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>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Science Requirement</td>
<td>6</td>
</tr>
<tr>
<td>Humanities, Arts, and Social Sciences (HASS) Requirement</td>
<td>8</td>
</tr>
<tr>
<td>Restricted Electives in Science and Technology (REST) Requirement</td>
<td>2</td>
</tr>
<tr>
<td>Laboratory Requirement (12 units)</td>
<td>1</td>
</tr>
<tr>
<td>Total GIR Subjects Required for SB Degree</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>12</td>
</tr>
<tr>
<td>7.03                          Genetics</td>
<td>12</td>
</tr>
<tr>
<td>7.05                          General Biochemistry</td>
<td>12</td>
</tr>
<tr>
<td>or 5.07[J]                     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>
<tr>
<td>Select one of the following:</td>
<td>15-18</td>
</tr>
<tr>
<td>7.02[J]                        Introduction to Experimental Biology and Communication (CI-M)</td>
<td></td>
</tr>
<tr>
<td>20.109                        Laboratory Fundamentals in Biological Engineering (CI-M)</td>
<td></td>
</tr>
</tbody>
</table>

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.

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[J] 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
7.30B[J] and Fundamentals of Ecology II 1
7.31  Current Topics in Mammalian Biology: Medical Implications 12
7.32  Systems Biology                               12
7.33[I] Evolutionary Biology: Concepts, Models and Computation 12
7.37[I] Molecular and Engineering Aspects of Biotechnology 12
or 7.371 Biological and Engineering Principles Underlying Novel Biotherapeutics 12
7.41  Principles of Chemical Biology                 12
7.45  The Hallmarks of Cancer                        12
7.46  Building with Cells                            12
7.49[J] Developmental Neurobiology                  12
9.15  Neural Circuits, Neuromodulatory,              12
      and Neuroendocrine Systems

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