1.0 Degree Title
Specify the two degrees for concurrent degree programs
Bachelor of Arts and Science

2.0 Administering Faculty/Unit
Faculty of Science

1.1 Major (Legacy = Subject) (30-char. max.)
Arts & Science – COMP, LING, NSCI, PHIL, PSYC

1.2 Concentration (Legacy = Concentration/Option)
If applicable (30 char. max.)
Cognitive Science

1.3 Minor (with Concentration, if applicable)
(30 char. max.)

2.0 Offering Faculty/Department
Arts & Science – COMP, LING, NSCI, PHIL, PSYC

3.0 Effective Term of revision or retirement
Please give reasons in 5.0 “Rationale” in the case of retirement
(Ex. Sept. 2004 = 200409) Retirement
Term: 201309

4.0 Existing Credit Weight
Proposed Credit Weight
60 60

5.0 Rationale for revised program
Due to increased registration in the Cognitive Science program it is no longer possible to keep PSYC 532 as a required course since it was designed to be a seminar course. It will be added to the complementary course listing in Psychology and students will take one of 9 courses, selected as capstone courses in the various streams of Cognitive Science.

Pertinent and prerequisite courses are being added to improve the program. Removing List A and B from the components will allow students more flexibility of choice to develop their interests within their chosen areas.

COGS 402 is identical to COGS 401, the only difference being that 402 is currently offered in the winter and 401 is in the fall. COGS 402 will therefore be retired from the program and 401 will be offered in both fall and winter.

6.0 Revised Program Description (Maximum 150 words)
N/A
7.0 List of existing program and proposed program

Existing program (list courses as follows: Subj Code/Crse Num, Title, Credit weight, under the headings of: Required Courses, Complementary Courses, Elective Courses)

The Honours Program in Cognitive Science, which is restricted to students in the B.A. & Sc., is an extension of the Interfaculty Program that offers students an opportunity to undertake a year-long research project in close association with professors in their main Arts and Science focus areas. Prior to selecting the Honours Program, students should meet with the program Director and review the B.A. & Sc. Academic requirements for Honours and First-Class Honours.

To receive an honours degree, students are required to achieve a minimum overall program GPA of 3.3 at graduation, and attain a grade of B+ (3.3) or better in COGS 444. Students must complete both the 60-credit Honours Program plus an approved Minor Concentration or a Minor in the Faculties of Arts or Science.

In addition to completing the requirements for the Interfaculty Program in Cognitive Science, students in the Honours Program complete the following course:

**Additional Required Course** (6 credits)
COGS 444 (6) Honours Research

Note: B.A. & Sc. students who take interfaculty programs must take at least 30 credits in Arts and 30 credits in Science across their interfaculty program and their minor or minor concentration.

Required Course (3 credits)

PSYC 532 Cognitive Science (3 credits)

Complementary Courses (51 credits)

Core Complementary Courses (3 credits)
Credits are selected as follows:
- 3 credits from the following logic courses:
  - COMP 230 Logic and Computability (3 credits)
  - MATH 318 Mathematical Logic (3 credits)
  - PHIL 210 Introduction to Deductive Logic 1 (3 credits)
- 3 credits from the following capstone courses:
  - COMP 417 Introduction Robotics and Intelligent Systems (3 credits)
  - COMP 424 Artificial Intelligence (3 credits)
  - LING 419 Linguistic Theory and its Foundations
  - LING 565 Pragmatics (3 credits)
  - PHIL 511 Seminar: Philosophy of Logic and Mathematics (3 credits)
  - PHIL 506 Seminar: Philosophy of Mind (3 credits)
  - PSYC 506 Cognitive Neuroscience of Attention (3 credits)
  - PSYC 538 Categorization, Communication & Consciousness (3 credits)
  - PSYC 532 Cognitive Science (3 credits)

Required Course (3 credits)

PSYC 532 Cognitive Science (3 credits)

Complementary Courses (48 credits)
Credits are selected as follows:
- 18 credits from List A in one of the following five units:
  - Computer Science, Linguistics, Neuroscience, Philosophy, or Psychology.
- 12 credits from List B in one of the four remaining units.
- 18 credits chosen from Lists A and/or B in Computer Science, Linguistics, Neuroscience, Philosophy, Psychology and/or Research Courses of which at least 12 credits must be at the 400 level or higher.

