BIOLOGY (COURSE 7)

Department of Biology (http://catalog.mit.edu/schools/science/biology/#undergraduatetext)

Bachelor of Science in Biology

General Institute Requirements (GIRs)
The General Institute Requirements include a Communication Requirement that is integrated into both the HASS Requirement and the requirements of each major; see details below.

Summary of Subject Requirements

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Science Requirement</th>
<th>Humanities, Arts, and Social Sciences (HASS) Requirement</th>
<th>Restricted Electives in Science and Technology (REST) Requirement</th>
<th>Laboratory Requirement (12 units)</th>
<th>Total GIR Subjects Required for SB Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subjects</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>17</td>
</tr>
</tbody>
</table>

Physical Education Requirement

Swimming requirement, plus four physical education courses for eight points.

Departmental Program

Choose at least two subjects in the major that are designated as communication-intensive (CI-M) to fulfill the Communication Requirement.

Required Subjects

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.12 Organic Chemistry I</td>
<td>12</td>
</tr>
<tr>
<td>5.60 Thermodynamics and Kinetics</td>
<td>12</td>
</tr>
<tr>
<td>or 20.110[J] Thermodynamics of Biomolecular Systems</td>
<td></td>
</tr>
<tr>
<td>7.03 General Biochemistry</td>
<td>12</td>
</tr>
<tr>
<td>7.05 Biological Chemistry I</td>
<td>12</td>
</tr>
<tr>
<td>7.06 Cell Biology</td>
<td>12</td>
</tr>
<tr>
<td>7.18 Topics in Experimental Biology (CI-M)</td>
<td>30</td>
</tr>
</tbody>
</table>

Select one of the following: 15-18

7.02[J] Introduction to Experimental Biology and Communication (CI-M)

20.109 Laboratory Fundamentals in Biological Engineering (CI-M)

Restricted Electives

Select three undergraduate-level 12-unit subjects offered by the Department of Biology for which 7.03 and/or 7.05 are prerequisites. 3

Units in Major 141-144

Unrestricted Electives 72-75

Units in Major That Also Satisfy the GIRs (36)

Total Units Beyond the GIRs Required for SB Degree 180

The units for any subject that counts as one of the 17 GIR subjects cannot also be counted as units required beyond the GIRs.

1 The department recommends 5.60 or 20.110[J] to fulfill this component of the program, but it will also accept 2.005, 3.012, 8.044, or 10.213.

2 Before enrolling in 7.18, students must complete an approved 12-unit UROP or non-credit research experience.

3 Exceptions: The combination of 7.30A[J] and 7.30B[J] is eligible as a restricted elective; 7.19 cannot be used as a restricted elective. Graduate-level subjects may not be used as restricted electives.

Restricted Electives

7.08[J] Biological Chemistry II 12

7.09 Quantitative and Computational Biology 12

7.20[J] Human Physiology 12

7.21 Microbial Physiology 12

7.22 Developmental Biology 12

7.23 Immunology 12

7.26 Molecular Basis of Infectious Disease 12

7.27 Principles of Human Disease 12

7.28 Molecular Biology 12

7.29[J] Cellular and Molecular Neurobiology 12


7.31 Current Topics in Mammalian Biology: Medical Implications 12

7.32 Systems Biology 12


7.37[J] Molecular and Engineering Aspects of Biotechnology 12

or 7.371 Biological and Engineering Principles Underlying Novel Biotherapeutics

7.41 Principles of Chemical Biology 12

7.45 The Hallmarks of Cancer 12

7.49[J] Developmental Neurobiology 12

9.15 Neural Circuits, Neuromodulatory, and Neuroendocrine Systems 12
9.17 Systems Neuroscience Laboratory (CI-M) 12

2 The combination of 7.30A[] and 7.30B[] counts as one Biology restricted elective.