

Cognitive Science (COGS)

Courses

COGS 007 Introduction to Cognitive Science 4 Credits

What is a mind? How is the mind related to the brain? Could we make an artificial mind? Issues concerning knowledge representation and intelligence in minds and computers as investigated by psychologists, philosophers, linguists, neuroscientists, and researchers in artificial intelligence.

Attribute/Distribution: SW

COGS 091 Special Topics 1-4 Credits

Intensive study of a topic of special interest not covered in other courses.

Repeat Status: Course may be repeated.

Attribute/Distribution: AL, CC, HE, HU, NW, SS, SW, W

COGS 098 1-4 Credits

Repeat Status: Course may be repeated.

COGS 117 (PSYC 117) Cognitive Psychology 4 Credits

The architecture and dynamics of the human mind: How we acquire knowledge through perception, represent and activate it in memory, and use it to communicate, make decisions, solve problems, and reason creatively. May not be taken pass/fail.

Prerequisites: PSYC 001 or COGS 007

Attribute/Distribution: SS, SW

COGS 127 (CSE 127) Survey of Artificial Intelligence 3 Credits

An introduction to artificial intelligence (AI) intended for non-majors. AI concepts, systems, and history. Credit will not be given for both CSE/COGS 127 and CSE/COGS 327.

Prerequisites: CSE 004 or CSE 007 or CSE 012

Attribute/Distribution: Q

COGS 140 (ANTH 140, MLL 140) Introduction to Linguistics 4 Credits

Relationship between language and mind; formal properties of language; language and society; how languages change over time. May not be taken pass/fail.

Attribute/Distribution: SS, SW

COGS 161 Supervised Research 1-3 Credits

Research under the direct supervision of a faculty member in the cognitive science program. Students must arrange the particular project with a faculty member before enrolling. Consent of program director required.

Repeat Status: Course may be repeated.

Attribute/Distribution: CC, W

COGS 176 (PSYC 176) Cognitive Neuroscience 4 Credits

Perception and cognitive neuroscience as the link between mental processes and their biological bases. Visual and auditory perception; the control of action; neuropsychological syndromes of perception, language, memory, and thought; neural network (connectionist) models of mental processes. May not be taken pass/fail.

Prerequisites: PSYC 001 or COGS 007

Attribute/Distribution: NS, NW

COGS 183 (PSYC 183) Cognitive Psychology Recitation 1 Credit

Research, discussion, and analysis of topics in cognitive psychology.

Prerequisites: PSYC 117 or COGS 117

Can be taken Concurrently: PSYC 117, COGS 117

COGS 184 (PSYC 184) Cognitive Neuroscience Recitation 1 Credit

Research, discussion, and analysis of topics in cognitive neuroscience.

Prerequisites: PSYC 176 or COGS 176

Can be taken Concurrently: PSYC 176, COGS 176

COGS 191 Special Topics 1-4 Credits

Intensive study of a topic of special interest not covered in other courses.

Repeat Status: Course may be repeated.

Attribute/Distribution: AL, CC, HE, HU, NW, SS, SW, W

COGS 250 (PHIL 250) Philosophy of Mind 4 Credits

An exploration of the mind-body problem. Are the body and mind distinct substances (dualism); or is there only body (materialism); or only mind (idealism)? Other views to be considered include behaviorism (the view that behavior can be explained without recourse to mental states), and the view that the mind is a complex computer. Student must have completed at least one Philosophy course at the 100-level.

Attribute/Distribution: HE, HU

COGS 251 (PHIL 251) Philosophical Foundations of Cognitive Science 4 Credits

Cognitive Science is the study of aspects of natural and artificial minds: perception, cognition, reasoning, action, and language. Several fields intersect here: artificial intelligence, linguistics, cognitive psychology, philosophy, and neuroscience. Central issues include: the nature of representation, the boundaries of cognitive science, and consciousness. We will survey the foundational philosophical aspects of these issues within Cognitive Science. Student must have completed at least one Philosophy course at the 100-level, or major in Cognitive Science.

