

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

COURSE MODIFICATION PROPOSAL

Courses must be submitted by October 15, 2014, and finalized by the end of the fall semester to make the next catalog (2015-16) production

DATE (CHANGE DATE EACH TIME REVISED): 9/29/14, 10.15.14

PROGRAM AREA(S): CHEMISTRY COURSE NO: 121

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

1. Indicate Changes and Justification for Each. [Mark an X by all change areas that apply.]

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

Justification:

(Please provide justification(s) for each marked item above). Be as brief as possible but use as much space as necessary.]:

We are clarifying that the pre-requisite class needs to be taken with a passing grade.

2. Course Information.

[Follow accepted catalog format. Add additional prefixes if cross-listed.]

OLD

Prefix **CHEM** Course# **121**
 Title GENERAL CHEMISTRY I
 Units (4)
 3 hours lecture per week
 3 hours lab per week

x Prerequisites: A passing score on the Chemistry Placement Examination or CHEM 105

NEW

Prefix CHEM Course# 121
 Title GENERAL CHEMISTRY I
 Units (4)
 3 hours lecture per week
 3 hours lab per week

x Prerequisites: **Passing grade on the Chemistry Placement Exam or CHEM 105 with a grade of C or better. Students who have taken CHEM 105 at a campus other than CSUCI must also pass the Chemistry Placement Exam.**

☐ Consent of Instructor Required for Enrollment
 Corequisites: ☐

Catalog Description (Do not use any symbols):

An introductory chemistry course which provides an overview of the chemical and physical behavior of matter with a focus on qualitative and quantitative general inorganic, physical, and analytical chemistry. Lab fee required.

General Education Categories: B1
 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 ☐

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 Corequisites: ☐

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☐ Credit/No Credit

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Repeatable for up to ☐ units

Total Completions ☐

Multiple Enrollment in Same Semester Y/N ☐

Course Level:
☒ Undergraduate
☐ Post-Baccalaureate
☐ Graduate

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☒ Undergraduate
☐ Post-Baccalaureate
☐ Graduate

3. Mode of Instruction (Hours per Unit are determined by CSU Policy)

Hegis Code(s) _____
 (Provided by the Provost Office)

Existing

Proposed

	Units	Hours Per Unit	Default Section Size	Graded		Units	Hours Per Unit	Default Section Size	Graded	CS No. (filled out by Provost Office)
Lecture	<u>3</u>	<u>1</u>	<u>72</u>	<u>x</u>	Lecture	<u>3</u>	<u>1</u>	<u>72</u>	x	
Seminar		<u>1</u>			Seminar		<u>1</u>			
Lab	<u>1</u>	<u>3</u>	<u>24</u>	x	Lab	<u>1</u>	<u>3</u>	<u>24</u>	x	
Activity		<u>2</u>			Activity		<u>2</u>			
Field Studies					Field Studies					
Indep Study					Indep Study					
Other blank					Other blank					
Online					Online					

4. Course Attributes:

B1 General Education Categories: All courses with GE category notations or changes (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.

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 the first semester of a two-semester sequence that is generally an admission requirement for medical, veterinary, dental, or pharmacy schools. This course is a Category B1 general education course and is required for the B.S. degrees in Biology and in Environmental Science and Resource Management. It is also prerequisite for CHEM 122, which is required for a large number of chemistry and biology courses.

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

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 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

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
- 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
- Explain simple kinetics of reactions
- Rationalize chemical reactivity in terms of the thermodynamic properties of reactants and products

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- 7. 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
 Scientific Notation
 Unit Conversion
 Mass and Energy Units
 Matter and Energy
 States of Matter
 Pure substances and mixtures
 Atoms and Molecules

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 Matter and Energy
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 Pure substances and mixtures
 Atoms and Molecules

Temperature
 Physical properties
 Chemical Properties
 Stoichiometry
 The mole
 Avagadro's Number
 The chemical equation
 Balancing chemical equations
 Mole-to-Mass conversion
 Solutions
 Dilutions
 Atoms and Elements
 Names and Symbols
 The nuclei of atoms
 X-rays
 Nuclear chemistry
 Radioactivity
 Fission and Fusion
 Electrons and Photons
 Particle-Wave duality
 Electron arrangement in atoms
 Intro to quantum theory
 The photoelectron effect
 Atomic spectra
 The uncertainty principle
 Atomic Orbitals
 Valence
 The Periodic Table
 History of the periodic table
 Metals and non-metals
 Periodic trends
 Main group elements
 Transition metals
 Electron affinity
 Ionization
 The Chemical Bond
 Ionic bonds
 Covalent bonds
 Electronegativity
 Lewis structures
 Resonance
 Oxidation number of atoms
 The shape of molecules
 Polarity
 Hydrogen bonding

Temperature
 Physical properties
 Chemical Properties
 Stoichiometry
 The mole
 Avagadro's Number
 The chemical equation
 Balancing chemical equations
 Mole-to-Mass conversion
 Solutions
 Dilutions
 Atoms and Elements
 Names and Symbols
 The nuclei of atoms
 X-rays
 Nuclear chemistry
 Radioactivity
 Fission and Fusion
 Electrons and Photons
 Particle-Wave duality
 Electron arrangement in atoms
 Intro to quantum theory
 The photoelectron effect
 Atomic spectra
 The uncertainty principle
 Atomic Orbitals
 Valence
 The Periodic Table
 History of the periodic table
 Metals and non-metals
 Periodic trends
 Main group elements
 Transition metals
 Electron affinity
 Ionization
 The Chemical Bond
 Ionic bonds
 Covalent bonds
 Electronegativity
 Lewis structures
 Resonance
 Oxidation number of atoms
 The shape of molecules
 Polarity
 Hydrogen bonding

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. For references more than 10 years old, provide a one-sentence explanation of relevance.]*

OLD

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

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

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

Burns, R.A.A. Fundamentals of Chemistry, 8th Ed., Prentice Hall, 2001

Zumdahl, S.S.; Zumdahl, S. Chemistry, Houghton Mifflin, 2000

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Burns, R.A.A. Fundamentals of Chemistry, 8th Ed., Prentice Hall, 2001

Zumdahl, S.S.; Zumdahl, S. Chemistry, Houghton Mifflin, 2000

10. Tenure Track Faculty qualified to teach this course.

Aloisio, Awad, Gillespie, Hampton

11. Requested Effective Date or First Semester to be offered: Fall 2015

12. 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 ☐ (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 ☐

If, YES attach a program update or program modification form for all programs affected.

Deadline for New Minors and Programs: **October 1, 2014.**

Deadline for Course Proposals and Modifications, and for Program Modifications: **October 15, 2014.**

Last day to submit forms to be considered during the current academic year: **April 1, 2015.**

Simone Aloisio

9/29/14

Proposer(s) of Course Modification

Date

Type in name(s). Signatures will be collected after Curriculum approval.

Approval Sheet

Course Prefix and number:

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