

COGNITIVE SCIENCE BS

Cognitive Science

College of Arts and Humanities
Department of Philosophy
227 Armstrong Hall • 507-389-2012

Cognitive Science Program Director: Richard Liebendorfer.

Biology Concentration Advisor: Geoffrey Goellner
Computer Science Concentration Advisor: Rebecca Bates
Philosophy Concentration Advisor: Richard Liebendorfer
Psychology Concentration Advisor: Moses Langley
Cognitive Science Program Core Faculty: Dawn Albertson (Psychology), Bradley Arsznov (Psychology), Rebecca Bates (Computer Science), Michael Bentley (Biology), Sun Yu (Philosophy), Richard Liebendorfer (Philosophy), Geoffrey Goellner (Biology), Daniel Toma (Biology), Karla Lassonde (Psychology), Moses Langley (Psychology), Guarionex Salvia (Computer Science).

Cognitive Science is an interdisciplinary inquiry concerned with understanding the nature and development of such intelligent capacities as perception, language, reasoning, learning and problem-solving, whether these capacities are realized in biological or artificial systems. Such inquiry is by its very nature interdisciplinary, integrating methodological, theoretical and practical foci of Biology, Computer Science, Philosophy and Psychology into a single course of study.

Academic Map/Degree Plan at www.mnsu.edu/programs/#All

POLICIES/INFORMATION

The cognitive science major is a broad major and does not require that a student complete a minor in addition to the major. The major requires approximately 71-79 credits (depending on area of concentration) including prerequisites. As prerequisites for the major students must take CHEM 201, MATH 121, PSYC 201, OR STAT 354. Some of prerequisite requirements also fulfill General Education goal areas. Some of the concentrations have additional prerequisites (see course descriptions for more information). The program requirements below should be read carefully.

Each Cognitive Science major will concentrate in one of the four participating disciplines: Biology, Computer Science, Philosophy and Psychology. The concentration typically requires 24 credits of work. In addition to the concentration each student will take core courses from each of the other three participating disciplines. Each core will typically require 12 credits of course work, a total of 36 credits. A student need not do the core for her or his area of concentration since the core is already included in the concentration.

The structure of the major insures that students have a solid grounding in each of the four disciplines as well as a specific concentration in one area that draws on the interdisciplinary foundation. Graduates of the program will be prepared for a variety of post-baccalaureate options.

- They will be prepared for any of the careers open to graduates with degrees in one of the participating disciplines.
- They will be prepared for graduate study in traditional programs in Biology, Computer Science, Psychology or Philosophy.
- They will also be prepared for study in one of the many recently developed graduate Cognitive Science programs as well as graduate study in related programs such as cognition, brain, and behavior, cognitive neuroscience, biopsychology and human-computer interaction.

Those who choose to study the law, a path frequently chosen by philosophy majors, will be well suited for legal practice concerned with the variety of legal complexities associated with the development of new technology.

Admission to the major is granted by the Cognitive Science Program. Minimum admission requirements are:

- a minimum of 32 earned semester hours.
- a minimum cumulative GPA of 2.5

Contact the Cognitive Science Program Director or the Program Advisors in one of the four participating departments.

Grading Policy. All coursework applied towards the major must be taken for a letter grade except for courses offered only as P/N. A minimum grade of "C-" is required in all courses which are to be applied towards the major. In addition, a minimum grade of "C-" is required for all prerequisite courses where dictated by individual department policies. Grades of "D" are not accepted by the program for

Prerequisites to the major, major common core and major restricted elective courses.

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Degree completion = 120 credits

Required General Education

CHEM 201 General Chemistry I (5)
MATH 121 Calculus I (4)

Prerequisites to the Major (choose 3-4 credits)

PSYC 201 Statistics for Psychology (4)
STAT 354 Concepts of Probability & Statistics (4)

Major Common Core

(choose one emphasis and three core elective clusters)

Major Restricted Electives

(choose three of the core elective groups other than your major emphasis)

Core Elective: Biology (choose 11 credits)

BIOL 220 Human Anatomy (4)
BIOL 324 Neurobiology (3)
BIOL 330 Principles of Human Physiology (4)

Core Elective: Computer Science

Required (choose 15-16 credits)

