CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

COURSE MODIFICATION PROPOSAL

PROGRAM AREA  ____MULTIPLE PROGRAMS______________________________

1. Catalog Description of the Course. [Include the course prefix, number, full title, and units. Provide a course narrative using
underline for deletions and CAPITALS for additions including prerequisites/corequisites. If any of the following apply, include
in the description: Repeatability (May be repeated to a maximum of ___ units); time distribution (Lecture ___ hours, laboratory
___ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]

**EXISTING:**
CHEM 400. Biochemistry (4)
Three hours lecture and three hours lab per week.
Prerequisite: CHEM 314 with a grade of C or better
Introduction to the physical and chemical properties of proteins and enzymes, enzymatic catalysis and inhibition,
the biosynthesis of proteins and nucleic acids, and biosynthetic and metabolic pathways. Lab fee required.

**PROPOSED:**
CHEM 460. Biochemistry I (4)
Three hours lecture and three hours laboratory per week.
Prerequisite: CHEM 314 with a grade of C or better
This course will examine the physical and chemical properties of biological molecules. Topics include: the
structure and function of nucleic acids, proteins, lipids, and carbohydrates. Lab fee required.

2. Mode of instruction

<table>
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<th>Existing</th>
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<tr>
<td><strong>Units</strong></td>
<td><strong>Hours Per Benchmark</strong></td>
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<td>Lecture</td>
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<td>Seminar</td>
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<td>Laboratory</td>
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<td>Activity</td>
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3. Course Content in Outline Form if Being Changed. [Be as brief as possible, but use as much space as necessary]

*Introduction to Biochemistry*
Chemical evolution
Evolution of cells
Architecture of cells
Thermodynamics
Kinetics
Structure and properties of water

*Nucleotides and Nucleic Acids*
Nucleic acid structure and function
Sequencing of nucleic acids

*Amino Acids and Proteins*
Amino acid structure and properties
Protein purification
Protein sequencing
Protein evolution
Structure of proteins
Protein folding and stability

*Protein Function*
Hemoglobin and myoglobin
Myosin and actin
Antibodies
Carbohydrates
  Monosaccharides and polysaccharides
  Glycoproteins
Lipids
  Classification of lipids
  Organization of lipids
Biological Membranes
  Membrane structure and assembly
  Membrane proteins and their function
  Transport across membranes
Enzymatic Catalysis
  Properties and classification of enzymes
  Mechanisms of enzymatic catalysis
  Enzymes kinetics
  Inhibition of enzymes
  Regulation of enzymes

4. References. [Provide 3-5 references on which this course is based and/or support it.]

Stryer, L. Biochemistry, 4th Ed., 1995

5. 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.]

- Course title
- Prefix/suffix
- Course number
- Units
- Staffing formula and enrollment limits
- Prerequisites/corequisites
- Catalog description
- Course content
- References
- GE
- Other

The Chemistry Program has established a numbering system for subdisciplines in Chemistry. The 460-469 numbering range corresponds to the Biochemistry subdiscipline area; whereas, the 400-409 numbering range corresponds to general chemistry courses spanning more than one subdiscipline area. Previously CHEM 400 was a one semester course, and we are now expanding this course into a two semester sequence.

6. If this modification results in a GE-related change indicate GE category affected:

<table>
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<th>A (English Language, Communication, Critical Thinking)</th>
<th>B (Life Sciences)</th>
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<tr>
<td>C (Fine Arts, Literature, Languages &amp; Cultures)</td>
<td>D (Social Perspectives)</td>
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<td>E (Human Psychological and Physiological Perspectives)</td>
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7. Consultation
Attach consultation sheets from all program areas, Library, and others (if necessary)
8. If this course modification will alter any degree, credential, certificate, or minor program in your program attach a program modification.

___ Phil Hampton and Simone Aloisio ___ 10/31/03 ____________________________________________
Proposer of Course Modification Date
Approvals

Program Chair       Date

Curriculum Committee Chair       Date

Dean       Date
1. Course Title: __CHEM 460. Biochemistry I ____________________________

2. Program Area: ___Multiple Programs _____________________________

**Recommend Approval**

<table>
<thead>
<tr>
<th>Program Area/Unit</th>
<th>Program/Unit Chair</th>
<th>YES</th>
<th>NO (attach objections)</th>
<th>Date</th>
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