(continued on Attachment 1A)
Computer Science

List A:
- COMP 202 Introduction to Computing (3 credits)
- COMP 206 Introduction to Software Systems (3 credits)
- COMP 250 Introduction to Computer Science (3 credits)
- COMP 251 Data Structures and Algorithms (3 credits)
- COMP 302 Programming Languages and Paradigms (3 credits)
- COMP 424 Artificial Intelligence (3 credits)
- COMP 527 Logic and Computation (3 credits)
- MATH 240 Discrete Structures (3 credits)

List B:
- COMP 280 History and Philosophy of Computing (3 credits)
- COMP 330 Theoretical Aspects: Computer Science (3 credits)
- COMP 360 Algorithm Design Techniques (3 credits)
- COMP 409 Technical Project and Report (3 credits)
- COMP 417 Introduction Robotics and Intelligent Systems (3 credits)
- COMP 421 Database Systems (3 credits)
- COMP 490 Introduction to Probabilistic Analysis of Algorithms (3 credits)
- COMP 526 Probabilistic Reasoning and AI (3 credits)
- COMP 531 Theory of Computation (3 credits)
- COMP 558 Fundamentals of Computer Vision (3 credits)
- MATH 222 Calculus 3 (3 credits)
- MATH 223 Linear Algebra (3 credits)

Linguistics

List A:
- LING 201 Introduction to Linguistics (3 credits)
- LING 330 Phonetics (3 credits)
- LING 331 Phonology 1 (3 credits)
- LING 350 Linguistic Aspects of Bilingualism (3 credits)
- LING 355 Language Acquisition 1 (3 credits)
- LING 360 Introduction to Semantics (3 credits)
- LING 371 Syntax 1 (3 credits)
- LING 390 Neuroscience of Language (3 credits)
- LING 417 Topics at the Interfaces 1 (3 credits)
- LING 418 Topics at the Interfaces 2 (3 credits)
- LING 440 Morphology (3 credits)
- LING 461 Formal Methods in Linguistics (3 credits)
- LING 531 Phonology 2 (3 credits)
- LING 555 Language Acquisition 2 (3 credits)
- LING 565 Pragmatics (3 credits)
- LING 571 Syntax 2 (3 credits)
- LING 590 Language Acquisition and Breakdown (3 credits)

List B:
- LING 417 Topics at the Interfaces 1 (3 credits)
- LING 418 Topics at the Interfaces 2 (3 credits)
- LING 440 Morphology (3 credits)
- LING 461 Formal Methods in Linguistics (3 credits)
- LING 531 Phonology 2 (3 credits)
- LING 555 Language Acquisition 2 (3 credits)
- LING 565 Pragmatics (3 credits)
- LING 571 Syntax 2 (3 credits)
- LING 590 Language Acquisition and Breakdown (3 credits)

Complementary Courses (48 credits)

Credits are selected as follows:

18 credits from List A in program offerings in one of the following five units: Computer Science, Linguistics, Neuroscience, Philosophy, or Psychology.

12 credits from List A in program offerings in one of the four remaining units.

18 credits chosen from Lists A and/or B in 18 credits chosen from program offerings across all five units and/or Research Courses.

Of the 48 Complementary Courses credits, 12 credits taken must be at the 400 level or higher.

Note 1: Students are responsible for ensuring that they meet all co- and prerequisites for all their courses.

Note 2: With the permission of the Director of the Cognitive Science program, students may be able to substitute up to 6 credits in cognate departments, such as Anatomy and Cell Biology, Biology, Neurolinguistics, or Psychology. For further information, consult the Cognitive Science website: /cogsci.
Philosophy

List A:

- NSCI 300 Neuroethics (3 credits)
- PHIL 304 Chomsky (3 credits)
- PHIL 306 Philosophy of Mind (3 credits)
- PHIL 310 Intermediate Logic (3 credits)
- PHIL 341 Philosophy of Science 1 (3 credits)
- PHIL 360 17th Century Philosophy (3 credits)
- PHIL 370 Problems in Analytic Philosophy (3 credits)
- PHIL 415 Philosophy of Language (3 credits)
- PHIL 419 Epistemology (3 credits)
- PHIL 441 Philosophy of Science 2 (3 credits)
- PHIL 506 Seminar: Philosophy of Mind (3 credits)

List B:

- PHIL 410 Advanced Topics in Logic 1 (3 credits)
- PHIL 411 Topics in Philosophy of Logic and Mathematics (3 credits)
- PHIL 421 Metaphysics (3 credits)
- PHIL 470 Topics in Contemporary Analytic Philosophy (3 credits)
- PHIL 474 Phenomenology (3 credits)
- PHIL 511 Seminar: Philosophy of Logic and Mathematics (3 credits)

Psychology

List A/B:

