### Cognitive Science

This section presents the requirements for programs in:

- Cognitive Science with Concentration in Philosophical and Conceptual Issues Bachelor of Cognitive Science Honours
- Cognitive Science with Concentration in Language and Linguistics Bachelor of Cognitive Science Honours
- Cognitive Science with Concentration in the Biological Foundations of Cognition Bachelor of Cognitive Science Honours
- Cognitive Science with Concentration in Cognition and Psychology Bachelor of Cognitive Science Honours
- Cognitive Science with Concentration in Cognition and Computation Bachelor of Cognitive Science Honours
- Cognitive Science Bachelor of Cognitive Science
- Stream in Artificial Intelligence and Cognitive Modelling
- · Minor in Cognitive Science
- Post-Baccalaureate Diploma in Cognitive Science

### **Program Requirements**

Cognitive Science with Concentration in Philosophical and Conceptual Issues

**Bachelor of Cognitive Science Honours (20.0 credits)** 

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1. 1.0 credit from:		1.0
CGSC 1001 [0.5]	Mysteries of the Mind	
FYSM 1604 [0.5]	Cognitive Science: Understanding the Mind	
FYSM 1607 [1.0]	Cognitive Science: Thinking and Knowing	
PHIL 1301 [0.5]	Mind, World, and Knowledge	
2. 1.0 credit in:		1.0
CGSC 2001 [0.5]	Theories in Cognitive Science	
CGSC 2002 [0.5]	Methods in Cognitive Science	
3. 1.5 credits in:		1.5
CGSC at the 3000-	level or above	
4. 0.5 credit from:		0.5
CGSC 1005 [0.5]	Computational Methods in Cognitive Science	
COMP 1005 [0.5]	Introduction to Computer Science I	
5. 0.5 credit in:		0.5
CGSC 3601 [0.5]	Artificial Intelligence and Cognitive Science	
6. 0.5 credit in:		0.5
LING 1001 [0.5]	Introduction to Linguistics I	
7. 1.0 credit in:		1.0
LING 2005 [0.5]	Linguistic Analysis	
LING 2007 [0.5]	Phonetics	
8. 1.0 credit in:		1.0
PHIL 2001 [0.5]	Introduction to Logic	
PHIL 2501 [0.5]	Introduction to Philosophy of Mind	
9. 0.5 credit from:		0.5

CGSC 3004 [0.5]		
	Philosophy and Cognitive Science	
CGSC 3603 [0.5]	Artificial Intelligence: Philosophical and Ethical Issues	
PHIL 2301 [0.5]	Introduction to the Philosophy of Science	
PHIL 2504 [0.5]	Language and Communication	
PHIL 3104 [0.5]	The Roots of Analytic Philosophy	
PHIL 3301 [0.5]	Issues in the Philosophy of Science	
PHIL 3306 [0.5]	Symbolic Logic	
PHIL 3501 [0.5]	Philosophy of Cognitive Science	
PHIL 3502 [0.5]	Mind and Action	
PHIL 3504 [0.5]	Pragmatics	
PHIL 3506 [0.5]	Semantics	
PHIL 3530 [0.5]	Philosophy of Language	
10. 1.5 credits in:	1 , 3 3	1.5
PSYC 1001 [0.5]	Introduction to Psychology I	
PSYC 1002 [0.5]	Introduction to Psychology II	
PSYC 2700 [0.5]	Introduction to Cognitive Psychology	
11. 0.5 credit from:	-,	0.5
NEUR 1202 [0.5]	Neuroscience of Mental Health and Psychiatric Disease	
PSYC 2307 [0.5]	Human Neuropsychology I	
12. 1.5 credits from:		1.5
a. Thesis pathway	1	
CGSC 3908 [0.5]	Honours Seminar in Cognitive Science	
CGSC 4908 [1.0]	Honours Thesis	
OR		
b. Project pathway	у	
CGSC 4909 [1.0]	Honours Project	
and 0.5 credit in CO	GSC at the 3000-level or above	
and 0.5 credit in C0 OR	GSC at the 3000-level or above	
OR c. Coursework pa		
OR c. Coursework pa	thway C at the 3000-level or above	4.5
OR c. Coursework pa 1.5 credits in CGS0	thway C at the 3000-level or above	4.5
OR c. Coursework pa 1.5 credits in CGS0 13. 4.5 credits in the a. 4.0 credits from:	thway C at the 3000-level or above	4.5
OR c. Coursework pa 1.5 credits in CGS0 13. 4.5 credits in the a. 4.0 credits from:	thway C at the 3000-level or above concentration:	4.5
OR	thway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science	4.5
OR	thway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science Language and Communication	4.5
OR	thway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science	4.5
OR	thway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science Language and Communication	4.5
OR	thway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science Language and Communication Personal Identity and the Self	4.5
OR	thway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science Language and Communication Personal Identity and the Self The Roots of Analytic Philosophy	4.5
OR	thway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science Language and Communication Personal Identity and the Self The Roots of Analytic Philosophy Epistemology	4.5
OR	cat the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science Language and Communication Personal Identity and the Self The Roots of Analytic Philosophy Epistemology Issues in the Philosophy of Science	4.5
OR	thway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science Language and Communication Personal Identity and the Self The Roots of Analytic Philosophy Epistemology Issues in the Philosophy of Science Symbolic Logic	4.5
OR	thway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science Language and Communication Personal Identity and the Self The Roots of Analytic Philosophy Epistemology Issues in the Philosophy of Science Symbolic Logic Philosophy of Cognitive Science	4.5
OR	thway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science Language and Communication Personal Identity and the Self The Roots of Analytic Philosophy Epistemology Issues in the Philosophy of Science Symbolic Logic Philosophy of Cognitive Science Mind and Action	4.5
OR	thway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science Language and Communication Personal Identity and the Self The Roots of Analytic Philosophy Epistemology Issues in the Philosophy of Science Symbolic Logic Philosophy of Cognitive Science Mind and Action Pragmatics	4.5
OR	thway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science Language and Communication Personal Identity and the Self The Roots of Analytic Philosophy Epistemology Issues in the Philosophy of Science Symbolic Logic Philosophy of Cognitive Science Mind and Action Pragmatics Semantics	4.5
OR	thway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science Language and Communication Personal Identity and the Self The Roots of Analytic Philosophy Epistemology Issues in the Philosophy of Science Symbolic Logic Philosophy of Cognitive Science Mind and Action Pragmatics Semantics	4.5
OR	chway C at the 3000-level or above concentration:  Philosophy and Cognitive Science Artificial Intelligence: Philosophical and Ethical Issues Introduction to the Philosophy of Science Language and Communication Personal Identity and the Self The Roots of Analytic Philosophy Epistemology Issues in the Philosophy of Science Symbolic Logic Philosophy of Cognitive Science Mind and Action Pragmatics Semantics Philosophy of Language	4.5

Total Credits		20.0
14. 4.5 credits in fre	e electives.	4.5
B. Credits not include	ded in the Major (4.5 credits)	
PHIL 4505 [0.5]	Formal Semantics	
PHIL 4503 [0.5]	Special Topic in Philosophy of Computing	
PHIL 4230 [0.5]	Seminar in Metaphysics, Epistemology, or Philosophy of Science	
PHIL 4220 [0.5]	Seminar in philosophy of Mind or Cognition	

Note: normally, students may not offer more than one credit of independent study (eg. CGSC 4801 Independent Study and CGSC 4802 Independent Study) in their total program, including independent study credits taken through other departments.

