***Duluth Campus***

# Cognitive Science B.A.

*Geography & Philosophy*

**College of Arts, Humanities and Social Sciences**

- Program Type: Baccalaureate
- Requirements for this program are current for Spring 2023
- Required credits to graduate with this degree: 120
- Required credits within the major: 32
- Degree: Bachelor of Arts

Cognitive Science is the interdisciplinary attempt to understand the mind, especially the human mind (with the prospect of creating artificial minds as a hopeful next step).

Understanding the mind and intelligence has long been a goal that seemed out of reach. The mind, consciousness, intelligence, and the related phenomena have been addressed by researchers in many areas including philosophy, psychology, linguistics, medicine, neuroscience, and artificial intelligence. These disciplines have very different histories and at universities are often separated by distance and academic culture. However, in the past 30 years, there has been a convergence of these disciplines on a few research paradigms: computational models of perception and reasoning, connectionism, and embodied cognition. It is now possible to form a more complete understanding of minds by drawing on contributions from all these disciplines, and a great deal of progress has been made. This has led to the rise at many universities of interdisciplinary programs in Cognitive Science. The programs exploit the insights that come from a variety of disciplinary approaches to understanding a single phenomenon: cognition.

More specifically, Cognitive Science aims to understand the nature and development of such capacities as consciousness, perception, information processing, language acquisition and processing, planning, reasoning, learning, representation and use of knowledge, and problem-solving, whether these capacities are realized in biological or artificial systems. The major looks to the theoretical foundations, the substantive empirical results, and the methodological tools of contributing disciplines (see Program Requirements). The hope is that by combining the methods and results of all these branches, we will be able to provide a global understanding of the mind, how it works, and why it works that way.

Graduates of the program will be prepared for study in one of the many recently developed graduate Cognitive Science programs (including the Ph.D. offered at the Center for Cognitive Science at the University of Minnesota, Twin Cities) as well as graduate study in related programs such as cognition, brain and behavior, cognitive neuroscience, artificial intelligence, 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 these new technologies.

## Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

## Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

## General Requirements

The Board of Regents, on recommendation of the faculty, grants degrees from the University of Minnesota. Requirements for an undergraduate degree from University of Minnesota Duluth include the following:

1. Students must meet all course and credit requirements of the departments and colleges or schools in which they are enrolled including an advanced writing course. Students seeking two degrees must fulfill the requirements of both degrees. However, two degrees cannot be awarded for the same major.
2. Students must complete all requirements of the Liberal Education Program.
3. Students must complete a minimum of 120 semester credits.
4. At least 30 of the last 60 degree credits earned immediately before graduation must be awarded by UMD.
5. Students must complete at least half of their courses at the 3xxx-level and higher at UMD. Study-abroad credits earned through courses taught by UM faculty and at institutions with which UMD has international exchange programs may be used to fulfill this requirement.
6. If a minor is required, students must take at least three upper division credits in their minor field from UMD.
7. The minimum cumulative UM GPA required for graduation will be 2.00 and will include only University of Minnesota coursework. A minimum UM GPA of 2.00 is required in each UMD undergraduate major and minor. No academic unit may impose higher grade

point standards to graduate.
8. Diploma, transcripts, and certification will be withheld until all financial obligations to the University have been met.

## Program Requirements

1. A second field of study (e.g. minor, major, degree) is required for this major.
2. Global experience is a UMD goal for all students and international study is encouraged. Talk with an academic or faculty advisor to explore academic options for fulfilling some degree requirements through study abroad.

**Learning in Community (1 cr)**

The Learning in Community requirement will be waived for transfer students with at least 30 credits taken post high school and for UMD students who started in a UMD program where this was not required. First-year students who have completed 30 PSEO credits may request a waiver to the students primary college.

