California State University Channel Islands

NEW COURSE PROPOSAL

Courses must be submitted by November 2, 2009, for priority catalog review.

DATE (Change if modified and redate file with current date) 9-22-09; REV 12.7.09

PROGRAM AREA(S) BIOLOGY

1. Course Information. [Follow accepted catalog format.]

Prefix(es) (Add additional prefixes if cross-listed) and Course No. BME 500

Title: Biological Systems, Biomechanics and Biorobotics Units: 3

Prerequisites BIOL 210 and 211 or BIOL 424; PHYS 200 and 201 or BIOL/PHYS 315; and BIOL 300 or CHEM 318 or CHEM 460; and BIOL 400 or BIOL 501

Corequisites

Consent of Instructor Required for Enrollment

Catalog Description (Do not use any symbols): Covers structural and physiological foundations in biomedical engineering, including molecular and cellular, cardiovascular, musculoskeletal and neural systems, and principles and applications of biomechanics and biorobotics in biological systems.

Grading Scheme: Repeatability: Course Level Information:

x A-F Grades Repeatable for a maximum of units Undergraduate

Credit/No Credit Total Completions Allowed Post-Baccalaureate/Credential

Optional (Student Choice) Multiple Enrollment in Same Semester Graduate

Mode of Instruction/Components (Hours per Unit are defaulted).

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<thead>
<tr>
<th>Component</th>
<th>Units</th>
<th>Hours per Unit</th>
<th>Benchmark Enrollment</th>
<th>Graded Component</th>
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<tbody>
<tr>
<td>Lecture</td>
<td>2</td>
<td>1</td>
<td>24</td>
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<tr>
<td>Seminar</td>
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<tr>
<td>Laboratory</td>
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<tr>
<td>Activity</td>
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<td>Field Studies</td>
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<td>Indep Study</td>
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Leave the following hours per week areas blank. The hours per week will be filled out for you.

2 hours lecture per week
3 hours laboratory per week

2. 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)
3. **Justification and Requirements for the Course.** (Make a brief statement to justify the need for the course)
   A. Justification: This is a required course for the MS Biotechnology with an Emphasis in Biomedical Engineering program.
   B. Degree Requirement: x Requirement for the Major/Minor  
      Note: Submit Program Modification if this course changes your program.

4. **Learning Objectives.** (List in numerical order. You may wish to use the following resource in utilizing measurable verbs: http://senate.csuci.edu/comm/curriculum/resources.htm)
   Upon completion of the course, the student will be able to:
   - Demonstrate an understanding of biological bases of biomechanics and biorobotics
   - Illustrate and apply principles of biomechanics of human movement
   - Summarize robotic procedures utilized in medicine

5. **Course Content in Outline Form.** [Be as brief as possible, but use as much space as necessary]
   Review of human anatomy and physiology at organ, tissue, cellular and molecular levels
   Mechanical bases, linear, angular, and fluid
   Biomechanics of human movement and the musculoskeletal system
   Biomechanics in sports medicine and rehabilitation
   Neurological consideration of human movement
   Robotic procedures in medicine

   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.

6. **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).
      List each cross-listed prefix for the course:

   B. Program responsible for staffing: Biology

7. **References.** *(Provide 3 - 5 references)*
8. Tenure Track Faculty Qualified to Teach This Course.

Biology faculty

9. Requested Effective Date:
First semester offered: F2010

10. New Resources 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 (please refer to Dean’s Office for additional processing) Yes ☒ No x

E. Other

11. Will this new course alter any degree, credential, certificate, or minor in your program? Yes x 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, of preceding year.
Last day to submit forms to be considered during the current academic year: April 15th.

Ching-Hua Wang 9/30/09
Proposer of Course (Type in name. Signatures will be collected after Curriculum approval) Date
Approval Sheet

**Program/Course:** Biology BME 500

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.

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<th>Chair Name</th>
<th>Signature</th>
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<tbody>
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<td>Program Chair</td>
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<td>Center for International Affairs Director</td>
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