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:
COMP_SCI 110-0 Introduction to Computer Programming
or COMP_SCI 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:
Artificial Intelligence
COMP_SCI 348-0 Introduction to Artificial Intelligence
Cognitive Neuroscience
PSYCH 221-0 Introduction to Neuroscience
PSYCH 328-0 Brain Damage and the Mind
CSD 303-0 Brain and Cognition
Cognitive Psychology
PSYCH 228-0 Cognitive Psychology
Learning Sciences
LOC 308-0 Redesigning Everyday Organizations
LOC 313-0 Learning and Thinking in Organizations
Linguistics
LING 250-0 Sound Patterns in Human Language
LING 260-0 Formal Analysis of Words & Sentences
LING 270-0 Meaning
Philosophy of Mind
PHIL 225-0 Minds and Machines
PHIL 325-0 Philosophy of Mind
Music Cognition
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
COMP_SCI 325-1 Artificial Intelligence Programming
COMP_SCI 337-0 Natural Language Processing
COMP_SCI 338-0 Practicum in Intelligent Information Systems
COMP_SCI 344-0 Design of Computer Problem Solvers
COMP_SCI 348-0 Introduction to Artificial Intelligence
COMP_SCI 349-0 Machine Learning
COMP_SCI 371-0 Knowledge Representation and Reasoning
COMP_SCI 372-0/472-0 Designing & Constructing Models with Multi-Agent Language
Relevant sections of:
COMP_SCI 396-0 Special Topics in Computer Science

Cognitive Neuroscience
Course Title
BIOL_SCI 302-0 Fundamentals of Neurobiology
CSD 303-0 Brain and Cognition
CSD 310-0 Biological Foundations of Speech and Music
NEUROSCI 320-0 Animal Behavior
NEUROSCI 360-0 Neuroscience of Brain Disorders
NEUROSCI 377-0 Neurobiology of Sensation and Perception
PSYCH 249-0 Buddhist Psychology
PSYCH 322-2 Selected Topics in Neuroscience and Psychophysiology
PSYCH 324-0 Perception
PSYCH 327-0 Brain and Cognition
PSYCH 328-0 Brain Damage and the Mind
PSYCH 336-0 Consciousness
PSYCH 374-0 Human Memory
PSYCH 379-0 Neuroscience & Behavior Laboratory
Relevant sections of:
PSYCH 391-0 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 336-0 Consciousness
PSYCH 338-0 Psychology of Instructional Design and Technology
PSYCH 344-0 Cultural Psychology
PSYCH 370-0 Cognitive Development
PSYCH 372-0 Language and Cognition
PSYCH 373-0 Decision Making
PSYCH 374-0 Human Memory
PSYCH 461-0 Reasoning and Representation
### Communication Sciences and Disorders

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CSD 301-0</td>
<td>Anatomy and Physiology of the Vocal Mechanism</td>
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<tr>
<td>CSD 303-0</td>
<td>Brain and Cognition</td>
</tr>
<tr>
<td>CSD 306-0</td>
<td>Psychoacoustics</td>
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<tr>
<td>CSD 309-0</td>
<td>Culture, Language and Learning</td>
</tr>
<tr>
<td>CSD 342-0</td>
<td>Language and Cognition in Atypical Development</td>
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<tr>
<td>CSD 392-0</td>
<td>Language Development and Usage</td>
</tr>
<tr>
<td>CSD 406-0</td>
<td>Medical Aspects of Audiology</td>
</tr>
<tr>
<td>CSD 453-0</td>
<td>Overview of Language Disorders</td>
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<tr>
<td>CSD 454-0</td>
<td>Language Disorders</td>
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### Culture and Cognition

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>ANTHRO 389-0</td>
<td>Ethnographic Methods and Analysis</td>
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<tr>
<td>ECON 330-0</td>
<td>Behavioral Economics</td>
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<td>LOC 214-0</td>
<td>Culture and Cognition</td>
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<td>LING 341-0</td>
<td>Language Typology</td>
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<tr>
<td>PSYCH 344-0</td>
<td>Cultural Psychology</td>
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<td>PSYCH 372-0</td>
<td>Language and Cognition</td>
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### Learning and Instruction

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<tr>
<td>CSD 306-0</td>
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<tr>
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</tr>
<tr>
<td>CSD 373-0</td>
<td>Learning Disabilities</td>
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<tr>
<td>CSD 392-0</td>
<td>Language Development and Usage</td>
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<td>LOC 313-0</td>
<td>Learning and Thinking in Organizations (if not counted as a core course)</td>
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<tr>
<td>LRN_SCI 401-0</td>
<td>Knowledge Representation for the Learning Sciences</td>
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<td>LRN_SCI 425-0</td>
<td>Introduction to Design for the Learning Sciences</td>
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<tr>
<td>LRN_SCI 426-0</td>
<td>Design of Technological Tools for Thinking and Learning</td>
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<td>LRN_SCI 429-0</td>
<td>Design of Learning Environments</td>
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### Linguistics

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<tr>
<td>LING 300-0</td>
<td>Topics in Linguistics</td>
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<tr>
<td>LING 311-0</td>
<td>Child Language</td>
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<td>LING 315-0</td>
<td>Experimental Approaches to Word Form Processing</td>
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<td>LING 316-0</td>
<td>Experimental Syntax</td>
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<td>LING 317-0</td>
<td>Experimental Pragmatics</td>
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<td>LING 321-0</td>
<td>Bilingualism</td>
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<td>LING 330-0</td>
<td>Research Methods in Linguistics</td>
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