Cognitive Science

Overview

The Cognitive Science Program at UC Berkeley offers undergraduates the opportunity to explore the mind from an 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 40 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/undergraduate/degree-programs/cognitive-science): BA

Cognitive Science

Expand all course descriptions [+]
Collapse all course descriptions [-]

COG SCI 1 Introduction to Cognitive Science 4 Units

Terms offered: Fall 2019, Spring 2019, Fall 2018

This course introduces the interdisciplinary field of cognitive science. Lectures and readings will survey research from 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.

Introduction to Cognitive Science: Read More [+]

Rules & Requirements

Credit Restrictions: Students will receive no credit for Cognitive Science 1 after completing Cognitive Science N1 or Cognitive Science C1/Education C1. A deficient grade in Cognitive Science C1/Education C1 or Cognitive Science N1 may be removed by taking Cognitive Science 1.

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.

Introduction to Cognitive Science: Read Less [-]

COG SCI 1B Introduction to Cognitive Science 3 Units

Terms offered: Fall 2017, Fall 2016

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.

Introduction to Cognitive Science: Read More [+]

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 per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

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

Introduction to Cognitive Science: Read Less [-]

COG SCI N1 Introduction to Cognitive Science 3 Units

Terms offered: Summer 2019 First 6 Week Session, Summer 2019 Second 6 Week Session, Summer 2018 Second 6 Week Session

This course introduces the interdisciplinary field of cognitive science. Lectures and readings will survey research from 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. This course is a core prerequisite for the Cognitive Science major and therefore must be taken for a letter grade.

Introduction to Cognitive Science: Read More [+]

Rules & Requirements

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

Hours & Format

Summer: 6 weeks - 7.5 hours of lecture per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

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

Formerly known as: C1

Introduction to Cognitive Science: Read Less [-]
COG SCI 88 Data Science and the Mind 2
Units
Terms offered: Spring 2019, Spring 2018, Spring 2017
How does the human mind work? We explore this question by analyzing a range of data concerning such topics as human rationality and irrationality, human memory, how objects and events are represented in the mind, and the relation of language and cognition. This class provides students with critical thinking and computing skills that will allow them to work with data in cognitive science and related disciplines.
Data Science and the Mind: Read More [+]
Rules & Requirements
Prerequisites: This course is meant to be taken concurrently with Computer Science C8/Statistics C8/Information C8. Students may take more than one 88 (data science connector) course if they wish, ideally concurrent with or after having taken the C8 course
Hours & Format
Fall and/or spring: 15 weeks - 1 hour of laboratory, 0.5 hours of discussion, and 0.5 hours of lecture per week
Additional Details
Subject/Course Level: Cognitive Science/Undergraduate
Grading/Final exam status: Letter grade. Final exam required.
Data Science and the Mind: Read Less [-]

COG SCI 98 Directed Group Study 1 - 4 Units
Terms offered: Spring 2016, Spring 2015, Fall 2014
Seminar for the group study of selected topics. Topics may be initiated by students subject to the approval of the major advisor.
Directed Group Study: Read More [+]
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 without restriction.
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.
Directed Group Study: Read Less [-]

COG SCI 99 Supervised Independent Study and Research 1 - 4 Units
Terms offered: Spring 2011, Fall 2010
Independent study and research by arrangement with faculty.
Supervised Independent Study and Research: Read More [+]
Rules & Requirements
Prerequisites: Restricted to freshmen and sophomores; consent of instructor
Repeat rules: Course may be repeated for credit without restriction.
Hours & Format
Fall and/or spring: 15 weeks - 3-12 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.
Supervised Independent Study and Research: Read Less [-]

COG SCI C100 Basic Issues in Cognition 3
Units
Terms offered: Fall 2019, Fall 2016, Fall 2015
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.
Basic Issues in Cognition: Read More [+]
Rules & Requirements
Credit Restrictions: Students will receive no credit for Psychology C120 after passing PSYCH N120. A deficient grade in PSYCH N120 may be removed by taking PSYCH C120.
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
Basic Issues in Cognition: Read Less [-]
COG SCI N100 Basic Issues in Cognition 3 Units
Terms offered: Summer 2019 Second 6 Week Session, Summer 2018 Second 6 Week Session, Summer 2017 Second 6 Week Session
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. Basic Issues in Cognition: Read More [+]

Rules & Requirements
Credit Restrictions: Students will receive no credit for Psychology N120 after passing PSYCH C120. A deficient grade in PSYCH C120 may be removed by taking PSYCH N120.

