

## **Cognitive Science (Major/Minor) - For students admitted in or after 2023/2024**

Cognitive Science is the scientific study of the mind and mental phenomena. For example, what is consciousness? Do other animals have language? Could a computer ever think? What is mental imagery? Answering these questions relies upon an interdisciplinary perspective, and so Cognitive Science adopts methodologies from computer science, psychology, philosophy, linguistics, and neuroscience. Students who take this major will be exposed to research in all these disciplines, and will integrate results from across the different approaches in order to more fully understand the complexities of the mind and the brain.

A core aspect of the programme is to ensure that students learn skills from different research traditions; for example, a Cognitive Science student could be expected to learn how to run psychological experiments, apply formal linguistic analysis, or critique a philosophical argument. In doing so, this program will develop students who have a variety of formal intellectual skills, and can bring those skills to bear on a range of issues in our increasingly technological world. Students with a Major in Cognitive Science will also be able to act as a bridge between those who are technically skilled and those who seek to understand technology, by placing formal computational analysis within the context of human thought and behaviour.

### **I. Objectives**

This program aims to:

- introduce students to critical issues within the interdisciplinary field of Cognitive Science, particularly related to the core disciplines of Psychology, Computer Science, Linguistics, and Philosophy;
- provide students with training in research techniques that are used to study the mind, thinking, and intelligence, from an interdisciplinary perspective;
- develop skills in critical analysis and reasoning; and
- provide students opportunities for tackling novel problems, and give them experience of addressing issues that are ill-defined.

## II. Programme structure

Components	No. of credits	
	Major	Minor
a) Introductory courses		
i) disciplinary	12 PSYC1001 AND (Any one from COMP1117/ LING1000 / LING2034 / PHIL1012 )	12 PSYC1001 AND (Any one from COMP1117/ LING1000 / LING2034 / PHIL1012 )
ii) pre-requisites*	12 (2 courses from 9 units)	-
b) Advanced courses		
i) core courses	12 (PSYC2066 & PSYC2067)	12 (PSYC2066 & PSYC2067)
ii) disciplinary electives	30 (COMP / LING / PHIL / PSYC / STAT)	12 (COMP / LING / PHIL / PSYC / STAT)
iii) capstone experience	6 (PSYC4068)	-
<b>Total</b>	<b>72</b>	<b>36</b>

*\*Candidates who opt to declare two major programmes offered by the Faculty of Social Sciences should avoid selecting overlapping pre-requisites.*

Candidates who wish to declare a major (72 credits) or minor (36 credits) in Cognitive Science must complete:

### a) Introductory courses (24 credits for major; 12 credits for minor)

i) PSYC1001. Introduction to psychology (6 credits)^

AND

One disciplinary course from the followings:

COMP1117.	Computer programming (6 credits)
LING1000.	Introduction to language (6 credits)
LING2034.	Psycholinguistics (6 credits)
PHIL1012.	Mind and knowledge: An introduction to philosophy (6 credits)

*Note^: Should there be an overlap of introductory courses for the two majors, candidates will be exempted from such requirements for cognitive science major/minor and are required to make up any credit shortfall arising from such double-counting by taking advanced disciplinary electives listed in the cognitive science syllabus.*

- ii) Two pre-requisite courses from the following nine units, but not more than one from a single unit (12 credits):

Faculty of Social Sciences  
 Geography  
 Politics and Public Administration  
 Psychology  
 Social Work and Social Administration  
 Sociology  
 Computer Science  
 Linguistics  
 Philosophy

**b) Advanced courses (48 credits for major; 24 credits for minor)**

- i) Core courses (12 credits for both major and minor)

PSYC2066.	Foundations of cognitive science (6 credits)
PSYC2067.	Seminars in cognitive science (6 credits)

**Note 1:** Students have to complete the course PSYC2066 before enrolling to PSYC2067 since it is a pre-requisite requirement of PSYC2067. **The courses PSYC2066 and PSYC2067 will be offered in alternating years,** so please see the [Recommended Study Pathway](#) to plan ahead in your course selection.

- ii) Disciplinary electives (30 credits for major; 12 credits for minor)

Candidates who **major** in this programme must complete at least 5 elective courses from the course list below. Candidates who **minor** in this programme must complete at least 2 elective

courses from the course list below. The following courses are grouped by subject area; students are free to specialize within one area or select courses from different areas. In course registration, students should pay special attention to the prerequisite of individual course as specified in the syllabus.

### **Philosophy of Mind**

PHIL2220.	The mind
PHIL2225.	The philosophy of artificial intelligence
PHIL2230.	Philosophy and cognitive science
PHIL2245.	Philosophy and emotions
PHIL2410.	Mind and language in Chinese thought
PHIL2510.	Logic
PHIL2520.	Philosophy of logic
PHIL2610.	Philosophy of language
PHIL2651.	Bad language: the philosophy of non-ideal language use

### **Artificial Intelligence and Computational Approaches**

COMP3270.	Artificial intelligence
COMP3314.	Machine learning
COMP3340.	Applied deep learning
COMP3407.	Scientific computing
LING2067.	Natural language processing
LING2068.	Computational approaches to language
STAT3612.	Statistical machine learning
PSYC3061.	Advanced issues in perception

### **Brain and Cognition**

LING2053.	Language and the brain
LING2069.	Origins of language
PSYC2007.	Cognitive psychology
PSYC2009.	Life-span developmental psychology
PSYC2022.	Biological psychology
PSYC2035.	Introduction to educational psychology
PSYC2051.	Perception
PSYC3054.	Human neuropsychology
PSYC3064.	Advanced developmental psychology
PSYC3068.	Advanced cognitive psychology

### **Mind and Language**

LING2036.	Child language
LING2037.	Bilingualism

LING2048.	Language and cognition
LING2055.	Reading development and reading disorders
LING2074.	Introduction to second language research
LING3005.	Advanced topics in reading, language and cognition
LING3007.	Seminar in Psycholinguistics
PHIL2075.	The semantics/pragmatics distinction
PHIL2260.	Seminar in mind and language

iii) Capstone experience (for major only)

PSYC4068. Research project in cognitive science (6 credits)

**Note:**

- The courses offered in a particular year is subject to change. Students are advised to see the [Recommended Study Pathway](#) to plan ahead in your course selection.
- In course registration, students should pay special attention to the prerequisite of courses as specified in the syllabuses.

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