### **Cognitive Science with Concentration in Language and Linguistics Bachelor of Cognitive Science Honours (20.0** credits)

Λ.	Oreans included in	Title major oor A (10.0 credits)	
1.	1.0 credit from:		1.0
	CGSC 1001 [0.5]	Mysteries of the Mind	
	FYSM 1604 [0.5]	Cognitive Science: Understanding the Mind	
	FYSM 1607 [1.0]	Cognitive Science: Thinking and Knowing	
	PHIL 1301 [0.5]	Mind, World, and Knowledge	
2.	1.0 credit in:		1.0
	CGSC 2001 [0.5]	Theories in Cognitive Science	
	CGSC 2002 [0.5]	Methods in Cognitive Science	
3.	1.5 credits in:		1.5
	CGSC at the 3000-	level or above	
4.	0.5 credit from:		0.5
	CGSC 1005 [0.5]	Computational Methods in Cognitive Science	
	COMP 1005 [0.5]	Introduction to Computer Science I	
5.	0.5 credit in:		0.5
	CGSC 3601 [0.5]	Artificial Intelligence and Cognitive Science	
6.	0.5 credit in:		0.5
	LING 1001 [0.5]	Introduction to Linguistics I	
7.	1.0 credit in:		1.0
	LING 2005 [0.5]	Linguistic Analysis	
	LING 2007 [0.5]	Phonetics	
8.	1.0 credit in:		1.0
	PHIL 2001 [0.5]	Introduction to Logic	
	PHIL 2501 [0.5]	Introduction to Philosophy of Mind	
9.	0.5 credit from:		0.5
	CGSC 3004 [0.5]	Philosophy and Cognitive Science	
	CGSC 3603 [0.5]	Artificial Intelligence: Philosophical and Ethical Issues	
	PHIL 2301 [0.5]	Introduction to the Philosophy of Science	
	PHIL 2504 [0.5]	Language and Communication	
	PHIL 3104 [0.5]	The Roots of Analytic Philosophy	
	PHIL 3301 [0.5]	Issues in the Philosophy of Science	

PHIL 3306 [0.5]	Symbolic Logic	
PHIL 3501 [0.5]	Philosophy of Cognitive Science	
PHIL 3502 [0.5]	Mind and Action	
PHIL 3504 [0.5]	Pragmatics	
PHIL 3506 [0.5]	Semantics	
PHIL 3530 [0.5]	Philosophy of Language	
10. 1.5 credits in:		1.5
PSYC 1001 [0.5]	Introduction to Psychology I	
PSYC 1002 [0.5]	Introduction to Psychology II	
PSYC 2700 [0.5]	Introduction to Cognitive Psychology	
11. 0.5 credit from:		0.5
NEUR 1202 [0.5]	Neuroscience of Mental Health and Psychiatric Disease	
PSYC 2307 [0.5]	Human Neuropsychology I	
12. 1.5 credits from:		1.5
a. Thesis pathway		
CGSC 3908 [0.5]	Honours Seminar in Cognitive Science	
CGSC 4908 [1.0]	Honours Thesis	
OR		
b. Project pathway	1	
CGSC 4909 [1.0]		
and 0.5 credit in CG	SSC at the 3000-level or above	
OR		
c. Coursework pat	hway	
-	at the 3000-level or above	
13. 4.5 credits in the	concentration:	4.5
a. 2.0 credits in:		
LING 3004 [0.5]	Syntax I	
LING 3005 [0.5]	Morphology I	
LING 3007 [0.5]	Phonology I	
LING 3601 [0.5]	Language Processing and the Brain	
b. 1.5 credits from:		
LING 2604 [0.5]	Communication Differences and Disabilities I	
LING 3604 [0.5]	Communication Differences and Disabilities II	
LING 3504 [0.5]	Pragmatics	
LING 3505 [0.5]	Semantics	
LING 3603 [0.5]	Child Language	
c. 1.0 credit from:	-	
LING 4004 [0.5]	Syntax II	
LING 4005 [0.5]	Morphology II	
LING 4007 [0.5]	Phonology II	
LING 4505 [0.5]	Formal Semantics	
LING 4510 [0.5]	Lexical Semantics	
LING 4601 [0.5]	Cognitive Neuroscience of Language	
LING 4603 [0.5]	First Language Acquisition	
LING 4605 [0.5]	Psycholinguistic Research Methods	
LING 4606 [0.5]	Statistics for Language Research	
	ed in the Major (4.5 credits)	
14. 4.5 credits in free		4.5
Total Credits	<del></del>	20.0
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Note: Normally, students may not offer more than one credit of independent study (eg. CGSC 4801 [0.5] Independent Study and CGSC 4802 [0.5] Independent Study) in their total program, including independent study credits taken through other departments.

### Cognitive Science with Concentration in the **Biological Foundations of Cognition Bachelor of Cognitive Science Honours (20.0** credits)

### A. Credits Included in the Major GPA (15.5 credits)

1.	1.0 credit from:		1.0
	CGSC 1001 [0.5]	Mysteries of the Mind	
	FYSM 1604 [0.5]	Cognitive Science: Understanding the Mind	
	FYSM 1607 [1.0]	Cognitive Science: Thinking and Knowing	
	PHIL 1301 [0.5]	Mind, World, and Knowledge	
2.	1.0 credit in:		1.0
	CGSC 2001 [0.5]	Theories in Cognitive Science	
	CGSC 2002 [0.5]	Methods in Cognitive Science	
3.	1.5 credits in:		1.5
	CGSC at the 3000-	level or above	
4.	0.5 credit from:		0.5
	CGSC 1005 [0.5]	Computational Methods in Cognitive Science	
	COMP 1005 [0.5]	Introduction to Computer Science I	
5.	0.5 credit in:		0.5
	CGSC 3601 [0.5]	Artificial Intelligence and Cognitive Science	
6.	0.5 credit in:		0.5
	LING 1001 [0.5]	Introduction to Linguistics I	
7.	1.0 credit in:		1.0
	LING 2005 [0.5]	Linguistic Analysis	
	LING 2007 [0.5]	Phonetics	
8.	1.0 credit in:		1.0
	PHIL 2001 [0.5]	Introduction to Logic	
	PHIL 2501 [0.5]	Introduction to Philosophy of Mind	
9.	0.5 credit from:		0.5
	CGSC 3004 [0.5]	Philosophy and Cognitive Science	
	CGSC 3603 [0.5]	Artificial Intelligence: Philosophical and Ethical Issues	
	PHIL 2301 [0.5]	Introduction to the Philosophy of Science	
	PHIL 2504 [0.5]	Language and Communication	
	PHIL 3104 [0.5]	The Roots of Analytic Philosophy	
	PHIL 3301 [0.5]	Issues in the Philosophy of Science	
	PHIL 3306 [0.5]	Symbolic Logic	
	PHIL 3501 [0.5]	Philosophy of Cognitive Science	
	PHIL 3502 [0.5]	Mind and Action	
	PHIL 3504 [0.5]	Pragmatics	
	PHIL 3506 [0.5]	Semantics	
	PHIL 3530 [0.5]	Philosophy of Language	
10	. 1.5 credits in:		1.5
	PSYC 1001 [0.5]	Introduction to Psychology I	
	PSYC 1002 [0.5]	Introduction to Psychology II	
	PSYC 2700 [0.5]	Introduction to Cognitive Psychology	

