

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 of 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)

OLD

Prefix **CHEM** Course# **123** Title
 General Chemistry I Problem-Solving Units **(1)**
 hours lecture per week
 hours activity per week

Prerequisites: **CHEM 121**
 Consent of Instructor Required for Enrollment
 Corequisites:

Catalog Description (Do not use any symbols):
 An instructor/peer-supervised interactive problem-solving session for students in CHEM 121 where students work in small groups on problems related to the content in CHEM 121.

General Education	<input type="text"/>	Graded	<input type="text"/>	Repeatable	<input type="text"/>
Categories	<input type="text"/>	CR/NC	<input type="text"/>	for up to	<input type="text"/> units
Lab Fee Requested	<input type="text"/>	<input checked="" type="checkbox"/> A - F	<input type="text"/>	Total	<input type="text"/>
			<input type="text"/>	Completions	<input type="text"/>
Course Level:	<input type="text"/>	<input type="text"/>	<input type="text"/>	Multiple	<input type="text"/>
<input type="text"/> Undergraduate	<input type="text"/>	<input type="text"/>	<input type="text"/>	Enrollment in	<input type="text"/>
<input type="text"/> Post-bac/Credential	<input type="text"/>	<input type="text"/>	<input type="text"/>	same semester	<input type="text"/>
<input type="text"/> Graduate	<input type="text"/>	<input type="text"/>	<input type="text"/>	choice	<input type="text"/>

NEW

Prefix **CHEM** Course# **123** Title
 General Chemistry I Problem-Solving Units **(1)**
 hours lecture per week
 hours discussion per week

Prerequisites:
 Consent of Instructor Required for Enrollment
 Corequisites: CHEM 121

Catalog Description (Do not use any symbols):
 An instructor/peer-supervised interactive problem-solving session for students in CHEM 121 where students work in small groups on problems related to the content in CHEM 121.

General Education	<input type="text"/>	Graded	<input checked="" type="checkbox"/> CR/NC	Repeatable for	<input type="text"/> units
Categories	<input type="text"/>	CR/NC	<input type="text"/>	up to	<input type="text"/> units
Lab Fee Requested	<input type="text"/>	<input type="text"/>	<input type="text"/>	Total	<input type="text"/>
		<input type="text"/>	<input type="text"/>	Completions	<input type="text"/>
Course Level:	<input type="text"/>	<input type="text"/>	<input type="text"/>	Multiple	<input type="text"/>
<input checked="" type="checkbox"/> Undergraduate	<input type="text"/>	<input type="text"/>	<input type="text"/>	Enrollment in same	<input type="text"/>
<input type="text"/> Post-bac/Credential	<input type="text"/>	<input type="text"/>	<input type="text"/>	semester	<input type="text"/>
<input type="text"/> Graduate	<input type="text"/>	<input type="text"/>	<input type="text"/>	choice	<input type="text"/>

2. Mode of Instruction (Hours per Unit are defaulted)

Hegis Code(s) _____

(Provided by the Dean)

Existing

Proposed

	Units	Hours Per Unit	Benchmark Enrollment	Graded		Units	Hours Per Unit	Benchmark Enrollment	Graded	CS No. (filled out by Dean)
Lecture	<input type="text"/>	<u>1</u>	<input type="text"/>	<input type="text"/>	Lecture	<input type="text"/>	<u>1</u>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Seminar	<input type="text"/>	<u>1</u>	<input type="text"/>	<input type="text"/>	Seminar	<input type="text"/>	<u>1</u>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Lab	<input type="text"/>	<u>3</u>	<input type="text"/>	<input type="text"/>	Lab	<input type="text"/>	<u>3</u>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Activity	<u>1</u>	<u>2</u>	<u>30</u>	<input checked="" type="checkbox"/>	Activity	<input type="text"/>	<u>2</u>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Field Studies	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Field Studies	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Indep Study	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Indep Study	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other blank	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	Other discussion	<u>1</u>	<u>30</u>	<input checked="" type="checkbox"/>	<input type="text"/>	<input type="text"/>

3. 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

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 is an optional problem-solving session for the first semester general chemistry course (CHEM 121) and provides students with an interactive, problem-solving session where students work in small teams to solve problems in chemistry.

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

NEW

This course is an optional problem-solving session for the first semester general chemistry course (CHEM 121) and provides students with an interactive, problem-solving session where students work in small teams to solve problems in chemistry.

