

COGNITIVE SCIENCE MAJOR

Students must also complete the Undergraduate Registration Requirement (<https://catalogs.northwestern.edu/undergraduate/requirements-policies/undergraduate-registration-requirement>) and the degree requirements of their home school.

Course	Title
Major Requirements (16 units)	
3 introductory courses:	
COG_SCI 207-0	Introduction to Cognitive Modeling
COG_SCI 210-0	Language and the Brain
COG_SCI 211-0	Learning, Representation & Reasoning
3 basic methodology courses:	
EECS 110-0	Introduction to Computer Programming
or EECS 111-0	Fundamentals of Computer Programming
PSYCH 201-0	Statistical Methods in Psychology
COG_SCI 202-0	Evaluating Evidence (PSYCH 205-0 Research Methods in Psychology may be substituted for COG_SCI 202-0 Evaluating Evidence)
3 core courses: 1 course each from three of the following areas:	
<i>Artificial Intelligence</i>	
EECS 348-0	Introduction to Artificial Intelligence
Cognitive Neuroscience	
PSYCH 212-0	Introduction to Neuroscience
PSYCH 361-0	Brain Damage and the Mind
CSD 303-0	Brain and Cognition
<i>Cognitive Psychology</i>	
PSYCH 228-0	Cognitive Psychology
<i>Learning Sciences</i>	
LOC 308-0	Redesigning Everyday Organizations
LOC 313-0	Learning and Thinking in Organizations
<i>Linguistics</i>	
LING 250-0	Sound Patterns in Human Language
LING 260-0	Formal Analysis of Words & Sentences
LING 270-0	Meaning
<i>Philosophy of Mind</i>	
PHIL 225-0	Minds and Machines
PHIL 325-0	Philosophy of Mind
<i>Music Cognition</i>	
MUS_THRY 251-0	Music and Mind
1 advanced proseminar:	
COG_SCI 366-0	Cognitive Science Proseminar (ideally should be taken in sophomore year)
6 advanced electives, at least 3 in a concentration listed below and at least 2 outside that area, chosen from:	
Artificial Intelligence (p. 1)	
Cognitive Neuroscience (p. 1)	
Cognitive Psychology (p. 1)	
Communication Science and Disorders (p. 2)	
Culture and Cognition (p. 2)	
Learning and Instruction (p. 2)	
Linguistics (p. 2)	
Music Cognition (p. 2)	
Philosophy (p. 2)	

Other 300- and 400-level courses may be counted as advanced electives with consent of the cognitive science adviser.

Independent study (399) in cognitive science or in one of the departments listed above, which is strongly recommended, may count as an advanced elective.

For students pursuing honors, the second quarter COG_SCI 398-2 Senior Thesis Seminar may count as an advanced elective.

- At most 5 courses counted toward the cognitive science major may be double-counted toward another major. Courses used to meet major requirements may not be double-counted toward a minor.

Advanced Elective Areas

Artificial Intelligence

Course	Title
EECS 325-1	Artificial Intelligence Programming
EECS 337-0	Natural Language Processing
EECS 338-0	Practicum in Intelligent Information Systems
EECS 344-0	Design of Computer Problem Solvers
EECS 348-0	Introduction to Artificial Intelligence
EECS 349-0	Machine Learning
EECS 371-0	Knowledge Representation and Reasoning
EECS 372-0/472-0	Designing & Constructing Models with Multi-Agent Language
EECS 432-0	Advanced Computer Vision
Relevant sections of:	
EECS 395-0	Special Topics in Electrical Engineering and Computer Science

Cognitive Neuroscience

Course	Title
PSYCH 249-0	Buddhist Psychology
BIOL_SCI 302-0	Fundamentals of Neurobiology
CSD 303-0	Brain and Cognition
CSD 310-0	Biological Foundations of Speech and Music
PSYCH 312-2	Selected Topics in Neuroscience and Psychophysiology
NEUROSCI 320-0	Animal Behavior
PSYCH 321-0	Neuroscience & Behavior Laboratory
PSYCH 324-0	Perception
PSYCH 336-0	Consciousness
NEUROSCI 360-0	Neuroscience of Brain Disorders
PSYCH 361-0	Brain Damage and the Mind
PSYCH 365-0	Brain and Cognition
PSYCH 368-0	Human Memory
NEUROSCI 377-0	Neurobiology of Sensation and Perception
Relevant sections of:	
PSYCH 358-0	Advanced Seminar in Cognition or Neuroscience
PSYCH 460-0	Special Topics in Cognition
PSYCH 470-0	Topics in Brain, Behavior, and Cognition

Cognitive Psychology

Course	Title
PSYCH 333-0	Psychology of Thinking
PSYCH 334-0	Language and Thought
PSYCH 335-0	Decision Making
PSYCH 336-0	Consciousness
PSYCH 344-0	Cultural Psychology
PSYCH 346-0	Psychology of Instructional Design and Technology
PSYCH 362-0	Cognitive Development