11. 0.5 credit in:		0.5		
NEUR 1202 [0.5]	Neuroscience of Mental Health and Psychiatric Disease			
12. 1.5 credits from:		1.5		
a. Thesis pathway				
CGSC 3908 [0.5]	Honours Seminar in Cognitive Science			
CGSC 4908 [1.0]	Honours Thesis			
OR				
b. Project Pathway	b. Project Pathway			
CGSC 4909 [1.0]	Honours Project			
and 0.5 credit in CO	GSC at the 3000-level or above			
OR				
c. Coursework par	thway			
1.5 credits in CGSC	C at the 3000-level or above			
13. 4.5 credits in the	concentration:	4.5		
a. 0.5 credit in:				
NEUR 1203 [0.5]	Neuroscience of Mental Health and Neurological Disease			
b. 3.0 credits in:				
NEUR 2001 [0.5]	Introduction to Research Methods in Neuroscience			
NEUR 2002 [0.5]	Introduction to Statistics in Neuroscience			
NEUR 2201 [0.5]	Cellular and Molecular Neuroscience			
NEUR 2202 [0.5]	Neurodevelopment and Plasticity			
NEUR 3001 [0.5]	Data Analysis in Neuroscience I			
NEUR 3002 [0.5]	Data Analysis in Neuroscience II			
c. 1.0 credit from:				
NEUR 2801 [0.5]	Neuroscience and Creativity			
NEUR 3204 [0.5]	Neuropharmacology			
NEUR 3206 [0.5]	Sensory and Motor Neuroscience			
NEUR 3207 [0.5]	Systems Neuroscience			
NEUR 3303 [0.5]	The Neuroscience of Consciousness			
PSYC 3307 [0.5]	Human Neuropsychology II			
PSYC 3709 [0.5]	Language Processing and the Brain			
B. Credits Not Includ	led in the Major CGPA (4.5 credits)			
14 45 credits in free	e electives	45		

14. 4.5 credits in free electives.	4.5
Total Credits	

Note: normally, students may not offer more than one credit of independent study (eg. CGSC 4801 Independent Study and CGSC 4802 Independent Study) in their total program, including independent study credits taken through other departments.

### **Cognitive Science with Concentration in Cognition and Psychology Bachelor of Cognitive Science Honours (20.0** credits)

1. 1.0 credit from:		1.0
CGSC 1001 [0.5]	Mysteries of the Mind	
FYSM 1604 [0.5]	Cognitive Science: Understanding the Mind	

	FYSM 1607 [1.0]	Cognitive Science: Thinking and Knowing	
	PHIL 1301 [0.5]	Mind, World, and Knowledge	
2.	1.0 credit in:		1.0
	CGSC 2001 [0.5]	Theories in Cognitive Science	
	CGSC 2002 [0.5]	Methods in Cognitive Science	
3.	1.5 credits in:		1.5
	CGSC at the 3000-l	evel or above	
4.	0.5 credit from:		0.5
	CGSC 1005 [0.5]	Computational Methods in Cognitive Science	
	COMP 1005 [0.5]	Introduction to Computer Science I	
5.	0.5 credit in:		0.5
	CGSC 3601 [0.5]	Artificial Intelligence and Cognitive	
		Science	
6.	0.5 credit in:		0.5
	LING 1001 [0.5]	Introduction to Linguistics I	
7.	1.0 credit in:		1.0
	LING 2005 [0.5]	Linguistic Analysis	
_	LING 2007 [0.5]	Phonetics	
8.	1.0 credit in:		1.0
	PHIL 2001 [0.5]	Introduction to Logic	
	PHIL 2501 [0.5]	Introduction to Philosophy of Mind	
9.	0.5 credit from:		0.5
	CGSC 3004 [0.5]	Philosophy and Cognitive Science	
	CGSC 3603 [0.5]	Artificial Intelligence: Philosophical and Ethical Issues	
	PHIL 2301 [0.5]	Introduction to the Philosophy of Science	
	PHIL 2504 [0.5]	Language and Communication	
	PHIL 3104 [0.5]	The Roots of Analytic Philosophy	
	PHIL 3301 [0.5]	Issues in the Philosophy of Science	
	PHIL 3306 [0.5]	Symbolic Logic	
	PHIL 3501 [0.5]	Philosophy of Cognitive Science	
	PHIL 3502 [0.5]	Mind and Action	
	PHIL 3504 [0.5]	Pragmatics	
	PHIL 3506 [0.5]	Semantics	
	PHIL 3530 [0.5]	Philosophy of Language	
10	. 1.5 credits in:		1.5
	PSYC 1001 [0.5]	Introduction to Psychology I	
	PSYC 1002 [0.5]	Introduction to Psychology II	
	PSYC 2700 [0.5]	Introduction to Cognitive Psychology	
11	. 0.5 credit from:		0.5
	NEUR 1202 [0.5]	Neuroscience of Mental Health and Psychiatric Disease	
	PSYC 2307 [0.5]	Human Neuropsychology I	
12	2. 1.5 credits from:		1.5
	a. Thesis pathway		
	CGSC 3908 [0.5]	Honours Seminar in Cognitive Science	
	CGSC 4908 [1.0]	Honours Thesis	
	OR		
	b. Project pathway		
	CGSC 4909 [1.0]	Honours Project	
	and 0.5 credit in CG	SC at the 3000-level or above	
	OR		
	c. Coursework pat	hway	

1	5 credits	in	CGSC at the	3000-level	or ahove

13. 4.5 credits in the concentration:			
a. 2.0 credits in:			
PSYC 2001 [0.5] Introduction to Research Methods in Psychology			
PSYC 2002 [0.5] Introduction to Statistics in Psychology			
PSYC 3000 [1.0] Design and Analysis in Psychological Research			
b. 0.5 credit in PSYC at the 2000-level or above			
c. 2.0 credits from:			
PSYC 3700 [1.0] Cognition (Honours Seminar)			
PSYC 3307 [0.5] Human Neuropsychology II			
PSYC 3506 [0.5] Cognitive Development			
PSYC 3508 [0.5] Child Language			
PSYC 3702 [0.5] Perception			
PSYC 3709 [0.5] Language Processing and the Brain			
NEUR 3303 [0.5] The Neuroscience of Consciousness			
B. Credits Not Included in the Major CGPA (4.5 credits)			
14. 4.5 credits in free electives.			

**Note:** Normally, students may not offer more than one credit of independent study (eg. CGSC 4801 [0.5] Independent Study and CGSC 4802 [0.5] Independent Study) in their total program, including independent study credits taken through other departments.

