Cognitive Science

Overview

The Cognitive Science Program at UC Berkeley offers undergraduates the opportunity to explore the mind in interdisciplinary perspective. Courses in the program draw on psychology, linguistics, computer science, philosophy, neuroscience, and anthropology, among other fields, to illuminate how the human mind works, and why it works the way it does.

Many influential ideas within cognitive science originated at Berkeley. The program draws on over forty affiliated faculty from a variety of departments, and is closely integrated with cognitive science research efforts across the campus.

The cognitive science research community at Berkeley is centered around the Institute of Cognitive and Brain Sciences (http://icbs.berkeley.edu) . Students interested in cognitive science graduate study can receive graduate training in programs in affiliated disciplines, e.g. psychology (http://psychology.berkeley.edu) , linguistics (http://linguistics.berkeley.edu) , neuroscience (http://neuroscience.berkeley.edu) . There is presently no separate graduate program specifically for cognitive science.

Undergraduate Program

Cognitive Science (http://guide.berkeley.edu/archive/2014-15/undergraduate/degree-programs/cognitive-science) : BA

Graduate Program

There is no graduate program in the Cognitive Science Program.

Cognitive Science

COG SCI 1 Introduction to Cognitive Science 4 Units
This course introduces the interdisciplinary field of cognitive science. Lectures and readings will survey research from artificial intelligence, pyschology, linguistics, philosophy, and neuroscience, and will cover topics such as the nature of knowledge, thinking, remembering, vision, imagery, language, and consciousness. Sections will demonstrate some of the major methodologies.
Rules & Requirements

Credit Restrictions: Students will receive no credit for Cognitive Science 1 after taking Cognitive Science N1 or Cognitive Science C1/Education C1.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 2 hours of laboratory per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

COG SCI N1 Introduction to Cognitive Science 3 Units
This course introduces the interdisciplinary field of cognitive science. Lectures and readings will survey research in such fields as artificial intelligence, psychology, linguistics, philosophy, and neuroscience, and will cover topics such as the nature of knowledge, thinking, remembering, vision, imagery, language, and consciousness. Sections will demonstrate some of the major methodologies.
Rules & Requirements

Credit Restrictions: Students will receive no credit for N1 after taking Cognitive Science 1 or Cognitive Science C1/Education C1.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 2 hours of laboratory per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Formerly known as: C1

COG SCI 98 Directed Group Study 1 - 4 Units
Seminar for the group study of selected topics. Topics may be initiated by students subject to the approval of the major advisor.
Rules & Requirements

Credit Restrictions: Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog.

Repeat rules: Course may be repeated for credit. Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of directed group study per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

COG SCI 99 Supervised Independent Study and Research 1 - 4 Units
Independent study and research by arrangement with faculty.
Rules & Requirements

Prerequisites: Restricted to freshmen and sophomores; consent of instructor

Repeat rules: Course may be repeated for credit. Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of independent study per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

COG SCI C100 Basic Issues in Cognition 3 Units
Theoretical foundations and current controversies in cognitive science will be discussed. Basic issues in cognition--including perception, imagery, memory, categorization, thinking, judgment, and development--will be considered from the perspectives of philosophy, psychology, computer science, and physiology. Particular emphasis will be placed on the nature, implications, and limitations of the computational model of mind.
Rules & Requirements

Credit Restrictions: Students will receive no credit for C120 after taking 120A.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Summer:
6 weeks - 5 hours of lecture and 2.5 hours of discussion per week
8 weeks - 3.5 hours of lecture and 2 hours of discussion per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Also listed as: PSYCH C120

COG SCI C101 The Mind and Language 4 Units
Conceptual systems and language from the perspective of cognitive science. How language gives insight into conceptual structure, reasoning, category-formation, metaphorical understanding, and the framing of experience. Cognitive versus formal linguistics. Implications from and for philosophy, anthropology, literature, artificial intelligence, and politics.
Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Summer: 8 weeks - 6 hours of lecture and 1.5 hours of discussion per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructors: G. Lakoff, E. Sweetser