- ANTH 440 Cognitive Anthropology (3 credits)
- MUMT 250 Music Perception and Cognition (3 credits)
- NSCI 201 Introduction to Neuroscience 2 (3 credits)
- PSYC 204 Introduction to Psychological Statistics (3 credits)
- PSYC 212 Perception (3 credits)
- PSYC 213 Cognition (3 credits)
- PSYC 301 Animal Learning & Theory (3 credits)
- PSYC 304 Child Development (3 credits)
- PSYC 305 Statistics for Experimental Design (3 credits)
- PSYC 311 Human Cognition and the Brain (3 credits)
- PSYC 315 Computational Psychology (3 credits)
- PSYC 316 Psychology of Deafness (3 credits)
- PSYC 318 Behavioural Neuroscience 2 (3 credits)
- PSYC 340 Psychology of Language (3 credits)
- PSYC 341 The Psychology of Bilingualism (3 credits)
- PSYC 352 Cognitive Psychology Laboratory (3 credits)
- PSYC 353 Laboratory in Human Perception (3 credits)
- PSYC 410 Special Topics in Neuropsychology (3 credits)
- PSYC 413 Cognitive Development (3 credits)
- PSYC 470 Memory and Brain (3 credits)
- PSYC 522 Neurochemistry and Behaviour (3 credits)
- PSYC 529 Music Cognition (3 credits)
- PSYC 537 Advanced Seminar in Psychology of Language (3 credits)
- PSYC 545 Topics in Language Acquisition (3 credits)
- PSYC 561 Methods: Developmental Psycholinguistics (3 credits)

LING

List A/B:

- LING 418 Topics at the Interfaces 2 (3 credits)
- LING 419 Linguistic Theory and its Foundations (3 credits)
- LING 440 Morphology (3 credits)
- LING 450 Laboratory Linguistics
- LING 451 Acquisition of Phonology (3 credits)
- LING 455 Second Language Syntax (3 credits)
- LING 461 Formal Methods in Linguistics (3 credits)
- LING 530 Acoustic Phonetics (3 credits)
- LING 531 Phonology 2 (3 credits)
- LING 555 Language Acquisition 2 (3 credits)
- LING 565 Pragmatics (3 credits)
- LING 571 Syntax 2 (3 credits)
- LING 590 Language Acquisition and Breakdown (3 credits)

List B:

Philosophy

List A:

- NSCI 300 Neuroethics (3 credits)
- PHIL 304 Chomsky (3 credits)
- PHIL 306 Philosophy of Mind (3 credits)
- PHIL 310 Intermediate Logic (3 credits)
- PHIL 341 Philosophy of Science 1 (3 credits)
- PHIL 360 17th Century Philosophy (3 credits)
- PHIL 370 Problems in Analytic Philosophy (3 credits)
- PHIL 410 Advanced Topics in Logic 1 (3 credits)
- PHIL 411 Topics in Philosophy of Logic and Mathematics (3 credits)
- PHIL 415 Philosophy of Language (3 credits)
- PHIL 419 Epistemology (3 credits)
- PHIL 421 Metaphysics (3 credits)
- PHIL 441 Philosophy of Science 2 (3 credits)
- PHIL 470 Topics in Contemporary Analytic Philosophy (3 credits)
- PHIL 474 Phenomenology (3 credits)
- PHIL 506 Seminar: Philosophy of Mind (3 credits)
- PHIL 511 Seminar: Philosophy of Logic and Mathematics (3 credits)

Psychology

List A/B:

- ANTH 440 Cognitive Anthropology (3 credits)
- MUMT 250 Music Perception and Cognition (3 credits)
- NSCI 201 Introduction to Neuroscience 2 (3 credits)
- PSYC 204 Introduction to Psychological Statistics (3 credits)
- PSYC 212 Perception (3 credits)
- PSYC 213 Cognition (3 credits)
- PSYC 301 Animal Learning & Theory (3 credits)
- PSYC 302 The Psychology of Pain
- PSYC 304 Child Development (3 credits)
- PSYC 305 Statistics for Experimental Design (3 credits)
- PSYC 310 Intelligence (3 credits)
- PSYC 311 Human Cognition and the Brain (3 credits)
- PSYC 315 Computational Psychology (3 credits)
- PSYC 318 Behavioural Neuroscience 2 (3 credits)
- PSYC 340 Psychology of Language (3 credits)
- PSYC 341 The Psychology of Bilingualism (3 credits)
- PSYC 352 Cognitive Psychology Laboratory (3 credits)
- PSYC 353 Laboratory in Human Perception (3 credits)
- PSYC 406 Psychological Tests (3 credits)
Neuroscience
List A/B:
* Students select either PHGY 311 or BIOL 306, but not both.
** Students select either BIOL 514 or PSYC 514, but not both.
*** Students select either NSCI 200 or PHGY 209, but not both.