20.0

**Total Credits** 

# Cognitive Science with Concentration in Cognition and Computation Bachelor of Cognitive Science Honours (20.0 credits)

1.	1.0 credit from:		1.0
	CGSC 1001 [0.5]	Mysteries of the Mind	
	FYSM 1604 [0.5]	Cognitive Science: Understanding the Mind	
	FYSM 1607 [1.0]	Cognitive Science: Thinking and Knowing	
	PHIL 1301 [0.5]	Mind, World, and Knowledge	
2.	1.0 credit in:		1.0
	CGSC 2001 [0.5]	Theories in Cognitive Science	
	CGSC 2002 [0.5]	Methods in Cognitive Science	
3.	1.5 credits in:		1.5
	CGSC at the 3000-l	evel or above	
4.	0.5 credit in:		0.5
	COMP 1005 [0.5]	Introduction to Computer Science I	
5.	0.5 credit in:		0.5
	CGSC 3601 [0.5]	Artificial Intelligence and Cognitive Science	
6.	0.5 credit in:		0.5
	LING 1001 [0.5]	Introduction to Linguistics I	
7.	1.0 credit in:		1.0
	LING 2005 [0.5]	Linguistic Analysis	
	LING 2007 [0.5]	Phonetics	
8.	1.0 credit in:		1.0
	PHIL 2001 [0.5]	Introduction to Logic	

	PHIL 2501 [0.5]	Introduction to Philosophy of Mind				
9.		· ·	0.5			
	CGSC 3004 [0.5]	Philosophy and Cognitive Science				
	CGSC 3603 [0.5]	Artificial Intelligence: Philosophical and Ethical Issues				
	PHIL 2301 [0.5]	Introduction to the Philosophy of Science				
	PHIL 2504 [0.5]	Language and Communication				
	PHIL 3104 [0.5]	The Roots of Analytic Philosophy				
9. 0.5 credit from:     CGSC 3004 [0.5] Philosophy and Cognitive Science     CGSC 3603 [0.5] Artificial Intelligence: Philosophical and Ethical Issues     PHIL 2301 [0.5] Introduction to the Philosophy of Science     PHIL 2504 [0.5] Language and Communication     PHIL 3104 [0.5] The Roots of Analytic Philosophy     PHIL 3301 [0.5] Issues in the Philosophy of Science     PHIL 3301 [0.5] Philosophy of Cognitive Science     PHIL 3501 [0.5] Philosophy of Cognitive Science     PHIL 3502 [0.5] Mind and Action     PHIL 3508 [0.5] Pragmatics     PHIL 3508 [0.5] Prilosophy of Language  10. 1.5 credits in:     PSYC 1001 [0.5] Introduction to Psychology I     PSYC 2700 [0.5] Introduction to Psychology II     PSYC 2700 [0.5] Introduction to Cognitive     Psychology  11. 0.5 credit from:     PSYC 2307 [0.5] Human Neuropsychology I     NEUR 1202 [0.5] Neuroscience of Mental Health and Psychiatric Disease  12. 1.5 credits from:     a. Thesis pathway     CGSC 3908 [0.5] Honours Seminar in Cognitive     Science     CGSC 4908 [1.0] Honours Project     and 0.5 credit in CGSC at the 3000-level or higher     OR     c. Coursework pathway     1.5 credits in CGSC at the 3000-level or higher     OR     c. Coursework pathway     1.5 credit in CGMP at the 1000-level or higher     COMP 2401 [0.5] Introduction to Systems     Programming     COMP 2404 [0.5] Introduction to Systems     Programming     COMP 2404 [0.5] Abstract Data Types and Algorithms     COMP 2404 [0.5] Introduction to Software     Engineering     COMP 2404 [0.5] Fundamentals of Web Applications     COMP 2405 [0.5] Fundamentals of Web Applications     COMP 2406 [0.5] Fundamentals of Web Applications     COMP 2407 [0.5] Fundamentals of Web Applications     COMP 2408 [0.5] Fundamentals of Web Applications     COMP 2409 [0.5] Fundamentals of Web Applications     Comp 2404 [0.5] Fundamentals of Web Applications     Comp 2						
GSC 3004 [0.5] Philosophy and Cognitive Science CGSC 3603 [0.5] Artificial Intelligence: Philosophical and Ethical Issues PHIL 2301 [0.5] Introduction to the Philosophy of Science PHIL 2504 [0.5] Language and Communication PHIL 3104 [0.5] The Roots of Analytic Philosophy PHIL 3301 [0.5] Issues in the Philosophy of Science PHIL 3501 [0.5] Philosophy of Cognitive Science PHIL 3501 [0.5] Philosophy of Cognitive Science PHIL 3504 [0.5] Pragmatics PHIL 3504 [0.5] Pragmatics PHIL 3506 [0.5] Philosophy of Language 10. 1.5 credits in: PSYC 1001 [0.5] Introduction to Psychology I PSYC 1002 [0.5] Introduction to Psychology II PSYC 2700 [0.5] Introduction to Cognitive Psychology  11. 0.5 credit from: PSYC 2307 [0.5] Human Neuropsychology I NEUR 1202 [0.5] Neuroscience of Mental Health and Psychiatric Disease  12. 1.5 credits from: a. Thesis pathway CGSC 3908 [0.5] Honours Seminar in Cognitive Science CGSC 4908 [1.0] Honours Project and 0.5 credit in CGSC at the 3000-level or higher OR c. Coursework pathway 1.5 credits in the concentration: a. 0.5 credit in CGSC at the 3000-level or higher COR c. Coursework pathway 1.5 credits in the concentration: a. 0.5 credit in CGSC at the 3000-level or higher COMP 2401 [0.5] Introduction to Computer Science II b. 0.5 credit in COMP at the 1000-level or higher COMP 2401 [0.5] Introduction to Systems Programming COMP 2402 [0.5] Abstract Data Types and Algorithms COMP 2404 [0.5] Introduction to Software Engineering COMP 2406 [0.5] Fundamentals of Web Applications						
	PHIL 3501 [0.5]	Philosophy of Cognitive Science				
	PHIL 3502 [0.5]	Mind and Action				
	PHIL 3504 [0.5]	Pragmatics				
	PHIL 3506 [0.5]	Semantics				
	PHIL 3530 [0.5]	Philosophy of Language				
10	. 1.5 credits in:		1.5			
	PSYC 1001 [0.5]	Introduction to Psychology I				
	PSYC 1002 [0.5]	Introduction to Psychology II				
	PSYC 2700 [0.5]					
11	. 0.5 credit from:		0.5			
	PSYC 2307 [0.5]	Human Neuropsychology I				
	NEUR 1202 [0.5]					
12	. 1.5 credits from:		1.5			
	a. Thesis pathway					
	CGSC 3908 [0.5]	<u> </u>				
	b. Project pathway	1				
	CGSC 4909 [1.0]	Honours Project				
		SSC at the 3000-level or higher				
	c. Coursework pat	hway				
	1.5 credits in CGSC	at the 3000-level or higher				
13	. 4.5 credits in the	concentration:	4.5			
	a. 0.5 credit in:					
	COMP 1006 [0.5]	Introduction to Computer Science II				
	b. 0.5 credit in COM	1P at the 1000-level or higher				
	c. 2.0 credits from:					
	COMP 2401 [0.5]					
	COMP 2402 [0.5]					
	COMP 2404 [0.5]					
	COMP 2406 [0.5]	Fundamentals of Web Applications				
	COMP 2804 [0.5]	Discrete Structures II				
	COMP 3008 [0.5]					
	d. 1.0 credit in COM	IP at the 2000-level or higher				
	e. 0.5 credit in COM	1P at the 3000-level or higher				
В.	Credits not include	ed in the Major CGPA (4.5 credits)				
14	<b>14. 4.5 credits in</b> free electives 4					
To	tal Credits		20.0			

Note: Normally, students may not offer more than one credit of independent study (eg. CGSC 4801 Independent Study and CGSC 4802 Independent Study) in their total program, including independent study credits taken through other departments.

