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

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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PHIL 334W</td>
<td>History of Philosophy: Classical Philosophy (3)</td>
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<td>PHIL 336W</td>
<td>History of Modern and Renaissance Philosophy (3)</td>
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<td>PHIL 410</td>
<td>Philosophy of Language (3)</td>
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<td>PHIL 420</td>
<td>Epistemology (3)</td>
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<td>PHIL 430</td>
<td>Metaphysics (3)</td>
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<td>PHIL 437</td>
<td>Contemporary Philosophy (3)</td>
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<td>PHIL 450</td>
<td>Special Topics (1-3)</td>
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<tr>
<td>PHIL 455</td>
<td>Existentialism and Phenomenology (3)</td>
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**Major Emphasis: Psychology**

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<tr>
<td>PSYC 101</td>
<td>Introduction to Psychological Science (4)</td>
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<td>PSYC 416</td>
<td>Cognitive Psychology (4)</td>
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(Choose 16 credits)

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<tr>
<td>PSYC 206</td>
<td>The Human Mind (4)</td>
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<td>PSYC 405</td>
<td>Motivation (4)</td>
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<td>PSYC 413</td>
<td>Sensation and Perception (4)</td>
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<tr>
<td>PSYC 415</td>
<td>Human Memory (4)</td>
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<tr>
<td>PSYC 420</td>
<td>Drugs and Behavior (4)</td>
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<td>PSYC 421</td>
<td>Biopsychology (4)</td>
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<td>PSYC 423</td>
<td>Cognitive Neuroscience (4)</td>
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<td>PSYC 424</td>
<td>Physiological Psychology Laboratory (4)</td>
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<td>PSYC 433</td>
<td>Child Psychology (4)</td>
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<td>Adolescent Psychology (4)</td>
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<td>PSYC 455</td>
<td>Abnormal Psychology (4)</td>
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<td>PSYC 458</td>
<td>Cultural Psychology (3)</td>
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<td>PSYC 466</td>
<td>Psychology of Aging (3)</td>
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**Required Minor: None.**