PSYCH 368-0	Human Memory
PSYCH 461-0	Reasoning and Representation
PSYCH 466-0	Analogy and Similarity
Relevant sections of:	
PSYCH 358-0	Advanced Seminar in Cognition or Neuroscience
PSYCH 460-0	Special Topics in Cognition

Communication Sciences and Disorders

Course	Title
CSD 301-0	Anatomy and Physiology of the Vocal Mechanism
CSD 303-0	Brain and Cognition
CSD 306-0	Psychoacoustics
CSD 309-0	Culture, Language and Learning
CSD 342-0	Language and Cognition in Atypical Development
CSD 392-0	Language Development and Usage
CSD 406-0	Medical Aspects of Audiology
CSD 453-0	Overview of Language Disorders
CSD 454-0	Language Disorders
Relevant sections of:	
CSD 457-0	Language Science

Culture and Cognition

Course	Title
LOC 214-0	Culture and Cognition
ECON 330-0	Behavioral Economics
PSYCH 334-0	Language and Thought
LING 341-0	Language Typology
PSYCH 344-0	Cultural Psychology
ANTHRO 389-0	Ethnographic Methods and Analysis
Relevant sections of:	
ANTHRO 390-0	Topics In Anthropology
ANTHRO 395-0	Field Study in Anthropology

Learning and Instruction

Course	Title
CSD 303-0	Brain and Cognition
CSD 306-0	Psychoacoustics
LOC 313-0	Learning and Thinking in Organizations (if not counted as a core course)
CSD 342-0	Language and Cognition in Atypical Development
CSD 373-0	Learning Disabilities
CSD 392-0	Language Development and Usage
LRN_SCI 401-0	Knowledge Representation for the Learning Sciences
LRN_SCI 425-0	Introduction to Design for the Learning Sciences
LRN_SCI 426-0	Design of Technological Tools for Thinking and Learning
LRN_SCI 429-0	Design of Learning Environments
Relevant sections of:	
LRN_SCI 451-0	Topics in Learning Sciences

Linguistics

Course	Title
LING 300-0	Topics in Linguistics
LING 311-0	Child Language
LING 315-0	Experimental Approaches to Word Form Processing
LING 316-0	Experimental Syntax
LING 317-0	Experimental Pragmatics

LING 321-0	Bilingualism
LING 330-0	Research Methods in Linguistics
LING 334-0	Introduction to Computational Linguistics
LING 341-0	Language Typology
LING 342-0	Structure of Various Languages
LING 350-0	Fundamentals of Laboratory Phonology
LING 360-0	Fundamentals of Syntax
LING 361-0	Morphology
LING 370-0	Fundamentals of Meaning
LING 371-0	Reference
LING 372-0	Pragmatics
LING 373-0	Implicature

Music Cognition

Course	Title
MUS_THRY 251-0	Music and Mind
MUSIC_ED 437-0	Psychology of Music Teaching & Learning
Relevant sections of:	
MUS_THRY 335-0	Selected Topics in Music Theory
MUS_THRY 336-0	Selected Topics in Music Cognition
MUS_THRY 435-0	Selected Topics in Music Theory
MUS_THRY 436-0	Selected Topics in Music Cognition

Philosophy

Course	Title
PHIL 250-0	Elementary Logic II
PHIL 325-0	Philosophy of Mind
PHIL 327-0	Philosophy of Psychology
PHIL 330-0	Practical Reasoning and Choice
PHIL 350-0	Advanced Logic
PHIL 351-0	Advanced Topics in Philosophical Logic
PHIL 353-0	Philosophy of Language
Relevant sections of:	
PHIL 410-0	Seminar: Special Topics in Philosophy
PHIL 426-0	Seminar in Philosophy of Mind

Honors in Cognitive Science

Majors with strong academic records and an interest in pursuing honors should contact the director of undergraduate studies in early spring of junior year. Qualifying students prepare a thesis proposal under the guidance of a faculty mentor and present the proposal, along with the names of the mentor and a second faculty reader, to the program committee for review. After committee approval of the proposal, students normally enroll in COG_SCI 398-1 Senior Thesis Seminar in fall and COG_SCI 398-2 Senior Thesis Seminar in winter of senior year. With the permission of the director of undergraduate studies, 1 quarter of COG_SCI 399-0 Independent Study may be substituted for one of either COG_SCI 398-1 Senior Thesis Seminar or COG_SCI 398-2 Senior Thesis Seminar.

Students whose projects, theses, and grades meet program criteria are recommended to the college for graduation with honors. For more information consult the director of undergraduate studies and see the section on *Honors in the Major* of the Weinberg Academic Options and Support (<https://catalogs.northwestern.edu/undergraduate/arts-sciences/#academicoptionstext>) Page.