CHEMISTRY AND BIOLOGY (COURSE 5-7)

Chemistry and Biology (http://catalog.mit.edu/interdisciplinary/undergraduate-programs/degrees/chemistry-biology)

Bachelor of Science in Chemistry and 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; at least two of these subjects must be designated as communication-intensive (CI-H) to fulfill the Communication Requirement.</td>
<td>8</td>
</tr>
<tr>
<td>Restricted Electives in Science and Technology (REST) Requirement [can be satisfied by 5.12 or 5.60 and 7.03 in the Departmental Program]</td>
<td>2</td>
</tr>
<tr>
<td>Laboratory Requirement (12 units) [can be satisfied by 7.02[J] or the combination of 5.351, 5.352, and 5.363 or 7.102 in the Departmental Program]</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>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.03</td>
</tr>
<tr>
<td>5.12</td>
</tr>
<tr>
<td>5.13</td>
</tr>
<tr>
<td>5.60</td>
</tr>
<tr>
<td>7.03</td>
</tr>
<tr>
<td>7.06</td>
</tr>
<tr>
<td>5.07[J]</td>
</tr>
<tr>
<td>or 7.05</td>
</tr>
</tbody>
</table>

Restricted Electives

Select two of the following: 24

<table>
<thead>
<tr>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.04</td>
</tr>
<tr>
<td>5.08[J]</td>
</tr>
<tr>
<td>5.43</td>
</tr>
</tbody>
</table>

5.61 Physical Chemistry
5.62 Physical Chemistry
7.09 Quantitative and Computational Biology
7.20[J] Human Physiology
7.21 Microbial Physiology
7.22 Developmental Biology
7.23[J] Immunology
7.26 Molecular Basis of Infectious Disease
7.27 Principles of Human Disease
7.28 Molecular Biology
7.29[J] Cellular and Molecular Neurobiology
7.31 Current Topics in Mammalian Biology: Medical Implications
7.32 Systems Biology 1
7.371 Biological and Engineering Principles Underlying Novel Biotherapeutics
7.41 Principles of Chemical Biology
7.45 The Hallmarks of Cancer
7.49[J] Developmental Neurobiology

Departmental Laboratory Requirement

Select 49-61 units from one of the three departmental laboratory tracks

Units in Major 157-169

Unrestricted Electives

48-59

Units in Major That Also Satisfy the GIRs (36)

Total Units Beyond the GIRs Required for SB Degree 180-181

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 Subject has prerequisites that are outside of the program.

Departmental Laboratory Track 1

<table>
<thead>
<tr>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.351</td>
</tr>
<tr>
<td>5.352</td>
</tr>
<tr>
<td>5.361</td>
</tr>
<tr>
<td>5.362</td>
</tr>
<tr>
<td>5.363</td>
</tr>
<tr>
<td>5.382</td>
</tr>
</tbody>
</table>
7.102 Laboratory in Molecular Biology 6

Select four of the following: 16

- 5.353 Macromolecular Prodrugs
- 5.371 Continuous Flow Chemistry: Sustainable Conversion of Reclaimed Vegetable Oil into Biodiesel
- 5.372 Chemistry of Renewable Energy
- 5.373 Dinitrogen Cleavage
- 5.381 Quantum Dots
- 5.383 Fast-flow Peptide and Protein Synthesis

Total Units 49

Departmental Laboratory Track 2

- 5.351 Fundamentals of Spectroscopy 4
- 5.352 Synthesis of Coordination Compounds and Kinetics 5
- 5.363 Organic Structure Determination 4
- 5.382 Time- and Frequency-resolved Spectroscopy of Photosynthesis (CI-M) 5
- 7.02 Introduction to Experimental Biology and Communication (CI-M) 18

Select four of the following: 16

- 5.353 Macromolecular Prodrugs
- 5.371 Continuous Flow Chemistry: Sustainable Conversion of Reclaimed Vegetable Oil into Biodiesel
- 5.372 Chemistry of Renewable Energy
- 5.373 Dinitrogen Cleavage
- 5.381 Quantum Dots
- 5.383 Fast-flow Peptide and Protein Synthesis

Total Units 52

Departmental Laboratory Track 3

- 5.351 Fundamentals of Spectroscopy 4
- 5.352 Synthesis of Coordination Compounds and Kinetics 5
- 5.363 Organic Structure Determination 4
- 7.02 Introduction to Experimental Biology and Communication (CI-M) 18
- 7.18 Topics in Experimental Biology (CI-M) 30

Total Units 61

Remarks: Requires selection of 5.61 as a restricted elective.