COMPUTATION AND COGNITION (COURSE 6-9)

Computation and Cognition (http://catalog.mit.edu/interdisciplinary/undergraduate-programs/degrees/computation-cognition)

Bachelor of Science in Computation and Cognition (Course 6-9)

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>
</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>[two subjects can be satisfied by 9.46 and 9.85 in the Departmental Program]; at least two of these subjects must be designated as communication-intensive (CI-H) to fulfill the Communication Requirement.</td>
<td></td>
</tr>
<tr>
<td>Restricted Electives in Science and Technology (REST) Requirement</td>
<td>2</td>
</tr>
<tr>
<td>[can be satisfied by 9.01 and 6.042[J], 18.03, or 18.06 in the Departmental Program]</td>
<td></td>
</tr>
<tr>
<td>Laboratory Requirement (12 units) [can be satisfied by a laboratory 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>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Select one of the following:</td>
</tr>
<tr>
<td>6.0001</td>
<td>Introduction to Computer Science Programming in Python</td>
</tr>
<tr>
<td>6.003</td>
<td>Signals and Systems</td>
</tr>
<tr>
<td>6.034</td>
<td>Artificial Intelligence</td>
</tr>
<tr>
<td>9.07</td>
<td>Statistics for Brain and Cognitive Science</td>
</tr>
</tbody>
</table>

EECS Program Subjects

<table>
<thead>
<tr>
<th>Units</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6.036</td>
<td>Introduction to Machine Learning</td>
</tr>
<tr>
<td>6.003</td>
<td>Signals and Systems</td>
</tr>
<tr>
<td>6.006</td>
<td>Introduction to Algorithms</td>
</tr>
<tr>
<td>6.009</td>
<td>Fundamentals of Programming</td>
</tr>
</tbody>
</table>

BCS Program Subjects

Brain Systems/Neurophysiology

<table>
<thead>
<tr>
<th>Units</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Select one of the following:</td>
</tr>
<tr>
<td>9.09[J]</td>
<td>Cellular and Molecular Neurobiology</td>
</tr>
<tr>
<td>9.13</td>
<td>The Human Brain</td>
</tr>
<tr>
<td>9.18[J]</td>
<td>Developmental Neurobiology</td>
</tr>
<tr>
<td>9.21[J]</td>
<td>Cellular Neurophysiology and Computing</td>
</tr>
<tr>
<td>9.35</td>
<td>Perception</td>
</tr>
<tr>
<td>9.40</td>
<td>Introduction to Neural Computation</td>
</tr>
</tbody>
</table>

Computation and Cognition

<table>
<thead>
<tr>
<th>Units</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Select one of the following:</td>
</tr>
<tr>
<td>9.19</td>
<td>Computational Psycholinguistics</td>
</tr>
<tr>
<td>9.49</td>
<td>Neural Circuits for Cognition</td>
</tr>
<tr>
<td>9.53</td>
<td>Emergent Computations Within Distributed Neural Circuits</td>
</tr>
<tr>
<td>9.85</td>
<td>Infant and Early Childhood Cognition (CI-M)</td>
</tr>
</tbody>
</table>

Program Electives
One subject from the BCS/EECS Joint Electives list
One subject from the BCS Electives or BCS/EECS Joint Electives list

Laboratory
One subject from the Laboratory Subjects list

Advanced Undergraduate Project

<table>
<thead>
<tr>
<th>Units</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Select one of the following:</td>
</tr>
<tr>
<td>6.UAR</td>
<td>Seminar in Undergraduate Advanced Research (12 units, CI-M)</td>
</tr>
<tr>
<td>6.UAT</td>
<td>Oral Communication (CI-M)</td>
</tr>
<tr>
<td>9.41</td>
<td>Research and Communication in Neuroscience and Cognitive Science (CI-M)</td>
</tr>
<tr>
<td>9.58</td>
<td>Projects in the Science of Intelligence (CI-M)</td>
</tr>
</tbody>
</table>

Units in Major
156-168

Unrestricted Electives
48-84
Units in Major That Also Satisfy the GIRs (36-60)

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 Subject has prerequisites that are outside of the program.

2 Subjects that also appear in one of the electives lists can count as either a BCS Program Subject or a Program Elective, but not both.

<table>
<thead>
<tr>
<th>BCS/EECS Joint Electives</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.027[J] Biomolecular Feedback Systems</td>
<td>12</td>
</tr>
<tr>
<td>6.034 Artificial Intelligence</td>
<td>12</td>
</tr>
<tr>
<td>6.801 Machine Vision</td>
<td>12</td>
</tr>
<tr>
<td>6.803 The Human Intelligence Enterprise</td>
<td>12</td>
</tr>
<tr>
<td>6.806 Advanced Natural Language Processing</td>
<td>12</td>
</tr>
<tr>
<td>6.819 Advances in Computer Vision</td>
<td>12</td>
</tr>
<tr>
<td>9.19 Computational Psycholinguistics</td>
<td>12</td>
</tr>
<tr>
<td>9.21[J] Cellular Neurophysiology and Computing</td>
<td>12</td>
</tr>
<tr>
<td>9.35 Perception</td>
<td>12</td>
</tr>
<tr>
<td>9.40 Introduction to Neural Computation</td>
<td>12</td>
</tr>
<tr>
<td>9.49 Neural Circuits for Cognition</td>
<td>12</td>
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<tr>
<td>9.13 The Human Brain</td>
<td>12</td>
</tr>
<tr>
<td>9.18[J] Developmental Neurobiology</td>
<td>12</td>
</tr>
<tr>
<td>9.24 Disorders and Diseases of the Nervous System</td>
<td>12</td>
</tr>
<tr>
<td>9.26[J] Principles and Applications of Genetic Engineering for Biotechnology and Neuroscience</td>
<td>12</td>
</tr>
<tr>
<td>9.42 The Brain and its Interface with the Body</td>
<td>12</td>
</tr>
<tr>
<td>9.46 Neuroscience of Morality</td>
<td>12</td>
</tr>
<tr>
<td>9.53 Emergent Computations Within Distributed Neural Circuits</td>
<td>12</td>
</tr>
<tr>
<td>9.85 Infant and Early Childhood Cognition</td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Laboratory Subjects</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.101 Introductory Analog Electronics Laboratory (CI-M)</td>
<td>12</td>
</tr>
<tr>
<td>6.111 Introductory Digital Systems Laboratory</td>
<td>12</td>
</tr>
</tbody>
</table>

1 Subjects that also appear in the list of BCS Program Subjects can count as either a BCS Program Subject or a Program Elective, but not both.

2 Subject has prerequisites that are outside of the program.