Hours & Format
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.
Also listed as: PSYCH N120

Basic Issues in Cognition: Read Less [-]

COG SCI C101 Cognitive Linguistics 4 Units
Terms offered: Summer 2019 8 Week Session, Spring 2019, Summer 2017 8 Week Session
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. Cognitive Linguistics: Read More [+]

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
Cognitive Linguistics: Read Less [-]

COG SCI C102 Scientific Approaches to Consciousness 3 Units
Terms offered: Fall 2014, Spring 2013, Spring 2011
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. Recommended Courses: Psych C120/CogSci C100 OR Psych/CogSci C127
Scientific Approaches to Consciousness: Read More [+]

Rules & Requirements
Prerequisites: Required courses: Psych 1, Psych W1, Psych 2, OR CogSci 1

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

Scientific Approaches to Consciousness: Read Less [-]

COG SCI C126 Perception 3 Units
Terms offered: Spring 2019, Spring 2018, Spring 2017
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.
Perception: Read More [+]

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.
Instructors: G. Lakoff, E. Sweetser
Formerly known as: 105
Also listed as: LINGUIS C105
Perception: Read Less [-]
COG SCI C127 Cognitive Neuroscience 3 Units

Terms offered: Fall 2019, Fall 2018, Fall 2017
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.

Cognitive Neuroscience: Read More [+]

Rules & Requirements

Prerequisites: Psych/MCB C61 OR Psych 110, or Psych C120/Cog Sci C100, and relevant prerequisites. Courses may be taken simultaneously with Psych C127.<BR/>Enrollment limited to students who are declared Psych, CogSci, MCB, or IB majors, or by permission of the instructor if the student has declared another major

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

Cognitive Neuroscience: Read Less [-]

COG SCI 131 Computational Models of Cognition 4 Units

Terms offered: Fall 2019, Summer 2019 8 Week Session, Spring 2019
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.

Computational Models of Cognition: Read More [+]

Rules & Requirements

Prerequisites: Calculus, discrete mathematics, Cognitive Science 1, 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.<BR/>>

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 2 hours of discussion per week

Additional Details

Subject/Course Level: Cognitive Science/Undergraduate

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

Computational Models of Cognition: Read Less [-]
COG SCI C131 Computational Models of Cognition 4 Units
Terms offered: Spring 2013, Fall 2011, Fall 2010
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.

COG SCI C140 Quantitative Methods in Linguistics 4 Units
Terms offered: Spring 2017, Spring 2016, Spring 2015
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.

COG SCI C142 Language and Thought 3 Units
Terms offered: Spring 2017, Summer 2016, Spring 2016
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.

COG SCI 150 Sensemaking and Organizing 3 Units
Terms offered: Fall 2019
When something “makes sense” or “is organized” we are imposing or discovering order in the arrangement of concepts, events, or resources of some kind. Sensemaking and organizing are fundamental human activities that raise many multi- or trans-disciplinary questions about perception, knowledge, decision making, interaction with things and with other people, values and value creation. We will analyze sensemaking and organizing from four interrelated perspectives. The most fundamental one is provided by language and culture, which shapes the perspectives one takes as an individual, in institutional contexts governed by business or legal processes, or in data-intensive or scientific contexts.

Rules & Requirements
- **Prerequisites:** Calculus, discrete mathematics, CogSci 1/1b/N1, Computer Science 61A, or equivalents
- **Hours & Format**
  - Fall and/or spring: 15 weeks - 3 hours of lecture and 1 hour of discussion per week
  - Summer: 6 weeks - 7.5 hours of seminar per week

Additional Details
- **Subject/Course Level:** Cognitive Science/Undergraduate
- **Grading/Final exam status:** Letter grade. Final exam required.
- **Instructor:** Regier
- **Also listed as:** LINGUIS C142

Quantitative Methods in Linguistics: Read More [+]

Computational Models of Cognition: Read Less [-]

Read More [+]

Read Less [-]
Do you have a self or are you one? How is the self related to brain structure and function? Is the self, for example, identical to some part of the brain or part of the brain’s function? Can you damage the self by damaging the brain? In this course we will look at these questions from conceptual, psychological, and neuroscientific perspectives. We will study both normal and injured brains to help shed light on what is a deeply philosophical and personal issue: What is the human the self. We will read various papers pertaining to these issues as well as the books listed under required reading.

**COG SCI 180 Mind, Brain, and Identity 3 Units**
Terms offered: Summer 2019 First 6 Week Session
Do you have a self or are you one? How is the self related to brain structure and function? Is the self, for example, identical to some part of the brain or part of the brain’s function? Can you damage the self by damaging the brain? In this course we will look at these questions from conceptual, psychological, and neuroscientific perspectives. We will study both normal and injured brains to help shed light on what is a deeply philosophical and personal issue: What is the human the self. We will read various papers pertaining to these issues as well as the books listed under required reading.