### **Cognitive Science Bachelor of Cognitive Science (15.0 credits)**

	tal Credits		15.0
10	. 6.0 credits in free	e electives	6.0
В.	Credits Not Includ	led in the Major CGPA (6.0 credits)	
	PSYC 2307 [0.5]	Human Neuropsychology I	
	NEUR 1202 [0.5]	Neuroscience of Mental Health and Psychiatric Disease	
9.	0.5 credit from:		0.5
	-	Psychology	
	PSYC 2700 [0.5]	Introduction to Cognitive	
	PSYC 1002 [0.5]	Introduction to Psychology II	
	PSYC 1001 [0.5]	Introduction to Psychology I	
8.	1.5 credits in:		1.5
	PHIL 3530 [0.5]	Philosophy of Language	
	PHIL 3506 [0.5]	Semantics	
	PHIL 3504 [0.5]	Pragmatics	
	PHIL 3502 [0.5]	Mind and Action	
	PHIL 3501 [0.5]	Philosophy of Cognitive Science	
	PHIL 3306 [0.5]	Symbolic Logic	
	PHIL 3301 [0.5]	Issues in the Philosophy of Science	
	PHIL 3104 [0.5]	The Roots of Analytic Philosophy	
	PHIL 2504 [0.5]	Language and Communication	
	PHIL 2301 [0.5]	Introduction to the Philosophy of Science	
	CGSC 3603 [0.5]	Artificial Intelligence: Philosophical and Ethical Issues	
	CGSC 3004 [0.5]	Philosophy and Cognitive Science	
7.	0.5 credit from:	, ,	0.5
	PHIL 2501 [0.5]	Introduction to Philosophy of Mind	
	PHIL 2001 [0.5]	Introduction to Logic	
6.	1.0 credit in:		1.0
	LING 2007 [0.5]	Phonetics	
	LING 2005 [0.5]	Linguistic Analysis	
	LING 1001 [0.5]	Introduction to Linguistics I	
5.	1.5 credits in:	, and the second	1.5
	COMP 1005 [0.5]	Introduction to Computer Science I	
	CGSC 1005 [0.5]	Computational Methods in Cognitive Science	
4.	0.5 credit from:		0.5
3.	1.5 credits in CGS	C at the 3000-level or above	1.5
	CGSC 2002 [0.5]	Methods in Cognitive Science	
	CGSC 2001 [0.5]	Theories in Cognitive Science	
2.	1.0 credit in:	, ,	1.0
	PHIL 1301 [0.5]	Knowing Mind, World, and Knowledge	
	FYSM 1607 [1.0]	the Mind Cognitive Science: Thinking and	
	FYSM 1604 [0.5]	Cognitive Science: Understanding	
	CGSC 1001 [0.5]	Mysteries of the Mind	

### Stream in Artificial Intelligence and Cognitive Modelling (1.5 credits)

The stream in Artificial Intelligence and Cognitive Modelling has limited enrollment and is restricted to students who are registered in the B.Cog.Sc. or B.Cog.Sc. Honours program, have attained third-year standing. have a Major CGPA of 8.00 or above, and Departmental approval.

Students enrolled in the stream must satisfy the requirements for the Bachelor of Cognitive Science or the Bachelor of Cognitive Science (Honours), including the credit requirement for their Concentration (Honours) through appropriate choice of courses.

1.	1.5 credits in: CGSC 3603 [0.5]	Artificial Intelligence: Philosophical and Ethical Issues	1.5
	CGSC 4601 [0.5]	Cognitive Architectures	
	CGSC 4605 [0.5]	Hyperdimensional Cognitive Models	
To	otal Credits		1.5

### Minor in Cognitive Science (4.0 credits)

Open to all undergraduate students in programs other than Cognitive Science.

Students are required to present a Minor CGPA of 4.00 or higher at graduation in order to be awarded a Minor in Cognitive Science.

1. 1.5 credits in:		1.5
CGSC 1001 [0.5]	Mysteries of the Mind	
CGSC 2001 [0.5]	Theories in Cognitive Science	
CGSC 2002 [0.5]	Methods in Cognitive Science	
2. 1.5 credits from:		1.5
CGSC 3004 [0.5]	Philosophy and Cognitive Science	
CGSC 3201 [0.5]	Cognitive Processes	
CGSC 3301 [0.5]	Language and Cognitive Science	
CGSC 3501 [0.5]	Cognitive Neuroscience	
CGSC 3601 [0.5]	Artificial Intelligence and Cognitive Science	
CGSC 3603 [0.5]	Artificial Intelligence: Philosophical and Ethical Issues	
3. 1.0 credits in CGS	SC at the 3000-level or higher	1.0
4. The remaining requ	irements of the major discipline(s)	

### Post-Baccalaureate Diploma in Cognitive Science (4.0 credits)

Admission to this program requires the permission of the Department of Cognitive Science. Normally, students are required to have completed an undergraduate degree with a minimum B average or higher to be admitted. Applications will be reviewed on a case-by-case basis. Students with prior studies in Cognitive Science must consult with the department when choosing courses, to ensure the residency requirement (Section 2.2.2/3.4.1) is met.

### Requirements:

-	Total Credits	Horioura i Tojeot	4.0
	CGSC 4900 [1.0]	Honours Project	
	CGSC 4908 [1.0]	Honours Thesis	
	4. 1.0 credits from:		1.0
;	3. 1.5 credits in CGS	SC at the 3000-level or above	1.5
	CGSC 3908 [0.5]	Honours Seminar in Cognitive Science	
	CGSC 3601 [0.5]	Artificial Intelligence and Cognitive Science	
	2. 1.0 credit in:		1.0
	CGSC 2002 [0.5]	Methods in Cognitive Science	
	CGSC 2001 [0.5]	Theories in Cognitive Science	
	1. 0.5 credit from:		0.5

### Regulations

In addition to the program requirements listed in this section, students must satisfy the academic regulations of the university, and the faculty regulations for the Bachelor of Cognitive Science.

### Academic Regulations and Requirements for the **Bachelor of Cognitive Science Degree**

The regulations presented below apply to all Bachelor of Cognitive Science programs. In addition to the requirements presented here, students must satisfy the University regulations common to all undergraduate students including the process of Academic Continuation Evaluation (consult the Academic Regulations of the University section of this Calendar).

### **First-Year Seminars**

B.Cog.Sc. degree students are strongly encouraged to include a First-Year Seminar (FYSM) during their first 4.0 credits of registration. Students are limited to 1.0 credit in FYSM (one 1.0-credit FYSM or two 0.5-credit FYSMs) and can only register in a FYSM while they have first-year standing in their B.Cog.Sc. program.

