# BIOENGINEERING

## Fall Quarter | Units | Winter Quarter | Units | Spring Quarter | Units
---|---|---|---|---|---
**FIRST YEAR**
BIEN 001 | 1 | BIOL 005A & BIOL 05LA | 5 | BIOL 005B | 4
Freshmen Seminar |  | Cell & Molecular Biology & Lab |  | Organismal Biology |  
CHEM 001A & CHEM 01LA | 5 | CHEM 001B & CHEM 01LB | 5 | CHEM 001C & CHEM 01LC | 5
General Chemistry & Lab |  | General Chemistry & Lab |  | General Chemistry & Lab |  
ENGL 001A | 4 | ENGL 001B | 4 | ENGL 001C or Alternate* | 4
Beginning Composition |  | Intermediate Composition |  | Applied Intermediate Composition |  
MATH 009A | 4 | MATH 009B | 4 | MATH 009C | 4
First Year Calculus |  | First Year Calculus |  | First Year Calculus |  

## Second Year

### ENGLISH COMPOSITION*

A C or better is required in all English Composition courses to satisfy the graduation requirement. Please consult with your Academic Advisor for ENGL 1C alternatives.

### BREADTH REQUIREMENTS

For an approved list of Breadth courses, go to http://student.engr.ucr.edu/policies/requirements/breadth.html.

Humanities: (3 courses)
- World History: ____________
- Fine Arts, Lit., Phil. or Rlst: ____________
- Human Persp. on Science: ____________

Social Sciences: (3 courses)
- Econ. or Posc.: ____________
- Anth., Psyc, or Soc.: ____________
- General Social Science: ____________

Ethnicity: (1 course)
1. ____________

Upper Division: (2 courses)
1. ____________
2. ____________

### TECHNICAL ELECTIVES **

Please note that Technical Electives may be offered throughout the Academic Year. Consult with your Faculty Mentor about potential offerings. See approved technical electives on back.

### THIRD YEAR***

BIEN 101 | 4 | BIEN 105 | 4 | BIEN 115 | 4
Quantitative Biochemistry |  | Circulation Physiology |  | Quantitative Physiology |  
BIEN 110 | 4 | BIEN 125 | 4 | BIEN 120 | 4
Biomechanics of the Human Body |  | Biotechnology & Molecular Engr. |  | Biosystems & Signals Analysis |  
STAT 155 | 4 | BIEN/CEE 140A | 4 | BIEN 130 | 4
Probability & Statistics for Engr |  | Biomaterials |  | Bioinstrumentation |  
Breadth | 4 | Technical Elective** | 4 | BIEN 130L | 2
Humanities/Social Sciences |  |  |  | Bioinstrumentation Lab |  

### FOURTH YEAR

BIEN 175A | 2 | BIEN 175B | 4 | BIEN 175C | 4
Senior Design |  | Senior Design |  | Senior Design |  
BIEN 135 | 4 | Technical Elective** | 4 | Technical Elective** | 4
Biophysics & Biothermodynamics |  |  |  |  |  
BIEN 155 | 2 | Breadth | 4 | Breadth | 4
Biotechnology Lab |  | Humanities/Social Sciences |  | Humanities/Social Sciences |  
Technical Elective** | 4 | Breadth | 4 | Breadth | 4
Humanities/Social Sciences |  |  |  |  |  

---

*** Technical Electives may be taken in the third year if prerequisites have been met.

** Total Units: 190
** Maximum Units: 228
Bioengineering Technical Electives

You must complete 4 courses (at least 16 units) of Technical Elective coursework. Acceptable courses in the Department of Bioengineering are listed below.

<table>
<thead>
<tr>
<th>Course</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIEN/MSE 136</td>
<td>Tissue Engineering</td>
<td>3</td>
</tr>
<tr>
<td>BIEN 137</td>
<td>Advanced Biomechanics</td>
<td>4</td>
</tr>
<tr>
<td>BIEN 138</td>
<td>Fundamental Principles of Wound Repair</td>
<td>4</td>
</tr>
<tr>
<td>BIEN/CEE 140B</td>
<td>Biomaterials</td>
<td>4</td>
</tr>
<tr>
<td>BIEN 142</td>
<td>Introductory Biomedical Optical Imaging</td>
<td>4</td>
</tr>
<tr>
<td>BIEN/CEE 159</td>
<td>Dynamics of Biological Systems</td>
<td>4</td>
</tr>
<tr>
<td>BIEN 160</td>
<td>Biomedical Imaging</td>
<td>4</td>
</tr>
<tr>
<td>BIEN 165</td>
<td>Biomolecular Engineering</td>
<td>4</td>
</tr>
<tr>
<td>BIEN 166</td>
<td>Bioinspired Engineering for Sustainable Energy</td>
<td>4</td>
</tr>
<tr>
<td>BIEN 167</td>
<td>Medical Diagnostics</td>
<td>4</td>
</tr>
</tbody>
</table>

**Note that you may meet this Technical Elective requirement with courses from other departments in the College of Engineering, however for some of these courses you may need to obtain permission of the instructor for enrollment.