UST 1000 - Learning in Community (1.0 - 2.0 cr)
*or* EHS 1000 - Into the World [GLOBAL PER] (3.0 cr)
*or* ES 1000 - Global Cultural Perspectives on Environmental Sustainability [GLOBAL PER] (3.0 cr)
*or* LING 1000 - Language and Culture in the U.S. What does it Mean to Speak American [CDIVERSITY] (3.0 cr)
*or* PSY 1100 - Living Your Best Life: Applying Positive Psychology [CDIVERSITY] (3.0 cr)

**Advanced Writing (3 cr)**

WRIT 3140 - Advanced Writing: Human Services (3.0 cr)
*or* WRIT 3150 - Advanced Writing: Science (3.0 cr)
*or* WRIT 3160 - Advanced Writing: Social Sciences (3.0 cr)

**Core (7 cr)**

PHIL 1025 - Introduction to Cognitive Science [NAT SCI] (3.0 cr)
COG 4900 - Cognitive Science Seminar (4.0 cr)

**Electives (21 cr)**

Students are advised to review course pre-requisites for upper division electives and plan accordingly.

Seven courses across the listed subject areas with the following stipulations:

Four courses maximum may come from any one listed subject area.

Courses must draw from at least THREE different listed subject areas.
Take 7 or more course(s) from the following:

**Cognitive Science**
Two different topic courses may be applied.
Take 0 - 4 course(s) from the following:
- COG 3195 - Special Topics in Cognitive Science:(Various Titles to be Assigned) (3.0 cr)
- COG 3xxx-4xxx

**•Communication Sciences and Disorders**
Take 0 - 2 course(s) from the following:
- CSD 2230 - Introduction to Human Communication Disorders [LE CAT8, LECD CAT08, SOC SCI, CDIVERSITY] (3.0 cr)
- CSD 4150 - Neuroanatomy and Neurophysiology in Communication Sciences and Disorders (3.0 cr)

**•Computer Science**
Take 0 - 3 course(s) from the following:
- CS 4222 - Artificial Intelligence (4.0 cr)
- CS 4232 - Machine Learning & Data Mining (4.0 cr)
- CS 4242 - Natural Language Processing (4.0 cr)

**•Linguistics**
Take 0 - 4 course(s) from the following:
- LING 1811 - Introduction to Linguistics [LE CAT2, LOGIC & QR] (3.0 cr)
- LING 3102 - Syntax (3.0 cr)
- LING 3103 - Semantics and Pragmatics (3.0 cr)
- LING 4103 - Morphology: Word Structures and Rules (3.0 cr)

**•Medicine**
Take 0 - 1 course(s) from the following:
- BMS 5101 - Principles of Neuroscience (4.0 cr)

**•Philosophy**
Take 0 - 4 course(s) from the following:
- PHIL 1018 - Logic [LE CAT2, LOGIC & QR] (4.0 cr)
- PHIL 2011 - Philosophy of Language [LE CAT3, SOC SCI] (3.0 cr)

- PHIL 3570 - Philosophy of Psychology (4.0 cr)
- PHIL 3575 - Philosophy and Cognitive Science (3.0 cr)

**•Psychology**

Take 0 - 4 course(s) from the following:

- PSY 2021 - Developmental Psychology [LE CAT, LECD C, SOC SCI, CDIVERSITY] (3.0 cr)
- PSY 3061 - Physiological Psychology (4.0 cr)
- PSY 3121 - Abnormal Psychology (3.0 cr)
- PSY 3520 - Introduction to Industrial/Organizational Psychology (3.0 cr)
- PSY 3611 - Learning and Behavior (3.0 cr)
- PSY 3613 - Applied Behavior Analysis and Behavior Change (3.0 cr)
- PSY 3621 - Cognition (3.0 cr)
- PSY 3661 - Psychology of Language (3.0 cr)
- PSY 3697 - Sensation and Perception (4.0 cr)
- PSY 5130 - Evolutionary Psychology (3.0 cr)
- PSY 5131 - Mind-Body Connection (3.0 cr)
- PSY 5621 - Cognition and Emotion (3.0 cr)
- PSY 5631 - Biological Bases of Behavior (3.0 cr)