## Biomedical Engineering

### Mathematics (16 Units)
- **MATH 125**: Calculus I*
- **MATH 126 or 129**: Calculus II*
- **MATH 226 or 229**: Calculus III
- **MATH 245**: Mathematics of Phys. and Engr.

### Physics (8 Units)
- **PHYS 151L**: Mechanics and Thermodynamics
- **PHYS 152L**: Electricity and Magnetism

### Chemistry (16 Units)
- **CHEM 105aL**: General Chemistry*
- **CHEM 105bL**: General Chemistry
- **CHEM 322aL**: Organic Chemistry
- **CHEM 322bL**: Organic Chemistry or 400-level BME course

### Biology (8 Units)
- **BISC 220L**: Cell Biology & Physiology
- **BISC 320L**: Molecular Biology

### General Education (32 Units)
- **GE A**: The Arts (1 Course)*
- **GE B**: Humanistic Inquiry (2 Courses)
- **GE C**: Social Analysis (2 Courses)
- **GE D**: Life Sciences (1 Course)*
- **GE E**: Physical Sciences (1 Course)*
- **GE F**: Quantitative Reasoning (1 Course)*
- **GE G,H**: Global Perspectives (2 Courses)*
- **GESM**: General Education Seminar (1 Course)

### Writing (8 Units)
- **WRIT 150**: Writing and Critical Reasoning
- **WRIT 340**: Advanced Writing

### Engineering (55 Units)
- **BME 101**: Intro. to Biomedical Engineering
- **BME 202**: Control/Comm. in Nervous System
- **BME 210**: Biomed. Comp. Simulation Methods
- **BME 302L**: Medical Electronics
- **BME 403L**: Medical Electronics
- **BME 406**: Biomedical Signals & Systems
- **BME 405L**: Development and Regulation of Medical Products
- **BME 423**: Statistical Methods in BME
- **BME 410**: Clinical Engineering Freshman Academy
- **BME ANCHOR COURSE**: BME 404 or BME 451

### Technical Electives
- **ENGR 102**: Optional Elective
- **BME 210**: Optional Elective
- **BME 302L**: Optional Elective
- **BME 405L**: Optional Elective

### Special Notes
Courses with the * symbol may be satisfied with AP, IB or A-Level exams. See page 18 for more information.

**GESM**: GESM can be taken from GE categories: A, B, or C. Courses listed in the guide are options for a four-year course plan.

**GE**: Engineering students are encouraged to satisfy GE-G and GE-H with a course that also satisfies a Core Literacy. GE-H may be satisfied by AP/IB. Additionally, your GESM course should be taken in categories A, B, or C only. See page 17 for more information and consult your advisor for detailed assistance.

### Technical Electives (6-8 Units)
Taken from ONE of the following three areas of specialization:
- Bioelectronics/Computers: (BME 201, BME 204, BME 426, BME 427, BME 430, BME 451, BME 453, CSCI 445, EE 109L, EE 209, EE 338, EE 348L, EE 352L, EE 354L, EE 454L, EE 483, ENGR 345 or ITP 308) or Biomechanics: (AME 201, AME 204, AME 301, AME 302, AME 308 or ITP 308, AME 309, BME 201, BME 204, BME 404, BME 412, BME 414, BME 426, BME 427, BME 430 or MASC 310) or Molecular-Cellular Engineering: (BME 201, BME 204, BME 406, BME 412, BME 414, BME 430, BME 453, BME 459, CHE 330, CHE 350, CHE 460L, CHE 489, ENGR 305, ITP 308, or MASC 310)

The Organic Chemistry option allows students in BME, BMEL, and BMEN to replace one semester of Organic Chemistry with an additional 4-unit 400-level BME course.
Emphasis Course Tracks for Biomedical Engineering

The Biomedical Engineering (BME) curriculum covers foundational concepts during the first few semesters. Students following the standard program will have the opportunity to take more technical electives, while students pursuing one of the optional specializations will take courses related to that content area.

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### Mechanical

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### Molecular-Cellular

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## Course Requirements

### FIRST TRACK COURSE:

- **EE 338**
- **EE 202L, PHYS 152L, or EE 354L**
- **EE 109L**

### SECOND TRACK COURSE:

- **EE 202L, PHYS 152L, or EE 354L**
- **EE 109L**

### TECHNICAL ELECTIVE

- **BME 210, EE 202L**
- **BME 405L**
- **BISC 220L, MATH 245, (EE 202L)**

### OPTIONAL ELECTIVE

- **WRIT 340**
- **WRIT 150**