

**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# **111** Title  
CHEMISTRY OF LIFE – PROBLEM SOLVING Units **(1)**  
 hours lecture per week  
**1** hours seminar per week

Prerequisites:

Consent of Instructor Required for Enrollment

☒ Corequisites: **CHEM 110**

**Catalog Description** (Do not use any symbols):

An instructor/peer-supervised interactive problem-solving session for students in CHEM 110 where students work in small groups on problems related to the content in CHEM 110.

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

**NEW**

Prefix **CHEM** Course# **111** Title CHEMISTRY OF LIFE –  
PROBLEM SOLVING Units **(1)**  
 hours lecture per week  
**1** hours discussion per week

Prerequisites:

Consent of Instructor Required for Enrollment

☒ Corequisites: CHEM 110

**Catalog Description** (Do not use any symbols):

An instructor/peer-supervised interactive problem-solving session for students in CHEM 110 where students work in small groups on problems related to the content in CHEM 110.

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

**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		<u>1</u>			Lecture		<u>1</u>			
Seminar	<u>1</u>	<u>1</u>	<u>24</u>	<input checked="" type="checkbox"/>	Seminar		<u>1</u>			
Lab		<u>3</u>			Lab		<u>3</u>			
Activity		<u>2</u>			Activity		<u>2</u>			
Field Studies					Field Studies					
Indep Study					Indep Study					
Other blank					Other discussion	<u>1</u>		<u>24</u>	<input checked="" type="checkbox"/>	

**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 Chemistry of Life course (CHEM 110) and provides students with an interactive, problem-solving session where students work in small teams to solve problems related to the course. Its function is to increase student success in the chemistry of life course, so that students have a lower likelihood of needing to repeat this course. CHEM 110 a requirement for students in the B.S. Nursing.

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

**NEW**

This course is an optional problem-solving session for the Chemistry of Life course (CHEM 110) and provides students with an interactive, problem-solving session where students work in small teams to solve problems related to the course. Its function is to increase student success in the chemistry of life course, so that students have a lower likelihood of needing to repeat this course. CHEM 110 a requirement for students in the B.S. Nursing.

Requirement for the Major/Minor  
Elective for the Major/Minor  
☒ 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**

These are the same as for CHEM 110.

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

- 1) Describe the scientific method and how it is used to approach chemical problems
- 2) Explain the differences between elements, chemical compounds, ions, and mixtures
- 3) Calculate the concentrations and solubilities of compounds in mass percent and molarity
- 4) Define acids and bases and pH of solutions
- 5) Calculate hydrogen-ion concentration and pH

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

**NEW**

These are the same as for CHEM 110.

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

- 1) Describe the scientific method and how it is used to approach chemical problems
- 2) Explain the differences between elements, chemical compounds, ions, and mixtures
- 3) Calculate the concentrations and solubilities of compounds in mass percent and molarity
- 4) Define acids and bases and pH of solutions
- 5) Calculate hydrogen-ion concentration and pH

- 6) Discuss how and why acid-base reactions occur
- 7) Explain how and why oxidation-reduction reactions occur
- 8) Determine the rate of a reaction and the energy change in a reaction
- 9) Explain the molecular structure of inorganic, organic, and biological compounds
- 10) Describe fundamental nuclear chemical processes and their medical applications
- 11) Explain enzyme catalysis and inhibition
- 12) Describe energy production in the metabolism of sugars, proteins, and lipids
- 13) Define chemical hazards of particular classes of chemicals
- 14) Explain how chemicals interact with the human body

- 6) Discuss how and why acid-base reactions occur
- 7) Explain how and why oxidation-reduction reactions occur
- 8) Determine the rate of a reaction and the energy change in a reaction
- 9) Explain the molecular structure of inorganic, organic, and biological compounds
- 10) Describe fundamental nuclear chemical processes and their medical applications
- 11) Explain enzyme catalysis and inhibition
- 12) Describe energy production in the metabolism of sugars, proteins, and lipids
- 13) Define chemical hazards of particular classes of chemicals
- 14) Explain how chemicals interact with the human body

