Cognitive Science (Major/Minor)

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

<table>
<thead>
<tr>
<th>Components</th>
<th>No. of credits</th>
<th>Major</th>
<th>Minor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a) Introductory courses</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) disciplinary</td>
<td>12</td>
<td>(COMP1117/ LING1000 / LING2034 / PHIL1012 / PSYC1001)</td>
<td>12 (COMP1117/ LING1000 / LING2034 / PHIL1012 / PSYC1001)</td>
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<tr>
<td>ii) pre-requisites*</td>
<td>12</td>
<td>(2 courses from 9 units)</td>
<td>-</td>
</tr>
<tr>
<td><strong>b) Advanced courses</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>i) core courses</td>
<td>12</td>
<td>(PSYC2066 &amp; PSYC2067)</td>
<td>12 (PSYC2066 &amp; PSYC2067)</td>
</tr>
<tr>
<td>ii) disciplinary electives</td>
<td>30</td>
<td>(COMP / LING / PHIL / PSYC)</td>
<td>12 (COMP / LING / PHIL / PSYC)</td>
</tr>
<tr>
<td>iii) capstone experience</td>
<td>6</td>
<td>(PSYC4068)</td>
<td>-</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>72</strong></td>
<td></td>
<td><strong>36</strong></td>
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* 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) Two disciplinary courses from the following list:

- 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)
- PSYC1001. Introduction to psychology (6 credits)

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)

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
- PHIL2110. Knowledge
- PHIL2220. The mind
- PHIL2230. Philosophy and cognitive science
- PHIL2510. Logic
- PHIL2520. Philosophy of logic
- PHIL2610. Philosophy of language
- PHIL2245. Philosophy and emotions

### Artificial Intelligence and Computational Modelling
- COMP3270. Artificial intelligence
- COMP3314. Machine learning
- COMP3407. Scientific computing
- PSYC3061. Advanced issues in perception

### Brain and Cognition
- LING2053. Language and the brain
- LING2057. Language evolution
- PSYC2007. Cognitive psychology
- PSYC2022. Biological psychology
- PSYC2051. Perception
- PSYC3054. Human neuropsychology
- PSYC3068. Advanced cognitive psychology

### Mind and Language
- LING2003. Semantics: Meaning and grammar
- LING2032. Syntactic theory
- LING2037. Bilingualism
- LING2048. Language and cognition
- LING2055. Reading development and reading disorders
- LING2063. Advanced topics in reading, language and cognition
- LING3007. Seminar in Psycholinguistics
- PHIL2075. The semantics/pragmatics distinction

### iii) Capstone experience (for major only)
- PSYC4068. Research project in cognitive science (6 credits)

*Rev Jul 2017
Amended Jul 2018
Reamended Jun 2020*