Attribute/Distribution: HE, HU

COGS 291 Special Topics 1-4 Credits

Intensive study of a topic of special interest not covered in other courses.

Repeat Status: Course may be repeated.

Attribute/Distribution: CC, HU, SS, W

COGS 300 Apprentice Teaching 1-4 Credits

COGS 301 Senior Project in Cognitive Science: Proposal 1-3 Credits

For students not intending to apply for program Honors. Background reading and preparation of a short written proposal are conducted in the first semester in consultation with a faculty adviser. Students must enroll for a total of three credits which may be split between the sections of a primary and secondary adviser. Consent of program director and project adviser required.

Attribute/Distribution: CC, W

COGS 302 Senior Project in Cognitive Science: Execution 1-3 Credits

For students not intending to apply for program Honors. Execution of the project is conducted in the second semester in consultation with a faculty adviser. A presentation will be given at the end of the semester. Students must enroll for a total of three credits which may be split between the sections of a primary and secondary adviser. Consent of program director and project adviser required.

Repeat Status: Course may be repeated.

Prerequisites: COGS 301

Attribute/Distribution: CC, W

COGS 327 (CSE 327) Artificial Intelligence Theory and Practice 3 Credits

Detailed analysis of a broad range of artificial intelligence (AI) algorithms and systems. Problem solving, knowledge representation, reasoning, planning, uncertainty and machine learning. Applications of AI to areas such as natural language processing, vision, and robotics. Credit will not be given for both CSE/COGS 127 and CSE/COGS 327.

Prerequisites: CSE 017 and CSE 140

Attribute/Distribution: Q

COGS 361 Independent Research 2-4 Credits

Independent research in cognitive science with a faculty advisor. Students must arrange the particular project with a faculty advisor before enrolling. Consent of program director required.

Repeat Status: Course may be repeated.

Attribute/Distribution: CC, W

COGS 391 Honors Thesis in Cognitive Science: Proposal 1-4 Credits

For students with 3.3 or higher major and overall GPA by the spring of the junior year, who want to undertake a project with the potential for program Honors. Literature review and preparation of a written proposal are conducted in the first semester in consultation with a faculty adviser. An oral presentation will be given at end of the semester. Students must enroll for four credits which may be split between co-advisers. Consent of program director and project adviser required.

Repeat Status: Course may be repeated.

Attribute/Distribution: CC, W

COGS 392 Honors Thesis in Cognitive Science: Project Execution and Thesis 1-4 Credits

For students with 3.3 or higher major and overall GPA by the spring of the junior year. Project execution and preparation of the written report is conducted in the second semester. An oral presentation will be given at the end of the semester. Theses will be evaluated for Honors by three cognitive science faculty. Students must enroll for a total of four credits which may be split between co-advisers. Consent of program director and project adviser required.

Repeat Status: Course may be repeated.

Prerequisites: COGS 391

Attribute/Distribution: CC, W

COGS 394 Special Topics in Cognitive Science 3-4 Credits

Topics vary from semester to semester. Topics are presented at an advanced level.

Repeat Status: Course may be repeated.

Attribute/Distribution: CC, W

COGS 405 Individual Study in Cognitive Science 1-6 Credits

Study of a topic not covered in regular course offerings. By arrangement with a consulting faculty member. Consent of program director required.

Repeat Status: Course may be repeated.

COGS 423 (PSYC 423) Foundations of Cognitive Science 3 Credits

Survey of fundamental theory and methodologies from artificial intelligence, linguistics, cognitive psychology, philosophy, and neuroscience, as well as salient research problems such as knowledge acquisition and representation, natural language processing, skill acquisition, perception and action, and the philosophical question of intentionality.

COGS 478 (PSYC 478) Ontological Psychology 3 Credits

Principles and constraints for modeling psychological phenomena. Representation; perception; memory; knowing; learning; emotions; consciousness; language; rationality.