MINOR IN BIOMEDICAL ENGINEERING

The Biomedical Engineering Minor (BME) program requires a total of seven subjects selected from a series of categories as outlined below.

**Programming and Computational Modeling Core**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.100A</td>
<td>Introduction to Computer Science Programming in Python</td>
<td>6</td>
</tr>
<tr>
<td>6.100B</td>
<td>Introduction to Computational Thinking and Data Science</td>
<td>6</td>
</tr>
</tbody>
</table>

**Mathematics Core**

Select two of the following options: 1

<table>
<thead>
<tr>
<th>Option A</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.03</td>
<td>Differential Equations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option B</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.06</td>
<td>Linear Algebra</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option C</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.010</td>
<td>Probability and Causal Inference</td>
</tr>
<tr>
<td>6.3700</td>
<td>Introduction to Probability</td>
</tr>
<tr>
<td>9.07</td>
<td>Statistics for Brain and Cognitive Science</td>
</tr>
</tbody>
</table>

**Human Physiology Core**

Select one of the following: 2

<table>
<thead>
<tr>
<th>Subject</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.4820[J]</td>
<td>Quantitative and Clinical Physiology</td>
</tr>
<tr>
<td>7.20[J]</td>
<td>Human Physiology 2</td>
</tr>
<tr>
<td>9.01</td>
<td>Introduction to Neuroscience</td>
</tr>
</tbody>
</table>

**Biomedical Engineering and Applications**

Select three of the following: 3, 4

<table>
<thead>
<tr>
<th>Subject</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.184</td>
<td>Biomechanics and Neural Control of Movement 2</td>
</tr>
<tr>
<td>2.750[J]</td>
<td>Medical Device Design 2</td>
</tr>
<tr>
<td>3.052</td>
<td>Nanomechanics of Materials and Biomaterials 2</td>
</tr>
<tr>
<td>3.054</td>
<td>Cellular Solids: Structure, Properties, Applications 2</td>
</tr>
<tr>
<td>3.055[J]</td>
<td>Biomaterials Science and Engineering 2</td>
</tr>
<tr>
<td>6.4530[J]</td>
<td>Principles and Practice of Assistive Technology 2</td>
</tr>
<tr>
<td>6.4810[J]</td>
<td>Cellular Neurophysiology and Computing</td>
</tr>
<tr>
<td>7.37[J]</td>
<td>Molecular and Engineering Aspects of Biotechnology 2</td>
</tr>
<tr>
<td>9.17</td>
<td>Systems Neuroscience Laboratory 2</td>
</tr>
<tr>
<td>9.24</td>
<td>Disorders and Diseases of the Nervous System 2</td>
</tr>
<tr>
<td>9.26[J]</td>
<td>Principles and Applications of Genetic Engineering for Biotechnology and Neuroscience 2</td>
</tr>
<tr>
<td>9.35</td>
<td>Perception</td>
</tr>
<tr>
<td>9.40</td>
<td>Introduction to Neural Computation 2</td>
</tr>
<tr>
<td>10.424</td>
<td>Pharmaceutical Engineering 2</td>
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<tr>
<td>10.443</td>
<td>Future Medicine: Drug Delivery, Therapeutics, and Diagnostics 2</td>
</tr>
<tr>
<td>10.495</td>
<td>Molecular Design and Bioprocess Development of Immunotherapies 2</td>
</tr>
<tr>
<td>20.310[J]</td>
<td>Molecular, Cellular, and Tissue Biomechanics 2</td>
</tr>
<tr>
<td>20.345</td>
<td>Bioinstrumentation Project Lab 2</td>
</tr>
<tr>
<td>20.352</td>
<td>Principles of Neuroengineering</td>
</tr>
<tr>
<td>20.390[J]</td>
<td>Computational Systems Biology: Deep Learning in the Life Sciences</td>
</tr>
</tbody>
</table>

**Total Units** 78-84

A maximum of four subjects taken for the biomedical engineering minor can also count toward a major or another minor.

1 Contact minor advisor for additional 6–12 unit subjects that satisfy requirement.

2 Subject has prerequisites that are outside of the program.

3 At least one of the subjects must be taken outside the student’s major. See the BME Minor website (https://be.mit.edu/academic-programs/current-undergraduate/minor-programs/minor-program-biomedical-engineering) for potential substitutions.

4 Approved biomedical engineering UROPs with sufficient medical focus carried out by students with junior or senior standing with prior approval may be substituted for up to 12 units.

Students should consult with their departmental BME minor advisor, preferably in sophomore year and no later than the end of the fall term of junior year, to choose a course of study, which must be approved in advance by the BME minor advisor. For the list of BME minor advisors and other information, please visit the Biological Engineering website (http://be.mit.edu) or contact the BE Academic Office, Room 56-651, 617-253-1712.