BIOMEDICAL ENGINEERING

ABOUT THE MINOR
A minor in biomedical engineering is open to all students in the University with the prerequisite calculus and physics background. The minor is particularly designed for majors in electrical or computer engineering, other engineering departments, or biology and health sciences fields, who would like a basic background in relevant aspects of biology and electrical engineering, with the opportunity to complete an interdisciplinary biomedical engineering design (capstone) project.

For additional information contact:
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mniedre@ece.neu.edu
Office: 333 Dana – 617-373-5410

Category I: Complete the following two courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL1117/1118</td>
<td>Integrated Anatomy &amp; Physiology with lab</td>
</tr>
<tr>
<td>BIOL1115/1116</td>
<td>General Biology 1 for Engineering</td>
</tr>
</tbody>
</table>

Category II: Complete one course from the following list: Courses in this category may be doubled counted toward a major requirement.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EECE4512</td>
<td>Biomedical Electronics</td>
</tr>
<tr>
<td>EECE5664</td>
<td>Biomedical Signal Processing</td>
</tr>
<tr>
<td>EECE5648</td>
<td>Biomedical Optics</td>
</tr>
<tr>
<td>EECE5698</td>
<td>Special Topics in Bio-Nanotechnology</td>
</tr>
<tr>
<td>EECE4993</td>
<td>Directed Study*</td>
</tr>
</tbody>
</table>

*The directed study course requires research that must have a biomedical engineering theme.

Category III: Complete Capstone design sequence listed below: (or equivalent from other COE department). Students must choose a project with a biomedical engineering theme and receive approval from advisor in the Electrical and Computer Engineering Department. The Capstone Design courses may be counted towards a student's major with the approval of the student's major department.

<table>
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<tbody>
<tr>
<td>EECE4790</td>
<td>Capstone Design 1</td>
</tr>
<tr>
<td>EECE4792</td>
<td>Capstone Design 2</td>
</tr>
</tbody>
</table>

Category IV: Biomedical Electives: Complete two courses from the following list. At least one course must be taken outside of the student's home department. Alternative courses may also be
included toward the minor (by petition) on a case-by-case basis. Courses in Category IV cannot be double counted toward a student’s major requirements.

**Biology**
BIOL 1113/1114 General Biology 2 with lab
BIOL1119/1120 Integrated Anatomy and Physiology 2 w lab
BIOL 2299 Inquiries in Cell and Molecular Biology
BIOL 2301/2302 Genetics and Molecular Biology
BIOL3405 Neurobiology
BIOL5581 Biological Imaging

**Physics**
PHYS4621 Biological Physics
PHYS4623 Medical Physics
PHYS4651 Medical Physics Seminar 1
PHYS4652 Medical Physics Seminar 2

**Psychology**
PSYS3452 Introduction to Sensation and Perception
PSYS3458 Psychobiology

**Chemical Engineering**
*CHME 5630 Biochemical Engineering
*CHME 5699.01 Special Topics in Chemical Engineering: Bioanalytical Sensors
*CHME 5699.02 Quantitative Principles in Cell and Tissue Engineering

**Civil and Industrial Engineering**
*CIVE7251 Environmental Biological Processes

**Electrical and Computer Engineering**
EECE4512 Biomedical Electronics
EECE5664 Biomedical Signal Processing
EECE5648 Biomedical Optics
EECE5698 Special Topics in Bio-Nanotechnology
EECE4933 Directed Study

**Mechanical and Industrial Engineering**
*ME 5665 Musculoskeletal Dynamics
*IE 4522 Human Machine Systems

* indicates that instructor permission is required before enrolling for the course.

- Minor is awarded to students completing the requirements and earning a minimum QPA of 2.0 in the minor coursework.
- Students may have to take pre-requisite courses to gain entry into specified courses.
- No credit will be given for elective courses that have substantial overlap with courses the student has taken as part of the major.

Revised 2/14/13