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 Subjects
Science Requirement 6
Humanities, Arts, and Social Sciences (HASS) Requirement [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.
Restricted Electives in Science and Technology (REST) Requirement [can be satisfied by 9.01 and 6.042[J], 18.03, or 18.06 in the Departmental Program]
Laboratory Requirement (12 units) [can be satisfied by a laboratory in the Departmental Program]
Total GIR Subjects Required for SB Degree 17

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 Units
6.0001 Introduction to Computer Science Programming in Python 6
9.01 Introduction to Neuroscience 12
Select one of the following: 12
6.042[J] Mathematics for Computer Science
18.03 Differential Equations
18.06 Linear Algebra
Select one of the following: 12
6.008 Introduction to Inference
6.041 Introduction to Probability

9.07 Statistics for Brain and Cognitive Science

EECS Program Subjects
6.036 Introduction to Machine Learning 1 12
6.003 Signal Processing 12
or 6.034 Artificial Intelligence
Select two of the following: 24
6.002 Circuits and Electronics
6.006 Introduction to Algorithms
6.009 Fundamentals of Programming

BCS Program Subjects

Select one of the following: 12
9.09[J] Cellular and Molecular Neurobiology
9.13 The Human Brain
9.18[J] Developmental Neurobiology
9.21[J] Cellular Neurophysiology and Computing
9.35 Perception
9.40 Introduction to Neural Computation

Computation and Cognition
Select one of the following: 12
9.19 Computational Psycholinguistics
9.49 Neural Circuits for Cognition
9.53 Emergent Computations Within Distributed Neural Circuits
9.85 Infant and Early Childhood Cognition (CI-M)

Program Electives
One subject from the BCS/EECS Joint Electives list 12
One subject from the BCS Electives or BCS/EECS Joint Electives list 9-12

Laboratory
One subject from the Laboratory Subjects list 12

Advanced Undergraduate Project
Select one of the following: 9-18
6.UAR Seminar in Undergraduate Advanced Research (12 units, CI-M)
6.UAT Oral Communication (CI-M)
9.41 Research and Communication in Neuroscience and Cognitive Science (CI-M)
9.58 Projects in the Science of Intelligence (CI-M)

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.

### BCS/EECS Joint Electives

<table>
<thead>
<tr>
<th>Subject</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>6.027[J]</td>
<td>Biomolecular Feedback Systems</td>
<td>12</td>
</tr>
<tr>
<td>6.034</td>
<td>Artificial Intelligence</td>
<td>12</td>
</tr>
<tr>
<td>6.801</td>
<td>Machine Vision</td>
<td>12</td>
</tr>
<tr>
<td>6.803</td>
<td>The Human Intelligence Enterprise</td>
<td>12</td>
</tr>
<tr>
<td>6.806</td>
<td>Advanced Natural Language Processing</td>
<td>12</td>
</tr>
<tr>
<td>6.819</td>
<td>Advances in Computer Vision</td>
<td>12</td>
</tr>
<tr>
<td>9.19</td>
<td>Computational Psycholinguistics</td>
<td>12</td>
</tr>
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<td>9.21[J]</td>
<td>Cellular Neurophysiology and Computing</td>
<td>12</td>
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<tr>
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<td>Perception</td>
<td>12</td>
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### BCS Electives

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<td>9.18[J]</td>
<td>Developmental Neurobiology</td>
<td>12</td>
</tr>
<tr>
<td>9.24</td>
<td>Disorders and Diseases of the Nervous System</td>
<td>12</td>
</tr>
<tr>
<td>9.26[J]</td>
<td>Principles and Applications of Genetic Engineering for Biotechnology and Neuroscience</td>
<td>12</td>
</tr>
<tr>
<td>9.42</td>
<td>The Brain and its Interface with the Body</td>
<td>12</td>
</tr>
<tr>
<td>9.46</td>
<td>Neuroscience of Morality</td>
<td>12</td>
</tr>
<tr>
<td>9.53</td>
<td>Emergent Computations Within Distributed Neural Circuits</td>
<td>12</td>
</tr>
<tr>
<td>9.85</td>
<td>Infant and Early Childhood Cognition</td>
<td>12</td>
</tr>
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### Laboratory Subjects

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</tr>
</thead>
<tbody>
<tr>
<td>6.101</td>
<td>Introductory Analog Electronics Laboratory (CI-M)</td>
<td>12</td>
</tr>
<tr>
<td>6.111</td>
<td>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.