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

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:

- Evaluate a scientific measurement and distinguish between scientific data
- Describe matter and energy in terms of the units and terminology that is used by modern scientists
- Identify stoichiometric relationships and balance chemical equations
- Explain the structure of an atom in terms of its basic parts and properties

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- Explain the interaction between electrons and light quantitatively
- Describe the properties of electrons and how they relate to chemical reactivity
- Identify the chemical properties of elements based on their periodic trends
- Explain the nature of the different types of chemical bonds in molecules
- Evaluate the properties of a gas phase species
- Rationalize chemical reactivity in terms of the thermodynamic properties of reactants and products

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- Rationalize chemical reactivity in terms of the thermodynamic properties of reactants and products

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

OLD

Scientific Measurement
 The scientific method
 SI units and the metric system
 Significant Figures
 Unit Conversion
 Mass and Energy Units
 Matter and Energy
 States of Matter
 Pure substances and mixtures
 Atoms and Molecules
 Temperature
 Physical and chemical properties
 Stoichiometry
 The mole and Avagadro's Number
 The chemical equation
 Balancing chemical equations
 Mole-to-Mass conversion
 Solutions and Dilutions
 Atoms and Elements
 Names and Symbols
 The nuclei of atoms
 Radioactivity
 Electrons and Photons
 Particle-Wave duality
 Electron arrangement in atoms
 Intro to quantum theory
 The photoelectron effect
 Atomic spectra
 The uncertainty principle
 Atomic Orbitals
 The Periodic Table
 History of the periodic table
 Metals and non-metals
 Periodic trends
 Main group elements and Transition metals
 Electron affinity
 Ionization
 The Chemical Bond
 Ionic and Covalent bonds

NEW

Scientific Measurement
 The scientific method
 SI units and the metric system
 Significant Figures
 Unit Conversion
 Mass and Energy Units
 Matter and Energy
 States of Matter
 Pure substances and mixtures
 Atoms and Molecules
 Temperature
 Physical and chemical properties
 Stoichiometry
 The mole and Avagadro's Number
 The chemical equation
 Balancing chemical equations
 Mole-to-Mass conversion
 Solutions and Dilutions
 Atoms and Elements
 Names and Symbols
 The nuclei of atoms
 Radioactivity
 Electrons and Photons
 Particle-Wave duality
 Electron arrangement in atoms
 Intro to quantum theory
 The photoelectron effect
 Atomic spectra
 The uncertainty principle
 Atomic Orbitals
 The Periodic Table
 History of the periodic table
 Metals and non-metals
 Periodic trends
 Main group elements and Transition metals
 Electron affinity
 Ionization
 The Chemical Bond
 Ionic and Covalent bonds

Electronegativity
Lewis structures
Oxidation number of atoms
The shape of molecules
Polarity
Hydrogen bonding
Gases
Pressure and temperature
Partial pressure
Ideal gas equation
Chemical Thermodynamics
Heat and work
Heat capacity
Entropy
State Functions
Reversible and irreversible changes
Enthalpy of reaction and of formation
Bond-dissociation and formation

Electronegativity
Lewis structures
Oxidation number of atoms
The shape of molecules
Polarity
Hydrogen bonding
Gases
Pressure and temperature
Partial pressure
Ideal gas equation
Chemical Thermodynamics
Heat and work
Heat capacity
Entropy
State Functions
Reversible and irreversible changes
Enthalpy of reaction and of formation
Bond-dissociation and formation

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

Pauling, L. General Chemistry, 3rd Ed., 1970

Chang, R. Chemistry, 7th Ed., 2001

Pertucci, R.H.; Harwood, W.S.; Herring, G. General Chemistry, 8th Ed., 2001

Silberberg, M.S. Chemistry, 3rd Ed., 2003

Zumdahl, S.S.; Zumdahl, S. Chemistry, 2000

NEW

Pauling, L. General Chemistry, 3rd Ed., 1970

Chang, R. Chemistry, 7th Ed., 2001

Pertucci, R.H.; Harwood, W.S.; Herring, G. General Chemistry, 8th Ed., 2001

Silberberg, M.S. Chemistry, 3rd Ed., 2003

Zumdahl, S.S.; Zumdahl, S. Chemistry, 2000

9. Tenure Track Faculty qualified to teach this course.

Simone Aloisio, Blake Gillespie, 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.]

<input type="checkbox"/> Course title	<input type="checkbox"/> Course Content
<input type="checkbox"/> Prefix/suffix	<input type="checkbox"/> Course Learning Objectives
<input type="checkbox"/> Course number	<input type="checkbox"/> References
<input type="checkbox"/> Units	<input type="checkbox"/> GE
<input type="checkbox"/> Staffing formula and enrollment limits	<input checked="" type="checkbox"/> Other Grading
<input checked="" type="checkbox"/> Prerequisites/Corequisites	<input type="checkbox"/> Reactivate Course
<input type="checkbox"/> Catalog description	
<input checked="" type="checkbox"/> Mode of Instruction	

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 and pre-requisite were incorrectly listed in the original course proposal. We have also taught it as a one-hour course, and have always had a co-requisite, not a pre-requisite.

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

9/29/2009

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.

Program Chair		
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Signature

Date

Program Chair		
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Signature

Date

Program Chair		
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Signature

Date

General Education Chair		
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Signature

Date

Center for Intl Affairs Director		
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Signature

Date

Center for Integrative Studies Director		
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Signature

Date

Center for Multicultural Engagement Director		
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Signature

Date

Center for Civic Engagement and Service Learning Director		
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Signature

Date

Curriculum Chair		
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Signature

Date

Dean of Faculty		
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Signature

Date