Formerly known as: 105

Also listed as: LINGUIS C105

COG SCI C102 Scientific Approaches to Consciousness 3 Units
This course will examine the nature of human consciousness from the interdisciplinary perspective of cognitive science. It will cover topics from the philosophy of mind, cognitive linguistics, neuroscience, psychology, and computational models.
Rules & Requirements

Prerequisites: 1 or Cognitive Science C1; or 120A or C120B or Cognitive Science C100

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Also listed as: PSYCH C129

COG SCI C103 History of Information 3 Units
This course explores the history of information and associated technologies, uncovering why we think of ours as "the information age." We will select moments in the evolution of production, recording, and storage from the earliest writing systems to the world of Short Message Service (SMS) and blogs. In every instance, we'll be concerned with both what and when and how and why, and we will keep returning to the question of technological determinism: how do technological developments affect society and vice versa?
Rules & Requirements

Prerequisites: Upper level undergraduates

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructors: Duguid, Nunberg

Formerly known as: Information Systems and Management C103

Also listed as: HISTORY C192/INFO C103/MEDIAST C104C

COG SCI C104 The Mind, Language, and Politics 4 Units
An analysis of contemporary liberal and conservative thought and language, in terms of the basic mechanisms of mind: frames, prototypes, radial categories, contested concepts, conceptual metaphor, metonymy, and blends. The framing of political discourse. The logic of political thought. The purpose of the course is to provide students interested in political and social issues with the tools to analyze the framing of, and logic behind, contemporary political discourse.
Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructor: G. Lakoff

Also listed as: LINGUIS C104

COG SCI C126 Perception 3 Units
An introduction to principal theoretical constructs and experimental procedures in visual and auditory perception. Topics will include psychophysics; perception of color, space, shape, and motion; pattern recognition and perceptual attention.
Rules & Requirements

Prerequisites: Consent of instructor. 101 recommended

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Also listed as: PSYCH C126

COG SCI C127 Cognitive Neuroscience 3 Units
This course will examine research investigating the neurological basis of cognition. Material covered will include the study of brain-injured patients, neurophysiological research in animals, and the study of normal cognitive processes in humans with non-invasive behavioral and physiological techniques such as functional Magnetic Resonance Imaging (fMRI), electroencephalography (EEG), and transcranial magnetic stimulation (TMS). Topics to be covered include perception, attention, memory, language, motor control, executive control, and emotion.
Rules & Requirements

Prerequisites: 110 or 120A or C120B, or Cog Sci C100

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Also listed as: PSYCH C127

COG SCI 131 Computational Models of Cognition 4 Units
This course will provide advanced students in cognitive science and computer science with the skills to develop computational models of human cognition, giving insight into how people solve challenging computational problems, as well as how to bring computers closer to human performance. The course will explore three ways in which researchers have attempted to formalize cognition -- symbolic approaches, neural networks, and probability and statistics -- considering the strengths and weaknesses of each.
Rules & Requirements

Prerequisites: Calculus, discrete mathematics, C1, Computer Science 61A, or equivalents

Credit Restrictions: Student will receive no credit for Cognitive Science 131 after taking Cognitive Science C131/Psychology C123. A deficient grade in Cognitive C131/Psychology C123 may be removed by taking Cognitive Science 131.

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Alternative to final exam.

COG SCI C140 Quantitative Methods in Linguistics 4 Units
An introduction to research using quantitative analysis in linguistics and cognitive science. Students will learn how to use the R programming environment for statistical analysis and data visualization.
Rules & Requirements

Prerequisites: 100 or graduate student standing

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Gahl

Also listed as: LINGUIS C160

COG SCI C142 Language and Thought 3 Units
This seminar explores the relation of language and thought. Is language uniquely human, and if so, what does this reveal about the human mind? Does the particular language you speak affect the way you think, or do human languages reflect a universal conceptual repertoire? The goal of this class is to familiarize you with a set of classic arguments on these themes, together with current research that evaluates these arguments, through weekly reading and discussion.
Hours & Format

