Biomedical Engineering – Program Map: Biomechanics & Biomaterials Track

### Track Requisites

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Term</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR:2510</td>
<td>Fluid Mechanics</td>
<td>F/Sp</td>
<td>P: MATH:2560, ENGR:2710; C: ENGR:2130</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:1100; C: MATH:1550</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>
</tbody>
</table>

### Track Electives

#### Engineering Topics

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Term</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>BME:5401</td>
<td>Biomaterials &amp; Implant Design</td>
<td>F</td>
<td>P: ENGR:2750, BME:2500</td>
</tr>
<tr>
<td>BME:5610</td>
<td>Musculoskeletal Biomechanics</td>
<td>F</td>
<td>P: ENGR:2750, BME:2500</td>
</tr>
<tr>
<td>BME:5510</td>
<td>Cardiovascular Biomechanics</td>
<td>Sp</td>
<td>P: BME:2500</td>
</tr>
<tr>
<td>BME:5520</td>
<td>Cardiovascular Fluid Mechanics</td>
<td>F</td>
<td>P: BME:2500</td>
</tr>
<tr>
<td>BME:5550</td>
<td>Cardiovascular Tissue Mechanics</td>
<td>Sp</td>
<td>P: ENGR:2750, BME:2500</td>
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</tbody>
</table>

#### Suggested Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Term</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR:2760</td>
<td>Design for Manufacturing</td>
<td>F/Sp</td>
<td>C: ENGR:2720</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></td>
</tr>
<tr>
<td>BME:5530</td>
<td>Artificial Organ &amp; Circ Implants Design</td>
<td>Sp</td>
<td>P: BME:2500</td>
</tr>
<tr>
<td>BME:5620</td>
<td>Intro to App Biomedical Finite Element</td>
<td>Sp</td>
<td>P: BME:2500, ENGR:2750</td>
</tr>
<tr>
<td>BME:5630</td>
<td>Kinetics of Musculoskeletal Systems</td>
<td>Sp</td>
<td>P: ENGR:2710</td>
</tr>
<tr>
<td>ME:4115</td>
<td>Finite Element I</td>
<td>All</td>
<td>P: ENGR:2750</td>
</tr>
<tr>
<td>ME:4110</td>
<td>Computer Aided Engineering</td>
<td>Sp</td>
<td>P: ENGR:2750</td>
</tr>
<tr>
<td>ME:5143</td>
<td>Comp. Fluid &amp; Therm. Engng</td>
<td>F</td>
<td>P: ME:3045</td>
</tr>
<tr>
<td>ME:5160</td>
<td>Int Mechanics of Fluids</td>
<td>F</td>
<td>P: ENGR:2510, ME:3040</td>
</tr>
<tr>
<td>ME:5167</td>
<td>Composite Materials</td>
<td>F</td>
<td>P: ENGR:2750</td>
</tr>
<tr>
<td>HHP:1100</td>
<td>Human Anatomy</td>
<td>All</td>
<td></td>
</tr>
<tr>
<td>HHP:4130</td>
<td>Skeletal Muscle Physiology</td>
<td>F</td>
<td>R: HHP:3500</td>
</tr>
<tr>
<td>HHP:4460</td>
<td>Cardiovascular Physiology</td>
<td>Sp</td>
<td>P: HHP:2400</td>
</tr>
</tbody>
</table>

#### Pre-Medicine

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Term</th>
<th>Prerequisites</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>BIOL:3110</td>
<td>Biochemistry</td>
<td>S</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: Biomechanics & Biomaterials 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
- **Bio- Materials / Mechanics & Lab**
  - BME:2500
- **Dynamics**
  - ENGR:2710
- **Physics II / Lab**
  - PHYS:1612
- **Biostatistics**
  - BIOS:4120 or STAT:3510
- **BME Seminar**
  - BME:2010

**Semester 5**
- **Cell Biology for Engr / Lab**
  - BME:2110
- **Materials Science**
  - ENGR:2720
- **Mech Deform Bodies**
  - ENGR:2750
- **Fluid Mechanics**
  - ENGR:2510
- **GEC Elective #1**
- **Leadership & Resourcelfulness**
  - BME:3010

**Semester 6**
- **Systems, Instrum, & Data Acquisition / Lab**
  - BME:2200
- **Bioimaging & Bioinformatics / Lab**
  - BME:2210
- **Track Elective #1**
- **Track Elective #2**
- **GEC Elective #2**
- **BME Design Seminar**
  - BME:4010

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

**Semester 8**
- **BME Design II**
  - BME:4920
- **Track Elective #5**
- **Track Elective #6**
- **Track Elective #7**
- **GEC Elective #5**

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### Course Tags
- **Math & Science Courses**
- **Biomedical Core Courses**
- **Engineering Core Courses**
- **Track Elective Courses**
- **Seminar**
- **General Education Courses**