### Change of Program Within the B.Cog.Sc. Degree

Students may transfer to a program within the B.Cog.Sc. degree. Applicants must normally be Eligible to Continue (EC) in their year level, in addition to meeting the CGPA thresholds described in Section 3.1.9 of the Academic Regulations of the University. Other applications for change of program will be considered on their merits; students may be admitted to the new program if they are Eligible to Continue (EC) or on Academic Warning (AW).

Applications to declare or change programs within the B.Cog.Sc. degree must be made online through Carleton Central by completing a Change of Program Elements (COPE) application form within the published deadlines. Acceptance into a program or into a program element or option is subject to any enrolment limitations, specific program, program element or option requirements, as published in the relevant Calendar entry.

### Minors, Concentrations, and Specializations

Students may apply to the Registrar's Office to be admitted to a minor, concentration or specialization during their first or subsequent years of study. Acceptance into

**Total Credits** 

a minor, concentration or specialization is subject to any specific requirements of the intended Minor, Concentration or Specialization as published in the relevant Calendar entry. Acceptance into a Concentration, or Specialization requires the student to be meeting the minimum CGPAs defined in Section 3.1.9 Changes of Program and Degree, in the *Academic Regulations of the University*.

### Mention: français

Students registered in the B.Cog.Sc. may earn the notation *Mention : français* by completing part of their requirements in French and by demonstrating a knowledge of the history and culture of French Canada. The general requirements are listed below.

Students in the B.Cog.Sc. Honours program must present:

- 1. 1.0 credit in the French language;
- 1.0 credit devoted to the history and culture of French Canada;
- 1.0 credit at the 2000- or 3000-level and 1.0 credit at the 4000-level taken in French. These credits may come from any of Philosophy, Psychology, Computer Science, Linguistics, Neuroscience, or Cognitive Science, without restriction.

Students in the B.Cog.Sc. program must present:

- 1. 1.0 credit in the French language;
- 1.0 credit devoted to the history and culture of French Canada
- 1.0 credit at the 2000- or 3000-level taken in French.
   This credit may come from any of Philosophy,
   Psychology, Computer Science, Linguistics,
   Neuroscience, or Cognitive Science, without restriction.

Courses taught in French (Item 3, above) may be taken at Carleton, at the University of Ottawa on the Exchange Agreement, or at a francophone university on a Letter of Permission. Students planning to take courses on exchange or on a Letter of Permission should take careful note of the residence requirement for a minimum number of Carleton courses in their programs. Consult the *Academic Regulations of the University* section of this Calendar for information regarding study on Exchange or Letter of Permission.

### Regulations

### Post-Baccalaureate Diploma

In addition to the requirements presented here, students must satisfy the University regulations (see the Academic Regulations of the University section of this Calendar).

### Definition

A post-baccalaureate diploma is defined as a stand-alone undergraduate credential intended to:

- qualify a candidate for consideration for entry into a master's program, or
- bring a candidate who already possesses a bachelor's degree up to a level of a bachelor's degree of 20.0 credits or more in another discipline, or
- provide a candidate who already possesses a twentycredit bachelor's degree in the same discipline the

- opportunity to bring their previous studies to current equivalents and/or to examine alternative areas, or
- provide a candidate with a professional undergraduate credential for which the prior completion of an undergraduate degree program is appropriate.

### **Program Requirements**

- A post-baccalaureate diploma is normally constituted of a minimum of 3.0 credits to a maximum of 5.0 credits of advanced undergraduate courses.
- A minimum of 3.0 residency credits counting toward the post-baccalaureate diploma.

### **English as a Second Language Requirement**

In addition to the program requirements, completion of English as a Second Language (ESLA) courses may be required from the following sequence: ESLA 1300, ESLA 1500, ESLA 1900. No credits from this sequence will be counted toward the post-baccalaureate diploma.

### Continuation

All post-baccalaureate diploma students are expected to complete their diploma requirements within two calendar years after the date of initial registration. After this period student may be withdrawn.

### Graduation

- A candidate for a post-baccalaureate diploma must have an overall CGPA of at least 6.5 to graduate.
- A candidate for a post-baccalaureate diploma must obtain a grade of C- or higher in each course taken in fulfillment of the program requirements.
- Students should consult with the Department, School or Institute when planning their diploma and selecting courses.

### **Co-operative Education**

For more information about how to apply for the Co-op program and how the Co-op program works please visit the Co-op website.

All students participating in the Co-op program are governed by the Undergraduate Co-operative Education Policy.

# Undergraduate Co-operative Education Policy Admission Requirements

Students can apply to Co-op in one of two ways: directly from high school, or after beginning a degree program at Carleton.

If a student applies to a degree program with a Co-op option from high school, their university grades will be reviewed two terms to one year prior to their first work term to ensure they meet the academic requirements after their first or second year of study. The time at which the evaluation takes place depends on the program of study. Students will automatically receive an admission decision via their Carleton email account.

Students who did not request Co-op at the time they applied to Carleton can request Co-op after they begin their university studies. To view application instructions and deadlines, please visit carleton.ca/co-op.

To be admitted to Co-op, a student must successfully complete 5.0 or more credits that count towards their degree, meet the minimum CGPA requirement(s) for the student's Co-op option, and fulfil any specified course prerequisites. To see the unique admission and continuation requirements for each Co-op option. please refer to the specific degree programs listed in the Undergraduate Calendar.

### **Participation Requirements**

### **Co-op Participation Agreement**

All students must adhere to the policies found within the Co-op Participation Agreement.

### **COOP 1000**

Once a student has been admitted to the Co-op Program, they will be given access to register in COOP 1000. This zero-credit online course must be completed at least two terms prior to the student's first work term.

### Communication with the Co-op Office

Students must maintain contact with the Co-op Office during their job search and while on a work term. All email communication will be conducted via the students' Carleton email account.

### **Employment**

Although every effort is made to ensure a sufficient number of job postings for all Co-op students, no guarantee of employment can be made. The Co-op job search process is competitive, and success is dependent upon factors such as current market conditions, academic performance, skills, motivation, and level of commitment to the job search. It is the student's responsibility to apply for positions via the Co-op job board in addition to actively conducting a self-directed job search. Students who do not obtain a co-op work term are expected to continue with their academic studies. It should be noted that hiring priority for positions within the Federal Government of Canada is given to Canadian citizens.

### Registration

- · Students must be registered as full-time during all fall and winter study terms beginning the term in which they enroll in COOP 1000.
- Students will be registered in a Co-op Work Term course while at work. This course does not carry academic course credit, but is noted on academic transcripts.
- Students may register in a 0.5 credit during a work term, provided the course is offered during the evening or is offered asynchronously online.
- · Students must have at least one term of full-time studies left to complete following their final co-op work term. Students cannot end their degree on a work term.

### **Work Term Assessment and Evaluation Work Term Evaluation**

Employers are responsible for submitting to Carleton University final performance evaluations for their Co-op students at the end of their work terms.

#### Work Term Assessment

In order to successfully complete the co-op work term, students must receive a Satisfactory (SAT) grade on their Co-op Work Term Report, which they must submit at the completion of each four-month work term.

