**Biomedical Engineering – Program Map: Cellular Engineering Track**

### Track Requisites

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Term</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR:2730</td>
<td>Computers in Engineering</td>
<td>All</td>
<td>P: ENGR:1300</td>
</tr>
<tr>
<td>ENGR:2750</td>
<td>Mechanics of Deformable Bodies</td>
<td>All</td>
<td>P: ENGR:2110; C: MATH:2560</td>
</tr>
<tr>
<td>BME:5421</td>
<td>Cell Material Interactions</td>
<td>Sp</td>
<td>P: BME:2110</td>
</tr>
<tr>
<td>BME:5430</td>
<td>Biotransport</td>
<td>F</td>
<td>P: BME:2500</td>
</tr>
</tbody>
</table>

### Track Electives

#### Engineering Topics

<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR:2510</td>
<td>Fluid Mechanics</td>
<td>F/Sp</td>
<td>P: MATH:2560, ENGR:2710</td>
</tr>
<tr>
<td>ENGR:2710</td>
<td>Dynamics</td>
<td>All</td>
<td>P: MATH:1550, ENGR:2110</td>
</tr>
<tr>
<td>ENGR:2720</td>
<td>Materials Science</td>
<td>All</td>
<td>P: CHEM:1110</td>
</tr>
<tr>
<td>BME:4310</td>
<td>Computational Biochemistry</td>
<td>F</td>
<td>P: MATH:1560, CHEM:2210</td>
</tr>
<tr>
<td>BME:5220</td>
<td>Digital Image Processing</td>
<td>F</td>
<td>P: BME:2210</td>
</tr>
<tr>
<td>BME:5441</td>
<td>Num and Statistical Methods for Bioeng</td>
<td>F</td>
<td>P: MATH:2560 and MATH:2550</td>
</tr>
<tr>
<td>BME:5451</td>
<td>Research Methods in Cellular Engineering</td>
<td>Sp</td>
<td>P: BIOL:1411, STAT:3510 or BIOS:4120</td>
</tr>
</tbody>
</table>

#### Suggested Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Term</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BME:5530</td>
<td>Artificial Organ &amp; Circ Implants Design</td>
<td>Sp</td>
<td>P: BME:2500</td>
</tr>
<tr>
<td>ME:5179</td>
<td>Continuum Mechanics</td>
<td>Sp</td>
<td>P: ENGR:2750</td>
</tr>
<tr>
<td>BIOL:1412</td>
<td>Diversity of Form &amp; Function</td>
<td>All</td>
<td>P: BIOL:1411, CHEM:1110</td>
</tr>
<tr>
<td>CHEM:2210</td>
<td>Organic Chemistry I</td>
<td>All</td>
<td>P: CHEM:1120</td>
</tr>
<tr>
<td>CHEM:2220</td>
<td>Organic Chemistry II</td>
<td>All</td>
<td>P: CHEM:2210</td>
</tr>
<tr>
<td>CHEM:2410</td>
<td>Organic Chemistry Lab</td>
<td>All</td>
<td>P: CHEM:1110, CHEM:1120, CHEM:2210; C: CHEM:2220</td>
</tr>
<tr>
<td>BIOC:3110</td>
<td>Biochemistry</td>
<td>F/Sp</td>
<td></td>
</tr>
<tr>
<td>BIOC:3120</td>
<td>Biochemistry and Molecular Biology I</td>
<td>F</td>
<td></td>
</tr>
<tr>
<td>BIOC:3130</td>
<td>Biochemistry and Molecular Biology II</td>
<td>Sp</td>
<td>P: BIOC:3120</td>
</tr>
<tr>
<td>BIOL:2512</td>
<td>Fundamental Genetics</td>
<td>All</td>
<td>P: BIOL:1411, BIOL:1412 or PSY:2701, CHEM:1120; C: CHEM:2210</td>
</tr>
</tbody>
</table>

#### Pre-Medicine

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Term</th>
<th>Prerequisite(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL:1412</td>
<td>Diversity of Form &amp; Function</td>
<td>All</td>
<td>P: BIOL:1411, CHEM:1110</td>
</tr>
<tr>
<td>CHEM:2210</td>
<td>Organic Chemistry I</td>
<td>All</td>
<td>P: CHEM:1120</td>
</tr>
<tr>
<td>CHEM:2220</td>
<td>Organic Chemistry II</td>
<td>All</td>
<td>P: CHEM:2210</td>
</tr>
<tr>
<td>CHEM:2410</td>
<td>Organic Chemistry Lab</td>
<td>All</td>
<td>P: CHEM:1110, CHEM:1120, CHEM:2210</td>
</tr>
<tr>
<td>BIOC:3110</td>
<td>Biochemistry</td>
<td>All</td>
<td></td>
</tr>
<tr>
<td>BIOL:2512</td>
<td>Fundamental Genetics</td>
<td>All</td>
<td>P: BIOL:1411, BIOL:1412 or PSY:2701, CHEM:1120; C: CHEM:2210</td>
</tr>
</tbody>
</table>

**Note:** At least two electives must be from the list of Engineering Topics

Please check MyUI for the most up to date course offerings and pre/corequisites.
## Biomedical Engineering – Program Map: Cellular Engineering Track

### Semester 1
- **Chem. I & Lab**
  - CHEM:1110
- **Math I**
  - MATH:1550
- **Eng. Prob. Solving**
  - ENGR:1100
- **Rhetoric**
  - RHET:1030
- **Engr Success First Year**
  - ENGR:1000

### Semester 2
- **Chem. II & Lab**
  - CHEM:1120
- **Math II**
  - MATH:1560
- **Math III**
  - MATH:2550
- **Eng. Computing**
  - ENGR:1300
- **Physics I / Lab**
  - PHYS:1611
- **BME Forum**
  - BME:1010

### Semester 3
- **Foundations of Biology**
  - BIOL:1411
- **Math IV**
  - MATH:2560
- **Statics**
  - ENGR:2110
- **Elec. Circuits**
  - ENGR:2120
- **Thermo**
  - ENGR:2130
- **BME Seminar**
  - BME:2010

### Semester 4
- **Human Physiol.**
  - HHP:3500
- **Systems, Instrum, & Data Acquisition / Lab**
  - BME:2200
- **Mech Def Bodies**
  - ENGR:2750
- **Track Elective #1**
- **Biostatistics**
  - BIOS:4120 or STAT:3510
- **BME Seminar**
  - BME:2010

### Semester 5
- **Cell Biology for Engr / Lab**
  - BME:2110
- **CIE**
  - ENGR:2730
- **Bio- Materials / Mechanics & Lab**
  - BME:2500
- **Track Elective #2**
- **Leadership & Resourcefulness**
  - BME:3010

### Semester 6
- **Cell Material Interactions**
  - BME:5421
- **Bioimaging & Bioinformatics / Lab**
  - BME:2210
- **Track Elective #3**
- **Track Elective #4**
- **GEC Elective #2**
- **BME Design Seminar**
  - BME:4010

### Semester 7
- **BME Design I**
  - BME:4910
- **Biotransport**
  - BME:5430
- **Track Elective #5**
- **GEC Elective #3**
- **GEC Elective #4**

### Semester 8
- **BME Design II**
  - BME:4920
- **Track Elective #6**
- **Track Elective #7**
- **Physics II / Lab**
  - PHYS:1612
- **GEC Elective #5**