COGNITIVE SCIENCE MINOR

College of Arts and Sciences

Program Website (https://cogsci.cornell.edu/undergraduate-minor/)

Program Description

An interdisciplinary undergraduate minor in Cognitive Science is available to Cornell University undergraduates in the College of Arts and Sciences. Students from other colleges who seek such a minor are welcome to do so and need only approval from their college's registrar.

The undergraduate minor in Cognitive Science is designed to enable students to engage in a structured program directly related to the scientific study of cognition and the mind. The minor provides a framework for the design of structured, supervised programs of study in this growing interdisciplinary field. Such programs of study serve as complements to course work in a single discipline as represented by an individual department. It is considered crucial that students gain a strong background in their major, independent of their work in the minor. Colleges vary in their procedures for formal recognition of this minor (contact the Cognitive Science office for details). The Cognitive Science Program faculty have designed five structured "tracks" that offer students different ways of satisfying the minor. In addition, students are always able to construct their own programs of study subject to approval by their minor advisor. The courses listed under each track are program suggestions. The student should consult with their Cognitive Science advisor to develop a more customized curriculum. In some cases, students may want to combine or cross tracks.

Additional Information

Students who complete the minor requirements will have their minor in Cognitive Science officially represented on their transcript. In addition, students who have made substantial progress toward completing the requirements for the minor will be eligible for enrollment in graduate courses in Cognitive Science during their senior year.

Colloquia

The field sponsors a series of lectures and colloquia by internationally recognized scholars. Students are encouraged to meet with the speakers for informal discussion during their visits.

Film Series

Each fall the program hosts Sprocket, the Cognitive Science Film Series in conjunction with COGST 1101 Introduction to Cognitive Science. The evening, complete with pizza and conversation, is free and open to the Cornell community.

Funding

Travel funding for conferences and workshops is available to minor students.

The Cognitive Science Undergraduate Computer Laboratory

(201 Uris Hall). The lab is available to all Cognitive Science minors. This facility provides a central location for developing and conducting experimental research in Cognitive Science. (Contact the Cog Sci office to gain access to the lab.)

Minor Application Procedures

Inquiries concerning the undergraduate minor should be made to the Cognitive Science program manager, Julie Simmons-Lynch, jes257@cornell.edu, (607) 255-6431, who will provide application materials.

To formally initiate the minor in Cognitive Science, a student must meet with the program manager to select courses that form a coherent cluster for eventual approval by an advisor.

In addition to assisting in the student's selection of courses, the program manager and/or an advisor serve as a general source of information about the field of Cognitive Science, independent research, and relevant resources around the university.

The current director of undergraduate studies is Sarah Murray, linguistics, sarah.murray@cornell.edu.

Minor Requirements

In general, it is expected that students in the minor will take COGST 1101 Introduction to Cognitive Science or COGST 2200 The Human Brain and Mind: An Introduction to Cognitive Neuroscience as their introductory course requirement; COGST 4700 Undergraduate Research in Cognitive Science as their lab course requirement; and three courses at the 3000- and 4000-level in at least two departments (or certain suitable 1- 2000-level courses by petition). Courses are to be chosen by student and advisor to provide a coherent program. Even though only five courses are required to complete the minor, we assume students interested in Cognitive Science will often end up taking more. An independent research project (e.g., COGST 4700 Undergraduate Research in Cognitive Science if this is not used to satisfy the lab requirement) and a research workshop (COGST 4710 Cognitive Science Research Workshop) are encouraged. Please note: minor modifications to this outline may be made in extenuating circumstances by the advisor, in consultation with the program director.

Sample courses for the five tracks are as follows. Note that many of these courses might have prerequisites.

Perception and Cognition

This track focuses on psychological, computational, and neurobiological approaches to the interface between perception and cognition. Students will develop a grasp of the continuum between sensory impressions and complex thought.

Code	Title	Hours
COGST 1101	Introduction to Cognitive Science	3
COGST 2415	Introduction to Moral Psychology	3
COGST 4310		3
COGST 3140	Computational Psychology	3
COGST 3420	Human Perception: Application to Computer Graphics, Art, and Visual Display	3

Language and Cognition

This track focuses on the representation, processing, and acquisition and learning of language, as well as its role in cognition and culture. Students will acquire skills and knowledge in formal and applied linguistic theory, psycholinguistic experimentation, and computational modeling techniques.

Code	Title	Hours
COGST 1101	Introduction to Cognitive Science	3
CS 4110	Programming Languages and Logics	4
HD 4240	Stress, Emotion, and Health	3
LING 3302	Introduction to Phonetics and Phonology	4
LING 3303	Introduction to Syntax and Semantics	4
LING 4403	Syntax I	4
LING 4421	Semantics I	4
LING 4425	Pragmatics	4
LING 6422	Semantics II	4
PSYCH 2150	Psychology of Language	3
PSYCH 3140	Computational Psychology	3
PSYCH 3800	Social Cognition	3
PSYCH 4270	Evolution of Language	3

Cognition and Information Processing

This track focuses on how the mind (or a computer) can encode, represent, and store information. Students will develop an understanding of concepts, categories, memory, and the nature of information itself.

Code	Title	Hours
COGST 1101	Introduction to Cognitive Science	3
CS 2110	Object-Oriented Programming and Data Structures	4
CS 3700	Foundations of AI Reasoning and Decision-Making	3
CS 4701	Practicum in Artificial Intelligence	2
PSYCH 3140	Computational Psychology	3

Cognitive Neuroscience

This track focuses on neurobiological and computational approaches to understanding how perception and cognition emerge in the human brain. Students will acquire knowledge of which neural structures subserve, which perceptual/cognitive processes, and how they interact.

Code	Title	Hours
COGST 2350	How the Brain Makes the Mind	3
BIONB 3300	Introduction to Computational Neuroscience	3-4
COGST 1101	Introduction to Cognitive Science	3
HD 2200	The Human Brain and Mind: An Introduction to Cognitive Neuroscience	3
PSYCH 3140	Computational Psychology	3
PSYCH 3220	Hormones and Behavior	3

Independent Study

With approval from the Cognitive Science undergraduate curriculum committee, a student and advisor in the Cognitive Science program can arrange their own unique collection of courses that do not belong to the above categories for satisfying the minor requirements.

Code	Title	Hours
COGST 4700	Undergraduate Research in Cognitive Science	1-4
COGST 4710	Cognitive Science Research Workshop	1-4