Program Educational Objectives: Graduates of the Biomedical Engineering: Premedical program will: (1) demonstrate a broad knowledge in the field of biomedical engineering; (2) demonstrate critical reasoning as well as quantitative skills to identify, formulate, analyze and solve biomedical problems; (3) qualify to pursue entry into a medical college, or medical research in biomedical engineering, or other professional health programs. (Program educational objectives are those aspects of engineering that help shape the curriculum; achievement of these objectives is a shared responsibility between the student and UCI.) The major program objective is to prepare students for medical school. The curriculum is designed to meet the requirements for admission to medical schools, but is also suitable for those planning to enter graduate school in biomedical engineering, physiology, biology, neurosciences, or related fields. It has less engineering content and more biological sciences than the accompanying Biomedical Engineering major. It is one of many majors that can serve as preparation for further training in medical, veterinary, or allied health professions.

The Biomedical Engineering: Premedical curriculum provides future physicians with a quantitative background in biomechanics, physiology, and biotransport. Such a background is increasingly important because of the heavy utilization of biomedical technology in modern medical practice. The curriculum includes courses in the sciences that satisfy the requirements of most medical schools.

High School Students: See School admissions information.

Transfer Students: Preference will be given to junior-level applicants with the highest grades overall, and who have satisfactorily completed the following required courses: two years of approved calculus, one year of calculus-based physics with laboratories (mechanics, electricity and magnetism), completion of lower-division writing, one year of general chemistry (with laboratory), one year of organic chemistry (with laboratory), and one course in introductory programming. For course equivalency specific to each college, see assist.org.

Students are encouraged to complete as many of the lower-division degree requirements as possible prior to transfer. Students who enroll at UCI in need of completing lower-division coursework may find that it will take longer than two years to complete their degrees. For further information, contact The Henry Samueli School of Engineering at 949-824-4334.

All students must meet the University Requirements.
All students must meet the School Requirements.

Major Requirements

Mathematics and Basic Science Courses:

Students must complete a minimum of 48 units of mathematics and basic sciences including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1A-1B</td>
<td>General Chemistry</td>
</tr>
<tr>
<td>CHEM 1LC-1LD</td>
<td>General Chemistry Laboratory</td>
</tr>
<tr>
<td>CHEM 51A-51B-51C</td>
<td>Organic Chemistry</td>
</tr>
<tr>
<td>CHEM 51LB-51LC</td>
<td>Organic Chemistry Laboratory</td>
</tr>
<tr>
<td>MATH 2A-2B</td>
<td>Single-Variable Calculus</td>
</tr>
<tr>
<td>MATH 2D</td>
<td>Multivariable Calculus</td>
</tr>
<tr>
<td>MATH 3A</td>
<td>Introduction to Linear Algebra</td>
</tr>
<tr>
<td>MATH 3D</td>
<td>Elementary Differential Equations</td>
</tr>
<tr>
<td>PHYSICS 7C</td>
<td>Classical Physics</td>
</tr>
<tr>
<td>PHYSICS 7LC</td>
<td>Classical Physics Laboratory</td>
</tr>
<tr>
<td>PHYSICS 7D-7E</td>
<td>Classical Physics</td>
</tr>
<tr>
<td>PHYSICS 7LD</td>
<td>Classical Physics Laboratory</td>
</tr>
</tbody>
</table>

Students select, with the approval of a faculty advisor, any additional basic science course needed to satisfy school and major requirements.

Engineering Topics Courses:

Students must complete the following engineering topics including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO SCI 97</td>
<td>Genetics</td>
</tr>
<tr>
<td>BIO SCI 98</td>
<td>Biochemistry</td>
</tr>
<tr>
<td>BIO SCI 99</td>
<td>Molecular Biology</td>
</tr>
</tbody>
</table>
BIO SCI 100  Scientific Writing
BIO SCI D103  Cell Biology
or BIO SCI D104  Developmental Biology
BIO SCI D111L  Developmental and Cell Biology Laboratory
BIO SCI E112L- M114L- M116L  Physiology Laboratory
and Biochemistry Laboratory
and Molecular Biology Laboratory (select two of these three courses)
BIO SCI 194S  Safety and Ethics for Research
BME 1  Introduction to Biomedical Engineering
BME 60A- 60B- 60C  Engineering Analysis/Design: Data Acquisition
and Engineering Analysis/Design: Data Analysis
and Engineering Analysis/Design: Computer-Aided Design
BME 110A- 110B  Biomechanics I
and Biomechanics II
BME 111  Design of Biomaterials
BME 120  Sensory Motor Systems
BME 121  Quantitative Physiology: Organ Transport Systems
BME 130  Biomedical Signals and Systems
BME 150  Biotransport Phenomena

Students select, with the approval of a faculty advisor, at least three additional engineering topics courses needed to satisfy school and major requirements.

(The nominal Biomedical Engineering: Premedical program will require 189 units of courses to satisfy all university and major requirements. Because each student comes to UCI with a different level of preparation, the actual number of units will vary).

The sample program of study chart shown is typical for the major in Biomedical Engineering: Premedical. Students should keep in mind that this program is based upon a sequence of prerequisites, beginning with adequate preparation in high school mathematics, physics, and chemistry. Students who are not adequately prepared, or who wish to make changes in the sequence for other reasons, must have their program approved by their faculty advisor. Biomedical Engineering: Premedical majors are encouraged to consult with academic counselors as needed, and students who are academically at risk are mandated to see a counselor as frequently as deemed necessary by the advising staff.

### Freshman

#### Fall
- MATH 2A
- CHEM 1A
- BME 1
- General Education

#### Winter
- MATH 2B
- CHEM 1B
- PHYSICS 7C
- General Education

#### Spring
- MATH 2D
- CHEM 1C
- PHYSICS 7LC
- General Education

### Sophomore

#### Fall
- MATH 3A
- CHEM 1LD
- CHEM 51A
- PHYSICS 7E
- BME 60A
- General Education

#### Winter
- MATH 3D
- CHEM 51B
- CHEM 51LB
- BME 60B
- General Education

#### Spring
- CHEM 51C
- CHEM 51LC
- BME 60C
- General Education

### Junior

#### Fall
- BIO SCI 97
- BME 110A
- BME 120
- BME 130
- Engineering Elective

#### Winter
- BIO SCI 98
- BME 110B
- BME 150
- Engineering Elective

#### Spring
- BIO SCI 99
- BME 111
- BME 121
- General Education

### Senior

#### Fall
- BIO SCI 100
- BIO SCI 194S
- General Education
- General Education

#### Winter
- BIO SCI D103 or D104
- BIO SCI D111L
- Engineering Elective
- General Education

#### Spring
- BIO SCI E112L ¹
- BIO SCI M114L ¹
- BIO SCI M116L ¹
- Engineering Elective

¹ Select two of BIO SCI E112L, BIO SCI M114L, BIO SCI M116L.