**COG SCI 181 The Cognitive Unconscious 3 Units**
Terms offered: Not yet offered
This class is on the cognitive unconsciousness. This is the unconscious mind from a cognitive science point of view rather than one from psychoanalysis (though we will briefly touch on the psychoanalytic notions of the unconscious to clarify the distinction). The basic guide will be asking whether there is explanatory value to explaining human behavior with mental states or events that are not conscious to the person who has them. We say, for example, that a person flinched because they felt pain. Pain is a mental state that can explain the behavior (the flinch) of the person. Are there good reasons to think that some behaviors are explained by unconscious mental states? Cognitive science provides a strong reason to believe we can an

**Objectives & Outcomes**

**Course Objectives:** The objective of this course is to explore and understand the conceptual and empirical approaches to the cognitive unconscious from the multidisciplinary perspective of philosophy and cognitive science.

**Student Learning Outcomes:** Argue for or against theoretical positions in cognitive science. Based on 1) and 2), students will be able to argue for or against theoretical positions in this domain of cognitive science. Evaluate simple behavioral and neuroscientific experiments. Based on 1), students will be able to evaluate philosophical, neuroscientific, and psychological experiments regarding the demarcation of conscious and unconscious states. Explain and apply knowledge of landmark findings and theories in cognitive science. Students will be able to explain a sense of the nature, demarcation, and function of conscious and unconscious mental states (events/ activity)

**Rules & Requirements**

**Prerequisites:** Cognitive Science 1/1B/N1 preferred

**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:** Pageler

*The Cognitive Unconscious: Read Less [-]*
COG SCI 190 Special Topics in Cognitive Science 3 Units
Terms offered: Fall 2019, Spring 2019, Spring 2018
Selected topics in the study of Cognitive Science.
Special Topics in Cognitive Science: Read More [+]

Rules & Requirements
Prerequisites: Consent of instructor
Repeat rules: Course may be repeated for credit when topic changes.

Hours & Format
Fall and/or spring: 15 weeks - 2-4 hours of seminar per week
Summer:
6 weeks - 6-8 hours of seminar per week
8 weeks - 4-8 hours of seminar per week

Additional Details
Subject/Course Level: Cognitive Science/Undergraduate
Grading/Final exam status: Letter grade. Alternative to final exam.

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.
Special Study for Honors Candidates: Read More [+]

Rules & Requirements
Prerequisites: Open only to senior cognitive science majors in the honors program
Repeat rules: Course may be repeated for credit up to a total of 6 units.

Hours & Format
Fall and/or spring: 15 weeks - 0 hours of independent study per week
Summer: 6 weeks - 0 hours of independent study per week
8 weeks - 4-8 hours of seminar per week

Additional Details
Subject/Course Level: Cognitive Science/Undergraduate
Grading/Final exam status: Letter grade. Final exam not required.
Special Study for Honors Candidates: Read Less [-]
COG SCI 198 Directed Group Study 1 - 4 Units
Terms offered: Spring 2016, Fall 2015, Spring 2015
Seminar for the group study of selected topics. Topics may be initiated by students subject to the approval of the major advisor.
Directed Group Study: Read More [+]

Rules & Requirements
Prerequisites: Upper division standing and consent of instructor
Repeat rules: Course may be repeated for credit without restriction.
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.
Directed Group Study: Read Less [-]

COG SCI 199 Independent Study in Research 1 - 4 Units
Terms offered: Fall 2015, Fall 2014, Spring 2013
Independent study and research by arrangement with faculty.
Independent Study in Research: Read More [+]

Rules & Requirements
Prerequisites: Restricted to juniors and seniors
Repeat rules: Course may be repeated for credit without restriction.
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.
Independent Study in Research: Read Less [-]

COG SCI 201 Graduate Seminar on the Mind and Language 4 Units
Terms offered: Spring 2014, Spring 2013, Spring 2012
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.
Graduate Seminar on the Mind and Language: Read More [+]

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.
Graduate Seminar on the Mind and Language: Read Less [-]

COG SCI 300 Teaching Cognitive Science 1 - 2 Units
Terms offered: Fall 2008, Spring 2007, Fall 2006
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.
Teaching Cognitive Science: Read More [+]

Rules & Requirements
Repeat rules: Course may be repeated for credit without restriction.
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.
Teaching Cognitive Science: Read Less [-]