### Graduation with the Co-op Designation

In order to graduate with the Co-op Designation, students must satisfy all requirements of the degree program in addition to the successful completion of three or four work terms (the number is dependent upon the student's academic program). Students found in violation of the Co-op Participation Agreement may have the Co-op Designation withheld.

Note: Participation in the co-op option will add up to one additional year for a student to complete their degree program.

### Voluntary Withdrawal from the Co-op Option

Students who are currently on a co-op work term or who have already committed to a co-op work term either verbally or in writing may not leave the position and/or withdraw from the co-op option until they have completed the work term and all related requirements.

### Involuntary or Required Withdrawal from the Co-op Option

Students may be removed from the Co-op Program for any of the following reasons:

- 1. Failure to achieve a grade of SAT in COOP 1000;
- 2. Failure to attend all interviews for positions to which the student has applied;
- 3. Declining more than one job offer during the job search;
- 4. Reneging on a co-op position that the student has accepted either verbally or in writing;
- 5. Continuing a job search after accepting a co-op position;
- 6. Dismissal from a work term by the co-op employer;
- 7. Leaving a work term without approval from the Co-op Management Team;
- 8. Receipt of an unsatisfactory work term evaluation;
- 9. Receiving a grade of UNS on the work term report.

### **International Students**

All international students are required to possess a Coop Work Permit issued by Immigration, Refugees and Citizenship Canada before they can begin working. The Co-operative Education Office will provide students with a letter of support to accompany their Co-op Work Permit application. Students are advised to discuss the application process and application requirements with the International Student Services Office.

### Co-op Fees

All participating Co-op students are required to pay Co-op fees. For full details, please see the Co-op website.

# Bachelor of Cognitive Science Honours: Co-op Admission and Continuation Requirements

- · Maintain full-time status in each study term;
- Be eligible to work in Canada (for off-campus work);
- · Have successfully completed COOP 1000.

In addition to the following:

- Registered as a full-time student in the Bachelor of Cognitive Science Honours program;
- 2. Obtained third-year standing;
- 3. Successfully completed, by the start-date of the first work term, CGSC 2001;
- Obtained an Overall CGPA of at least 8.50. This CGPA must be maintained throughout the duration of the degree.

B.Cog.Sc. Honours students must successfully complete three (3) work terms to obtain the Co-op Designation.

## Work Term Report Course: CGSC 3999 [0.0] Work/Study Pattern:

Year 1		Year 2		Year 3		Year 4		Year 4	
Term	Pattern								
Fall	S								
Winter	S	Winter	S	Winter	S	Winter	W	Winter	
Summer		Summer		Summer	W	Summer	W	Summer	

### **Legend S**: Study

W: Work

### **Admissions Information**

Admission Requirements are for the 2025-26 year only, and are based on the Ontario High School System. Holding the minimum admission requirements only establishes eligibility for consideration. The cut-off averages for admission may be considerably higher than the minimum. See also the General Admission and Procedures section of this Calendar. An overall average of at least 70% is normally required to be considered for admission. Some programs may also require specific course prerequisites and prerequisite averages and/or supplementary admission portfolios. Higher averages are required for admission to programs for which the demand for places by qualified applicants exceeds the number of places available. The overall average required for admission is determined each year on a program by program basis. Consult admissions.carleton.ca for further details.

Note: Courses listed as *recommended* are not mandatory for admission. Students who do not follow the recommendations will not be disadvantaged in the admission process.

### **Admissions Information**

Admission requirements are based on the Ontario High School System. Prospective students can view the admission requirements through the Admissions website at admissions.carleton.ca. The overall average required for admission is determined each year on a program-by-program basis. Holding the minimum admission requirements only establishes eligibility

for consideration; higher averages are required for admission to programs for which the demand for places by qualified applicants exceeds the number of places available. All programs have limited enrolment and admission is not guaranteed. Some programs may also require specific course prerequisites and prerequisite averages and/or supplementary admission portfolios. Consult admissions.carleton.ca for further details.

**Note:** If a course is listed as recommended, it is not mandatory for admission. Students who do not follow the recommendations will not be disadvantaged in the admission process.

### **Degrees**

- Bachelor of Cognitive Science (B.Cog.Sci.) (Honours)
- · Bachelor of Cognitive Science (B.Cog.Sci)

### Admission Requirements

### **First Year**

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include a 4U course in English (or *anglais*). Applicants submitting an English language test to satisfy the requirements of the English Language Proficiency section of this Calendar may use that test to also satisfy the 4U English prerequisite requirement.

The cut-off average for admission will be set annually and will normally be above the minimum requirement.

### **Advanced Standing**

Applications for admission beyond first year will be assessed on their merits. Applicants must normally be *Eligible to Continue* in their year level, in addition to meeting the CGPA thresholds described in Section 3.1.9 of the *Academic Regulations of the University*. Advanced standing will be granted only for those subjects that are assessed as being appropriate for the program and stream selected.

### **Co-op Option**

**Direct Admission to the First Year of the Co-op Option**Applicants must:

- meet the required overall admission cut-off average and prerequisite course average. These averages may be higher than the stated minimum requirements;
- be registered as a full-time student in the Bachelor of Cognitive Science Honours;
- 3. be eligible to work in Canada (for off-campus work placements).

Meeting the above requirements only establishes eligibility for admission to the program. The prevailing job market may limit enrolment in the co-op option. Students should also note that hiring priority is given to Canadian citizens for co-op positions in the Public Service Commission.

**Note:** continuation requirements for students previously admitted to the co-op option and admission requirements for the co-op option after beginning the program are

described in the Co-operative Education Regulations section of this Calendar.

### Admissions Information

Admission Requirements are for the 2025-26 year only. and are based on the Ontario High School System. Holding the minimum admission requirements only establishes eligibility for consideration. The cut-off averages for admission may be considerably higher than the minimum. See also the General Admission and **Procedures** section of this Calendar. An overall average of at least 70% is normally required to be considered for admission. Some programs may also require specific course prerequisites and prerequisite averages and/or supplementary admission portfolios. Higher averages are required for admission to programs for which the demand for places by qualified applicants exceeds the number of places available. The overall average required for admission is determined each year on a program by program basis. Consult admissions.carleton.ca for further details.

Note: Courses listed as recommended are not mandatory for admission. Students who do not follow the recommendations will not be disadvantaged in the admission process.

### **Diploma**

### Post-Baccalaureate Diploma in Cognitive Science

Admission to this program requires the permission of the Department of Cognitive Science. Normally, students are required to have completed an undergraduate degree with a minimum B average or higher to be admitted. Applications will be reviewed on a case-by-case basis. Students with prior studies in Cognitive Science must consult with the department when choosing courses, to ensure the residency requirement (Section 2.2.2/3.4.1) is

### Cognitive Science (CGSC) Courses

### CGSC 1001 [0.5 credit] **Mysteries of the Mind**

Challenges faced in understanding the mind, and some of the approaches cognitive science has brought to bear on them. Topics may include the nature of knowledge, how we learn, the extent to which human thinking is rational, biases in thinking, and evolutionary influences on cognition.

Lectures three hours per week.

