part B: Reaction and Synthesis*, Plenum, 4th Ed., 2001.
Smith, M. B. *Organic Synthesis*, Wiley, 2nd Ed., 2001.
Smith, M. B.; March, J. *March's Advanced Organic Chemistry: Reactions, Mechanisms, and Structure, 5th Edition*, Wiley, 5th Ed., 2001.

NEW Sundberg, R. J.; Carey, F. A. *Advanced Organic Chemistry, Fourth Edition - Part A: Structure and Mechanisms*, Plenum, 4th Ed., 2001.
Sundberg, R. J.; Carey, F. A. *Advanced Organic Chemistry, Fourth Edition - Part B: Reaction and Synthesis*, Plenum, 4th Ed., 2001.
Smith, M. B. *Organic Synthesis*, Wiley, 2nd Ed., 2001.
Smith, M. B.; March, J. *March's Advanced Organic Chemistry: Reactions, Mechanisms, and Structure, 5th Edition*, Wiley, 5th Ed., 2001.

10. Tenure Track Faculty qualified to teach this course.
HAMPTON

11. Requested Effective Date or First Semester offered: Fall 2014

12. New Resource Requested: Yes **No** x
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** **(Lab fee requests should be directed to the Student Fee Committee)**
E. Other.

13. Will this course modification alter any degree, credential, certificate, or minor in your program? Yes **No** x
If, YES attach a program update or program modification form for all programs affected.
Priority deadline for New Minors and Programs: October 1, 2013 of preceding year.
Priority deadline for Course Proposals and Modifications: October 15, 2013.
Last day to submit forms to be considered during the current academic year: April 15th.

Simone Aloisio 10/14/2013

Proposer(s) of Course Modification — 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.

The CI program review process includes a report from the respective department/program on its progress toward accessibility requirement compliance. By signing below, I acknowledge the importance of incorporating accessibility in course design.

Program Chair		
	Signature	Date
Program Chair		
	Signature	Date
Program Chair		
	Signature	Date
General Education Chair		
	Signature	Date
Center for Intl Affairs Director		
	Signature	Date
Center for Integrative Studies Director		
	Signature	Date
Center for Multicultural Engagement Director		
	Signature	Date
Center for Civic Engagement and Service Learning Director		
	Signature	Date
Curriculum Chair		
	Signature	Date
AVP		
	Signature	Date