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

**OLD**

This is the same as CHEM 110

**I. Measurements and the Scientific Method**

**A. Units and Significant Figures**

**B. Unit Conversion**

**C. Scientific Method: Hypotheses, Theories, Experiments, and Conjecture**

**II. Chemical Composition**

**A. Subatomic Particles, Atoms, and the Periodic Table**

**B. Molecules and the Nature of the Chemical Bonds**

**C. Compounds and Mixtures**

**D. Ions and Salts**

**E. Molecular Structure of Inorganic Compounds**

**III. Physical Properties of Matter**

**A. States of Matter**

**B. Mass, Density, and Viscosity**

**C. Solubility and Solutions**

**D. Chemical Hazards of Gases, Liquids, and Solids**

**IV. Chemical Reactions**

**A. Acid-Base Chemistry**

**B. Oxidation-Reduction Reactions**

**C. Rates of and Energy Changes in Reactions**

**D. Classifications of Chemical Reactions**

**E. Nuclear Chemistry and its Applications in Medicine**

**V. Organic and Biological Molecules**

**A. Functional Groups and Interactions Between Molecules**

**B. Origin of Molecular Shape**

**C. Structures of Amino Acids, Sugars, Proteins, Nucleic Acids, and Lipids**

**D. Enzyme Catalysis and Inhibition**

**E. Amino Acid Function and Biosynthesis**

**F. Protein Function and Biosynthesis**

**G. Nucleic Acid Function and Biosynthesis**

**I. Energy Production: Metabolism of Sugars, Proteins, and Lipids**

**J. Biological Membranes: Structure, Function, Active and Passive Transport**

**K. Oxidative Phosphorylation and Electron-Transport**

Note: Approximate coverage for this course is General Chemistry 40%, Organic Chemistry 20%, and Biochemistry 40%

**NEW**

This is the same as CHEM 110

**I. Measurements and the Scientific Method**

**A. Units and Significant Figures**

**B. Unit Conversion**

**C. Scientific Method: Hypotheses, Theories, Experiments, and Conjecture**

**II. Chemical Composition**

**A. Subatomic Particles, Atoms, and the Periodic Table**

**B. Molecules and the Nature of the Chemical Bonds**

**C. Compounds and Mixtures**

**D. Ions and Salts**

**E. Molecular Structure of Inorganic Compounds**

**III. Physical Properties of Matter**

**A. States of Matter**

**B. Mass, Density, and Viscosity**

**C. Solubility and Solutions**

**D. Chemical Hazards of Gases, Liquids, and Solids**

**IV. Chemical Reactions**

**A. Acid-Base Chemistry**

**B. Oxidation-Reduction Reactions**

**C. Rates of and Energy Changes in Reactions**

**D. Classifications of Chemical Reactions**

**E. Nuclear Chemistry and its Applications in Medicine**

**V. Organic and Biological Molecules**

**A. Functional Groups and Interactions Between Molecules**

**B. Origin of Molecular Shape**

**C. Structures of Amino Acids, Sugars, Proteins, Nucleic Acids, and Lipids**

**D. Enzyme Catalysis and Inhibition**

**E. Amino Acid Function and Biosynthesis**

**F. Protein Function and Biosynthesis**

**G. Nucleic Acid Function and Biosynthesis**

**I. Energy Production: Metabolism of Sugars, Proteins, and Lipids**

**J. Biological Membranes: Structure, Function, Active and Passive Transport**

**K. Oxidative Phosphorylation and Electron-Transport**

Note: Approximate coverage for this course is General Chemistry 40%, Organic Chemistry 20%, and Biochemistry 40%

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

**CHEM 110 Course Proposal**

General, Organic, and Biological Chemistry by Karen Timberlake (Pearson/Benjamin Cummings)

NEW

**CHEM 110 Course Proposal**

General, Organic, and Biological Chemistry by Karen Timberlake (Pearson/Benjamin Cummings)

**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 <b>Grading</b>
<input type="checkbox"/> Prerequisites/Corequisites	<input type="checkbox"/> Reactivate Course
<input type="checkbox"/> Catalog description	
<input 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.

**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 15<sup>th</sup>.

Simone Aloisio

---

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		
	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
Dean of Faculty		
	Signature	Date