

Cognitive Science

Cognitive Science Program Director: Richard Liebendorfer
College of Arts and Humanities
Department of Philosophy
227 Armstrong Hall Phone: 507-389-2012

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

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.

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 115 **OR** 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.

COGNITIVE SCIENCE BS

Prerequisites to the Major:

CHEM 201 General Chemistry I (5)

(Choose 4 credits)

MATH 115 Precalculus Mathematics (4)

MATH 121 Calculus I (4)

(Choose 3-4 credits)

PSYC 201 Statistics for Psychology (4)

STAT 354 Concepts of Probability and Statistics (3)

Major Common Core

Choose one emphasis and three core elective clusters.

Major Restricted Electives

Choose three of the Core Elective Clusters other than your major emphasis.

CHOOSE 3 CLUSTERS

Core Elective: Biology

BIOL 220 Human Anatomy (4)

BIOL 330 Principles of Human Physiology (4)

BIOL 324 Neurobiology (3)

Core Elective: Computer Science

CS 110 Computer Science I (4)

CS 230 Intelligent Systems (4)

(Choose 4 credits)

IT 430 Intelligent Systems (4)

IT 432 Robotics (4)

IT 482 Human Computer Interaction (3)

Core Elective: Philosophy

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

(Choose 9 credits)

PHIL 410 Philosophy of Language (3)

PHIL 474 Philosophy of 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

PSYC 101 Psychology (4)

PSYC 416 Cognitive Psychology (4)

(Choose 4 credits)

PSYC 413 Sensation and Perception (4)

PSYC 415 Human Memory (4)

PSYC 421 Biopsychology (4)

Major Emphasis: Biology

BIOL 105 General Biology I (4)

BIOL 106 General Biology II (4)

BIOL 220 Human Anatomy (4)

BIOL 330 Principles of Human Physiology (4)

BIOL 324 Neurobiology (3)

(Choose 6-8 credits)

BIOL 211 Genetics (3)

BIOL 434 Development and Human Embryology (3)

BIOL 436 Animal Behavior (3)

BIOL 438 General Endocrinology (3)

BIOL 460 Introduction to Toxicology (3)

BIOL 466 Principles of Pharmacology (3)

Major Emphasis: Philosophy

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

PHIL 495 Senior Thesis I (2)

PHIL 496 Senior Thesis II (1)

(Choose 9 credits)

PHIL 311 Symbolic Logic (3)

PHIL 410 Philosophy of Language (3)

PHIL 474 Philosophy of Mind (3)

PHIL 475 Philosophical Issues in Cognitive Science (3)

PHIL 480 Philosophy of Science (3)

PHIL 481 Philosophy of Biology (3)

(Choose 9 credits)

Choose courses which have not already been chosen under the preceding requirement.

PHIL 311 Symbolic Logic (3)

COGNITIVE SCIENCE

PHIL	334W	History of Philosophy: Classical Philosophy (3)
PHIL	336W	History of Modern and Renaissance 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 and Phenomenology (3)
PHIL	474	Philosophy of 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	416	Cognitive Psychology (4)

(Choose 16 credits)

PSYC	206	The Human Mind (4)
PSYC	405	Motivation (4)
PSYC	413	Sensation and Perception (4)
PSYC	415	Human Memory (4)
PSYC	420	Drugs and Behavior (4)
PSYC	421	Biopsychology (4)
PSYC	423	Cognitive Neuroscience (4)
PSYC	424	Physiological Psychology Laboratory (4)
PSYC	433	Child Psychology (4)
PSYC	436	Adolescent Psychology (4)
PSYC	455	Abnormal Psychology (4)
PSYC	458	Cultural Psychology (3)
PSYC	466	Psychology of Aging (3)

Required Minor: None.