Florida Institute of Technology

ADDING A NEW COURSE TO THE CURRICULUM

This course is available for student registration only after the approval process has been completed.

SUBJECT: BME  
COURSE NO.: 4300  
CREDIT HOURS: 3  
TERM TO BE ADDED TO THE FILE: Spring 2015

CLASS HOURS: 45  
LECTURE HOURS: 45  
LAB HOURS:  
CONTACT HOURS (CEU ONLY):  

DEPARTMENT: Biomedical Engineering  
SCHEDULE TYPE: Special Projects/Topics (S)

☐ COLLEGE OF AERONAUTICS - 23  
☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS - 25  
☐ NATHAN M. BISK COLLEGE OF BUSINESS - 24  
☐ COLLEGE OF SCIENCE - 26  
☐ COLLEGE OF ENGINEERING - 1  
☐ EXTENDED STUDIES/NATHAN M. BISK COLLEGE OF BUSINESS - 90

COMPUTER TITLE: Restricted to 35 characters, including spaces  
Independent Study in BME  
Dual-Registration, BL-Level, Full-Load?  
Yes  
No

CATALOG TITLE: Restricted to 350 characters, including spaces  
Independent Study in Biomedical Engineering

CATALOG DESCRIPTION OF COURSE: Restricted to 150 characters, including spaces  
Includes student/faculty research on subjects topical to biomedical engineering at a level commensurate with advanced undergraduate standing. (Requirement: Department head approval and junior standing.)

This description has been approved by the catalog office  
Date

In addition, please attach a course syllabus and/or more detailed description.

RESTRICTIONS  
☐ Pre requisite  
☐ Corequisite  
☐ Course Number  
☐ and  
☐ or

☐ Pre requisite  
☐ Corequisite  
☐ Course Number  
☐ and  
☐ or

☐ Pre requisite  
☐ Corequisite  
☐ Course Number  
☐ and  
☐ or

☐ Pre requisite  
☐ Corequisite  
☐ Course Number  
☐ and  
☐ or

ADDITIONAL RESTRICTIONS:  
☐ Major/Minor Level  
☐ Department Head Approval

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

SUBJECT:  
COURSE NO.:  
TERM TO INACTIVATE:

☐ Yes  
☐ No  Will this course be used to measure program-level student learning outcomes? If yes, review and signature required.**

☐ Yes  
☐ No  Will this course be used to satisfy the scholarly inquiry requirement? If yes, attach "Q" materials for review.

APPROVALS: On completion of description and course number verification, affix appropriate signatures as indicated, and submit completed form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval.

Date

Date

Date

Date

Date

Associate Vice President for Institutional Effectiveness

CATALOG DIRECTOR

These changes/additions have been made for the University Catalog and entered into the BANNER term name above.

Catalog Director

Florida Institute of Technology • Office of the Registrar

150 West University Boulevard, Melbourne, FL 32901-6975 • (321) 674-8114 • Fax (321) 674-7827
BME 4300 INDEPENDENT STUDY IN BIOMEDICAL ENGINEERING
Fall 2014

2014-15 Catalog Data: This class will provide undergraduate students with experience working with faculty on biomedical engineering research projects. While specific research projects will vary, the general goals of this class are to gain a more detailed understanding of a specific research area and develop skills important for a future scientific research career. The subject topics will be commensurate with advanced undergraduate standing. No pre-requisite classes are required, but department head approval and junior standing are required.

Credits & Contact Hours: 3 Credits, 45 contact hours.

Required or Elective or Selected Elective: Restricted Elective.

Prerequisites by Topic: Scientific writing, Physics, Chemistry, Statics, Mathematics, Material Science, Basic introductory computer skills.

Co-requisites by Topic: None

Grading Policy:
Grades will be determined based on the student’s performance in the research, and written and/or oral presentation on the research at the end of the semester. The specific assignments and tasks will be decided by the individual instructor.

Textbook:
Journal articles and text book determined by the instructor

Course Outcomes: Students completing the course should be able to:
1. Develop a more detailed, hands on understanding of a specific Biomedical Engineering research area.
2. Apply the basic engineering and science principles learned in previous classes to a current Biomedical Problem.
3. Gain experience with skills necessary for a researcher, including performing a literature search, experimental design, mathematical model development, and communicating the results from the work.

Topics Covered and Associated Time:
The specific topics, meetings, and deadlines will be determined on an individual basis by the instructor. The contact hours will be 45 h at a minimum.

Class Schedule: To be determined by the instructor

Contribution of Course to Meeting the Requirements of Curriculum: This course meets the requirements of one and one-half years of engineering science topics.
Relationship of Course to Program Outcomes: See assessment matrix.

Prepared By: Chris Bashur, Ph.D., Assistant Professor of Biomedical Engineering
## Outcomes Assessment Matrix for BME 4300

<table>
<thead>
<tr>
<th>Course Outcomes</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>I</th>
<th>J</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>♦</td>
<td></td>
<td></td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td>2</td>
<td>♦</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>♦</td>
<td></td>
<td>♦</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>♦</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>♦</td>
<td>♦</td>
</tr>
</tbody>
</table>

### Key

<table>
<thead>
<tr>
<th>Code</th>
<th>Student Outcome Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>An ability to apply knowledge of mathematics, science, and engineering</td>
</tr>
<tr>
<td>b</td>
<td>An ability to design and conduct experiments, as well as analyze and interpret data</td>
</tr>
<tr>
<td>c</td>
<td>An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability</td>
</tr>
<tr>
<td>d</td>
<td>An ability to function on multi-disciplinary teams</td>
</tr>
<tr>
<td>e</td>
<td>An ability to identify, formulate, and solve engineering problems</td>
</tr>
<tr>
<td>f</td>
<td>An understanding of professional and ethical responsibility</td>
</tr>
<tr>
<td>g</td>
<td>An ability to communicate effectively</td>
</tr>
<tr>
<td>h</td>
<td>Have a broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context</td>
</tr>
<tr>
<td>i</td>
<td>A recognition of the need for, and an ability to engage in, life-long learning</td>
</tr>
<tr>
<td>j</td>
<td>A knowledge of contemporary issues</td>
</tr>
<tr>
<td>k</td>
<td>An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice</td>
</tr>
</tbody>
</table>

♦ = The course outcome *lightly* addresses the Student Outcome  
◆ = The course outcome *strongly* addresses the Student Outcome

Course outcomes assessment matrix completed by: Chris Bashur, Ph.D., Biomedical Engineering  
Date: 8/4/2014