### CGSC 1005 [0.5 credit]

### **Computational Methods in Cognitive Science**

Introduction to computational methods, with an emphasis on programming. Topics and assignments will focus on applications in cognitive science. No prior computing experience required.

Includes: Experiential Learning Activity Lecture three hours and tutorial one and a half hours a week.

### CGSC 2001 [0.5 credit]

### Theories in Cognitive Science

An integrated background of the discipline of Cognitive Science, with an historical overview (1940's onward) and examination of the extent to which the discipline has assimilated the collective knowledge of contributing disciplines (e.g., psychology, philosophy, linguistics, artificial intelligence and neuroscience).

Prerequisite(s): second-year standing and FYSM 1607 or CGCS 1001, or permission of the Department. Lectures three hours a week.

### CGSC 2002 [0.5 credit] **Methods in Cognitive Science**

Selected topics in cognitive science covered from the perspectives of psychology, computer science, linguistics, philosophy, and other related disciplines. Students may be required to complete independent research projects. Includes: Experiential Learning Activity Prerequisite(s): CGSC 1001 or FYSM 1607, second year standing, or permission of the Department, Restricted to

students enrolled in B.Cog.Sc. programs.

Seminars and tutorials six hours per week.

### CGSC 3004 [0.5 credit] Philosophy and Cognitive Science

An examination of the significance and role of philosophy in cognitive science. Topics may include: philosophical methods for studying the mind, prospects for naturalizing consciousness and intentionality, assessing competing models of the mind.

Prerequisite(s): CGSC 2001 and PHIL 2501, and thirdyear standing.

Seminar three hours per week.

### CGSC 3201 [0.5 credit] Cognitive Processes

An examination of research findings on cognitive processes. Topics may include attention, speech perception, memory, intelligence, reasoning, learning, working memory, reading, and mathematics. Prerequisite(s): third-year standing, and CGSC 2001 or PSYC 2700.

Seminar three hours per week.

### CGSC 3301 [0.5 credit] Language and Cognitive Science

Issues related to language and cognitive science are examined through a detailed consideration of selected topics.

Prerequisite(s): third-year standing, and CGSC 2001. Seminar three hours per week.

### CGSC 3501 [0.5 credit] Cognitive Neuroscience

Issues related to the role of cognitive neuroscience research in cognitive science are examined through a detailed consideration of selected topics.

Prerequisite(s): third-year standing and CGSC 2001.

Seminar, three hours per week.

### **CGSC 3601 [0.5 credit]**

### **Artificial Intelligence and Cognitive Science**

An introduction to the contribution of artificial intelligence and computer modeling of cognitive processes to cognitive science.

Includes: Experiential Learning Activity
Precludes additional credit for CGSC 4001.
Prerequisite(s): third-year standing and CGSC 2002
and (CGSC 1005 or COMP 1005). Restricted to students
enrolled in B.Coq.Sc. Honours.

Seminars and labs six hours per week.

### CGSC 3603 [0.5 credit] Artificial Intelligence: Philosophical and Ethical Issues

Topics examined through the lens of philosophy and cognitive science may include humans' obligations towards AI, sentient AI, implications of AI for models of cognition, designing ethical AI systems, implications of using AI in healthcare, and social inequality and job displacement related to AI.

Also listed as PHIL 3503.

Prerequisite(s): CGSC 2001 or PHIL 2501 and third-year standing in Cognitive Science or Philosophy. Seminar 3 hours per week.

### **CGSC 3704 [0.5 credit]**

### **Cognitive Science and the Digital Humanities**

Exploration of the roles of human and artificial cognition in the digital humanities. Topics may include virtual and augmented reality as applied to the humanities, cognitive issues in hypertext and hypermedia; linguistic and philosophical considerations in digital media, cognitive narratology, and artificial intelligence.

Also listed as DIGH 3704.

Prerequisite(s): CGSC 2001 or DIGH 2001 and third-year standing.

Seminar three hours per week.

### CGSC 3908 [0.5 credit]

### **Honours Seminar in Cognitive Science**

Major theories and empirical approaches within Cognitive Science are examined through a detailed consideration of selected topics. Students are required to complete independent research projects to prepare for their fourth-year honours theses.

Includes: Experiential Learning Activity
Precludes additional credit for CGSC 3001 (no longer offered) and CGSC 3002 (no longer offered).
Prerequisite(s): third year standing, CGSC 2001 and CGSC 2002, and enrolment in B. Cog. Sc. Honours with a CGPA in the major requirements of 8.0.
Seminars and tutorials six hours per week.

### CGSC 3999 [0.0 credit] Co-operative Work Term

Includes: Experiential Learning Activity

### CGSC 4601 [0.5 credit] Cognitive Architectures

Cognitive architectures and how to evaluate them against human data; how to create cognitive models using cognitive architectures such as ACT-R.

Prerequisite(s): third-year standing, CGSC 2001, and (CGSC 1005 or COMP 1005).

Also offered at the graduate level, with different requirements, as CGSC 5601, for which additional credit is precluded.

Seminar three hours per week, tutorial one and a half hours per week.

### CGSC 4605 [0.5 credit]

### **Hyperdimensional Cognitive Models**

Modelling cognition using artificial intelligence techniques such as reinforcement learning, vector-symbolic models, neural networks, and/or machine learning.

Prerequisite(s): third-year standing, (CGSC 1005 or COMP 1005), CGSC 2001, and CGSC 3601.

Also offered at the graduate level, with different requirements, as CGSC 5605, for which additional credit is precluded.

Seminar three hours per week, tutorial one and a half hours per week.

### CGSC 4801 [0.5 credit] Independent Study

A reading or research course for selected students who wish to investigate a particular topic of interest. Normally students may not offer more than one credit of independent study in their total program (including independent study credits taken through other departments).

Includes: Experiential Learning Activity
Prerequisite(s): third- or fourth-year standing and
permission of the Department.

### CGSC 4802 [0.5 credit] Independent Study

A reading or research course for selected students who wish to investigate a particular topic of interest. Normally students may not offer more than one credit of independent study in their total program (including independent study credits taken through other departments).

Includes: Experiential Learning Activity
Prerequisite(s): third- or fourth-year standing and
permission of the Department.

# CGSC 4900 [0.5 credit] Special Topics in Cognitive Science

The topic of this course will vary from year to year. Students may register in more than one section of CGSC 4900 but may register in each section only once. Prerequisite(s): each section will have its own prerequisites and permission of the department if is required.

Seminar three hours per week.

### CGSC 4908 [1.0 credit] Honours Thesis

Interdisciplinary thesis. In developing a thesis, students must consult the Undergraduate Supervisor. Only the Undergraduate Supervisor can assign a supervisor or grant approval to register in this course. Faculty regulations governing Honours Research Essays and Honours Theses apply.

Includes: Experiential Learning Activity
Precludes additional credit for CGSC 4909.
Prerequisite(s): fourth year standing, CGSC 3908, and enrolment in B.Cog.Sc. Honours with a major CGPA of 8.0.

### CGSC 4909 [1.0 credit] Honours Project

Interdisciplinary project. Students engage in one or more group research projects.

Includes: Experiential Learning Activity Precludes additional credit for CGSC 4908.

Prerequisite(s): 4th year standing, enrolment in B. Cog.

Sc. Honours. Seminar