

BRAIN AND COGNITIVE SCIENCES (COURSE 9)

Department of Brain and Cognitive Sciences (<https://catalog.mit.edu/schools/science/brain-cognitive-sciences/#undergraduatetext>)

Bachelor of Science in Brain and Cognitive Sciences

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 9.00 and one other HASS subject 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 6.100A/6.100B and 9.01 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
Tier I	
6.100A Introduction to Computer Science Programming in Python	6
6.100B Introduction to Computational Thinking and Data Science	6
9.00 Introduction to Psychological Science	12
9.01 Introduction to Neuroscience	12
9.40 Introduction to Neural Computation	12
9.07 Statistics for Brain and Cognitive Science	12
or 18.05 Introduction to Probability and Statistics	
or 18.600 Probability and Random Variables	

Tier II, Tier III, and Restricted Electives

Select seven subjects from the Tier II, Tier III, or Restricted Elective categories. At least three of the seven must be from the Tier II list. **84**

Laboratory

Select one of the following:¹ **12**

9.12	Experimental Molecular Neurobiology (CI-M)
9.17	Systems Neuroscience Laboratory (CI-M)
9.59[J]	Laboratory in Psycholinguistics (CI-M)
9.60	Machine-Motivated Human Vision (CI-M)

Research

Select one of the following (Laboratory cannot also count for Research):¹ **12-18**

9.12	Experimental Molecular Neurobiology (CI-M)
9.17	Systems Neuroscience Laboratory (CI-M)
9.41	Research and Communication in Neuroscience and Cognitive Science (CI-M)
9.50	Research in Brain and Cognitive Sciences
9.59[J]	Laboratory in Psycholinguistics (CI-M)
9.60	Machine-Motivated Human Vision (CI-M)
9.URG	Undergraduate Research

Units in Major 168-174

Unrestricted Electives 54-72

Units in Major That Also Satisfy the GIRs (48-60)

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 These subjects can count toward either the Laboratory or the Research requirement, but not both.

Tier II

9.09[J]	Cellular and Molecular Neurobiology	12
9.13	The Human Brain	12
9.18[J]	Developmental Neurobiology	12
9.19	Computational Psycholinguistics	12
9.21[J]	Cellular Neurophysiology and Computing	12

9.26[J]	Principles and Applications of Genetic Engineering for Biotechnology and Neuroscience	12	24.903	Language and Its Structure III: Semantics and Pragmatics	12
9.35	Perception	12	24.904	Language Acquisition	12
9.36	Neurobiology of Self	12			
9.39	Language in the Mind and Brain	12			
9.49	Neural Circuits for Cognition	12			
9.53	Emergent Computations Within Distributed Neural Circuits	12			
9.66[J]	Computational Cognitive Science	12			
9.85	Infant and Early Childhood Cognition	12			
Tier III					
9.24	Disorders and Diseases of the Nervous System	12			
9.42	The Brain and Its Interface with the Body	12			
9.67[J]	Materials Physics of Neural Interfaces	12			
Restricted Electives					
2.003[J]	Dynamics and Control I	12			
2.180	Biomolecular Feedback Systems	12			
2.184	Biomechanics and Neural Control of Movement	12			
5.07[J]	Introduction to Biological Chemistry	12			
5.12	Organic Chemistry I	12			
5.13	Organic Chemistry II	12			
6.1200[J]	Mathematics for Computer Science	12			
6.1220[J]	Design and Analysis of Algorithms	12			
6.1400[J]	Computability and Complexity Theory	12			
6.3000	Signal Processing	12			
6.3900	Introduction to Machine Learning	12			
6.4100	Artificial Intelligence	12			
6.8301	Advances in Computer Vision	15			
6.8611	Quantitative Methods for Natural Language Processing	15			
7.03	Genetics	12			
9.72	Vision in Art and Neuroscience	12			
18.03	Differential Equations	12			
18.06	Linear Algebra	12			
18.404	Theory of Computation	12			
24.211	Theory of Knowledge	12			
24.900	Introduction to Linguistics	12			
24.901	Language and Its Structure I: Phonology	12			
24.902	Language and Its Structure II: Syntax	12			