CS 110 Computer Science I (4)
CS 111 Computer Science II (4)
CS 230 Introduction to Intelligent Systems (4)
Electives (choose 3-4 credits)
CS 315 Introduction to Cryptographic Methods (4)
CS 330 Introduction to Neural Computation (4)
CS 430 Artificial Intelligence (3)
IT 482 Human Computer Interaction (4)

Core Elective: Philosophy

Required (choose 12 credits)

PHIL 101W Philosophical Problem: The Mind-Body Problem (3)
Electives (choose 9 credits)
PHIL 410 Philosophy of Language (3)
PHIL 474 Philosophy of the Mind (3)
PHIL 475 Philosophical Issues in Cognitive Science (3)
PHIL 480 Philosophy of Science (3)
PHIL 481 Philosophy of Biology (3)

Core Elective: Psychology

Required (choose 12 credits)

PSYC 101 Introduction to Psychological Science (4)
PSYC 325 Introduction to Cognitive Psychology (4)
Electives (choose 4 credits)
PSYC 413 Sensation & Perception (4)
PSYC 415 Human Memory (4)
PSYC 421 Behavior Neuroscience (4)

Major Emphasis: Biology

BIOL 105 General Biology I (4)
BIOL 106 General Biology II (4)
BIOL 220 Human Anatomy (4)
BIOL 324 Neurobiology (3)
BIOL 330 Principles of Human Physiology (4)

(choose 6-8 credits)

BIOL 211 Genetics (4)
BIOL 424 Developmental Biology (3)
BIOL 436 Animal Behavior (4)
BIOL 438 General Endocrinology (3)
BIOL 460 Introduction to Toxicology (3)
BIOL 466 Principles of Pharmacology (3)

Major Emphasis: Computer Science

CS 110 Computer Science I (4)
CS 111 Computer Science II (4)
CS 230 Introduction to Intelligent Systems (4)
CS 305 Algorithmic Structures (4)
CS 498 Senior Thesis (4)
(choose 3-4 credits)
CS 315 Introduction to Cryptographic Methods (4)
CS 330 Introduction to Neural Computation (4)

COGNITIVE SCIENCE CONTINUED

CS 430 Artificial Intelligence (3)

Major Emphasis: Philosophy

PHIL 101W Philosophical Problem: The Mind-Body Problem (3)

PHIL 495 Senior Thesis I (2)

PHIL 496 Philosophy Honors Thesis II (1)

(choose 9 credits)

PHIL 311 Symbolic Logic (3)

PHIL 410 Philosophy of Language (3)

PHIL 474 Philosophy of the Mind (3)

PHIL 475 Philosophical Issues in Cognitive Science (3)

PHIL 480 Philosophy of Science (3)

PHIL 481 Philosophy of Biology (3)

Choose courses which have not already been chosen under the preceding requirement. (choose 9 credits)

PHIL 311 Symbolic Logic (3)

PHIL 334W History of Philosophy: Classical Philosophy (3)

PHIL 336W History of Philosophy: Renaissance and Modern Philosophy (3)

PHIL 410 Philosophy of Language (3)

PHIL 420 Epistemology (3)

PHIL 430 Metaphysics (3)

PHIL 437 Contemporary Philosophy (3)

PHIL 450 Special Topics (1-3)

PHIL 455 Existentialism & Phenomenology (3)

PHIL 474 Philosophy of the Mind (3)

PHIL 475 Philosophical Issues in Cognitive Science (3)

PHIL 480 Philosophy of Science (3)

PHIL 481 Philosophy of Biology (3)

Major Emphasis: Psychology

PSYC 101 Introduction to Psychological Science (4)

PSYC 325 Introduction to Cognitive Psychology (4)

(choose 16 credits)

PSYC 206 The Human Mind (4)

PSYC 321 Brain and Behavior (4)

PSYC 405 Motivation (4)

PSYC 413 Sensation & Perception (4)

PSYC 415 Human Memory (4)

PSYC 420 Psychopharmacology (4)

PSYC 421 Behavior Neuroscience (4)

PSYC 423 Cognitive Neuroscience (4)

PSYC 430 Advanced Topics in Biological Psychology (4)

PSYC 433 Child Psychology (4)

PSYC 436 Adolescent Psychology (4)

PSYC 455 Abnormal Psychology (4)

PSYC 458 Cultural Psychology (4)

PSYC 466 Psychology of Aging (4)

Required Minor: None.