Fall and/or spring: 15 weeks - 3 hours of seminar per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

Instructor: Regier

Also listed as: LINGUIS C142

COG SCI C147 Language Disorders 3 Units
An introduction to experimental and theoretical research on language disorders, particularly acquired aphasia in adults. Major course themes include the relationship between normal and pathological language, and the usefulness of linguistic analysis for empirical research. Topics include phonetic, phonological, morphological, semantic, syntactic, and pragmatic aspects of language disorders in mono- and multilingual speakers of typologically diverse languages.
Rules & Requirements

Prerequisites: Linguistics 100 or consent of the instructor

Hours & Format

Fall and/or spring: 15 weeks - 3 hours of lecture per week

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam required.

Instructor: Gahl

Also listed as: LINGUIS C147

COG SCI 190 Special Topics in Cognitive Science 3 Units
Selected topics in the study of Cognitive Science.
Rules & Requirements

Prerequisites: Consent of instructor

Repeat rules: Course may be repeated for credit as topic varies. Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 2 hours of seminar per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

COG SCI H195A Special Study for Honors Candidates 1 - 3 Units
Independent study and preparation of an honors thesis under the supervision of a faculty member.
Rules & Requirements

Prerequisites: Open only to senior cognitive science majors in the honors program

Repeat rules: Course may be repeated for a maximum of 6 units.Course may be repeated for a maximum of 6 units.

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of independent study per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

COG SCI H195B Special Study for Honors Candidates 1 - 3 Units
Independent study and preparation of an honors thesis under the supervision of a faculty member.
Rules & Requirements

Prerequisites: Open only to senior cognitive science majors in the honors program

Repeat rules: Course may be repeated for a maximum of 6 units.Course may be repeated for a maximum of 6 units.

Hours & Format

Fall and/or spring: 15 weeks - 0 hours of independent study per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Letter grade. Final exam not required.

COG SCI 198 Directed Group Study 1 - 4 Units
Seminar for the group study of selected topics. Topics may be initated by students subject to the approval of the major advisor.
Rules & Requirements

Prerequisites: Upper division standing and consent of instructor

Repeat rules: Course may be repeated for credit. Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of directed group study per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

COG SCI 199 Supervised Independent Study 1 - 4 Units
Independent study and research by arrangement with faculty.
Rules & Requirements

Prerequisites: Restricted to juniors and seniors

Repeat rules: Course may be repeated for credit. Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1-4 hours of independent study per week

Summer: 8 weeks - 1.5-7.5 hours of independent study per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

Grading/Final exam status: Offered for pass/not pass grade only. Final exam not required.

COG SCI 201 Graduate Seminar on the Mind and Language 4 Units
Thought appears to be grounded in the sensorimotor system, and to grow out of the nature of the physical brain and body; human reason also makes extensive and fundamental use of imaginative mechanisms such as metaphor and metonymy. The readings in this course review that evidence, much of which comes from the study of how people categorize and reason using categories. The course will include both discussions and research projects appropriate to students in each of the disciplines.
Rules & Requirements

Prerequisites: Graduate standing or consent of instructor

Hours & Format

Fall and/or spring: 15 weeks - 4 hours of seminar per week

Additional Details

Subject/Course Level: Cognitive Science/Graduate

Grading: Letter grade.

COG SCI 300 Teaching Cognitive Science 1 - 2 Units
This course will provide training in a variety of teaching techniques, will review relevant pedagogical issues, and will assist undergraduate students in mastering their initial teaching experiences.
Rules & Requirements

Repeat rules: Course may be repeated for credit. Course may be repeated for credit when topic changes.

Hours & Format

Fall and/or spring: 15 weeks - 1-2 hours of seminar per week

Additional Details

Subject/Course Level: Cognitive Science/Professional course for teachers or prospective teachers

Grading: Offered for satisfactory/unsatisfactory grade only.