Computation and Cognition (Course 6-9)

Computation and 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.	8
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]	2
Laboratory Requirement (12 units) [can be satisfied by a laboratory in the Departmental Program]	1
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 [1]	
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		
Brain Systems/Neurophysiology		
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 [1]	
Computation and Cognition		
Select one of the following:		12
9.19	Computational Psycholinguistics [1]	
9.49	Neural Circuits for Cognition	
9.53	Emergent Computations Within Distributed Neural Circuits	
9.66[J]	Computational Cognitive Science	
9.85	Infant and Early Childhood Cognition (CI-M) [1]	
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[1]

6.027[J]	Biomolecular Feedback Systems	12
6.034	Artificial Intelligence	12
6.141[J]	Robotics: Science and Systems	12
6.801	Machine Vision	12
6.803	The Human Intelligence Enterprise	12
6.806	Advanced Natural Language Processing [2]	12
6.819	Advances in Computer Vision [2]	12
9.19	Computational Psycholinguistics	12
9.21[J]	Cellular Neurophysiology and Computing [2]	12
9.35	Perception	12
9.40	Introduction to Neural Computation	12
9.49	Neural Circuits for Cognition	12

9.66[J]	Computational Cognitive Science	12

BCS Electives[1]

9.09[J]	Cellular and Molecular Neurobiology	12
9.13	The Human Brain	12
9.18[J]	Developmental Neurobiology	12
9.24	Disorders and Diseases of the Nervous System [2]	12
9.26[J]	Principles and Applications of Genetic Engineering for Biotechnology and Neuroscience [2]	12
9.42	The Brain and Its Interface with the Body [2]	12
9.46	Neuroscience of Morality [2]	12
9.53	Emergent Computations Within Distributed Neural Circuits	12
9.85	Infant and Early Childhood Cognition [2]	12

Laboratory Subjects

6.101	Introductory Analog Electronics Laboratory (CI-M)	12
6.111	Introductory Digital Systems Laboratory	12
6.115	Microcomputer Project Laboratory (CI-M)	12
6.129[J]	Biological Circuit Engineering Laboratory (CI-M)	12
6.141[J]	Robotics: Science and Systems (CI-M)	12
6.161	Modern Optics Project Laboratory (CI-M)	12
6.182	Psychoacoustics Project Laboratory (CI-M)	12
9.17	Systems Neuroscience Laboratory (CI-M)	12
9.59[J]	Laboratory in Psycholinguistics (CI-M)	12
9.60	Machine-Motivated Human Vision (CI-M) [2]	12

[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.*

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