BIOMEDICAL ENGINEERING

Core Biomedical Engineering Courses

Lower Division
- BME 1: Introduction to Biomedical Engineering
- BME 50A and 50B: Cell and Molecular Engineering
- BME 60A: Engineering Analysis/Design: Data Acquisition
- BME 60B: Engineering Analysis/Design: Data Analysis
- BME 60C: Engineering Analysis/Design: Computer-Aided Design

Upper Division
- BME 110A, 110B and 110C: Biomechanics I-III
- BME 111: Design of Biomaterials
- BME 120: Sensory Motor Systems
- BME 121: Quantitative Physiology: Organ Transports Systems
- BME 130: Biomedical Signal and Systems
- BME 140: Design of Biomedical Electronics
- BME 150: Biotransport Phenomena
- BME 170: BME Laboratory
- BME 180A, 180B and 180C: BME Senior Design

Engr 190W: Communications in the Professional World

Students must complete, with the approval of a faculty advisor, a minimum of three technical electives. These are courses not used for the BME degree from an approved list. Students may select an area of specialization.

- Biophotonics
- Micro & Nano Biomedical Engineering

Most specialization courses count towards completing the technical elective requirement.

For more details on major requirements go to: http://catalogue.uci.edu/

Sample Program of Study

### Freshmen Year

**Fall**
- MATH 2A
- CHEM 1A
- BME 1
- GENERAL ED

**Winter**
- MATH 2B
- CHEM 1B
- PHYSICS 7C+7LC
- GENERAL ED

**Spring**
- MATH 2D
- CHEM 1C+1LC
- PHYSICS 7D+7LD
- GENERAL ED

### Sophomore Year

**Fall**
- MATH 3A
- PHYSICS 7E
- BME 60A
- GENERAL ED

**Winter**
- MATH 3B
- BME 50A
- BME 60B
- GENERAL ED

**Spring**
- MATH 3C
- BME 50B
- BME 60C
- STATS 8

### Junior Year

**Fall**
- BME 110A
- BME 120
- BME 130
- BIO SCI 194S

**Winter**
- BME 110B
- BME 140
- BME 150
- GENERAL ED

**Spring**
- BME 110C
- BME 111
- BME 121
- GENERAL ED

### Senior Year

**Fall**
- BME 180A
- ENGR 190W

**Winter**
- BME 180B
- TECH ELECTIVE

**Spring**
- BME 180C
- TECH ELECTIVE

Note: Course offerings subject to change. Courses subject to prerequisite requirements.

### Undergraduate Research Opportunities

- Independent Study (199 course)
- Student Project Examples
  - Rehab Robotics
  - Real Time Noninvasive Atrial Fibrillation Detector
  - Robotic Hand
  - Beating Heart Model
  - Cardiac Energy Harvesting Device
- Additional student projects can be found on projects.eng.uci.edu
- Undergraduate Research Opportunities Program (UROP)

### Potential Research Areas

- Biomedical Computational Technologies
- Biomedical Nanoscale Systems
- Biomolecular/Genetic Engineering
- Biophotonics
- Medical Devices
- Cardiovascular Technologies
- Neuroscience
- Tissue Engineering

### Potential Careers

- Clinical Engineer
- Biomedical Engineer
- Manufacturing Engineer
- Orthopedic Bioengineer
- Physician
- Rehabilitation Engineer
- Researcher

### Student Involvement Opportunities

#### Engineering Campus Resources

- CAMP: California Alliance of Minority Participation
  - https://camp.uci.edu/
  - Mentorship Program
  - Scholarship Opportunities

- OAI: Office of Access and Inclusion
  - http://tech.uci.edu/access/index.php
  - Free Engineering Course Tutoring
  - Mentorship Program

#### Engineering Student Organizations

- ESC: Engineering Student Council
  - http://esc.ukulele.eng.uci.edu/

- Biomedical Engineering Society
  - https://bmesatucirvine.weebly.com/

- Biomedical Engineering

Biomedical engineering combines engineering expertise with medical needs for the enhancement of health care. It is a branch of engineering in which knowledge and skills are developed and applied to define and solve problems in biology and medicine. Students choose the biomedical engineering field to be of service to people, for the excitement of working with living systems, and to apply advanced technology to the complex problems of medical care. Biomedical engineers may be called upon to design instruments and devices, to bring together knowledge from many sources to develop new procedures, or to carry out research to acquire knowledge needed to solve new problems.

Undergraduate Research Opportunities Program (UROP)

Undergraduate Research Opportunities Program (UROP)

Handshake: Job & Internship Search Tool:
career.uci.edu/students/zotlink.html

Find Employers based on major:
career.uci.edu/students/undergraduate/find-an-internship/buzzfile-company-search-tool/

Career Fairs:
career.uci.edu/students/career-fairs.html

- Fall STEM Career Fair
- Fall Career Fair
- Winter Internship & Career Fair
- Winter E-Week EngITECH Career Fair
- Spring Career Fair

Additional Major Info