ANAT 321 Circuitry of the Human Brain (3 credits)
BIOL 200 Molecular Biology (3 credits)
BIOL 201 Cell Biology and Metabolism (3 credits)
BIOL 306 Neural Basis of Behaviour (3 credits) *
BIOL 514 Neurobiology Learning and Memory (3 credits) **
BIOL 530 Advances in Neuroethology (3 credits)
BIOL 588 Advances in Molecular/Cellular Neurobiology (3 credits)
NEUR 310 Cellular Neurobiology (3 credits)
NSCI 200 Introduction to Neuroscience 1 (3 credits) ***
NSCI 201 Introduction to Neuroscience 2 (3 credits)
NSCI 300 Neuroethics (3 credits)
PHGY 209 Mammalian Physiology 1 (3 credits) ***
PHGY 311 Channels, Synapses & Hormones (3 credits) *
PHGY 314 Integrative Neuroscience (3 credits)
PHGY 556 Topics in Systems Neuroscience (3 credits)
PSYC 211 Introductory Behavioural Neuroscience (3 credits)
PSYC 311 Human Cognition and the Brain (3 credits)
PSYC 317 Genes and Behaviour (3 credits)
PSYC 318 Behavioural Neuroscience 2 (3 credits)
PSYC 342 Hormones and Behaviour (3 credits)
PSYC 410 Special Topics in Neuropsychology (3 credits)
PSYC 427 Sensorimotor Behaviour (3 credits)
PSYC 502 Psychoneuroendocrinology (3 credits)
PSYC 514 Neurobiology of Learning and Memory (3 credits) **
PSYC 522 Neurochemistry and Behaviour (3 credits)
PSYT 301 Issues in Drug Dependence (3 credits)
PSYT 500 Advances: Neurobiology of Mental Disorders (3 credits)

Research Courses
COGS 401 Research Cognitive Science 1 (6 credits)
COGS 402 Research Cognitive Science 2 (6 credits)

PSYC 410 Special Topics in Neuropsychology (3 credits)
PSYC 413 Cognitive Development (3 credits)
PSYC 470 Memory and Brain (3 credits)
PSYC 501 Auditory Perception (3 credits)
PSYC 506 Cognitive Neuroscience of Attention (3 credits)
PSYC 522 Neurochemistry and Behaviour (3 credits)
PSYC 526 Advances in Visual Perception (3 credits)
PSYC 529 Music Cognition (3 credits)
PSYC 532 Cognitive Science (3 credits)
PSYC 537 Advanced Seminar in Psychology of Language (3 credits)
PSYC 545 Topics in Language Acquisition (3 credits)
PSYC 561 Methods: Developmental Psycholinguistics (3 credits)

Neuroscience
List A/B:
* Students select either PHGY 311 or BIOL 306, but not both.
** Students select either BIOL 514 or PSYC 514, but not both.
*** Students select either NSCI 200 or PHGY 209, but not both.

ANAT 321 Circuitry of the Human Brain (3 credits)
BIOL 200 Molecular Biology (3 credits)
BIOL 201 Cell Biology and Metabolism (3 credits)
BIOL 306 Neural Basis of Behaviour (3 credits) *
BIOL 514 Neurobiology Learning and Memory (3 credits) **
BIOL 530 Advances in Neuroethology (3 credits)
BIOL 588 Advances in Molecular/Cellular Neurobiology (3 credits)
NEUR 310 Cellular Neurobiology (3 credits)
NSCI 200 Introduction to Neuroscience 1 (3 credits) ***
NSCI 201 Introduction to Neuroscience 2 (3 credits)
NSCI 300 Neuroethics (3 credits)
PHGY 209 Mammalian Physiology 1 (3 credits) ***
PHGY 311 Channels, Synapses & Hormones (3 credits) *
PHGY 314 Integrative Neuroscience (3 credits)
PHGY 556 Topics in Systems Neuroscience (3 credits)
PSYC 211 Introductory Behavioural Neuroscience (3 credits)
PSYC 311 Human Cognition and the Brain (3 credits)
PSYC 317 Genes and Behaviour (3 credits)
PSYC 318 Behavioural Neuroscience 2 (3 credits)
PSYC 342 Hormones and Behaviour (3 credits)
PSYC 410 Special Topics in Neuropsychology (3 credits)
PSYC 427 Sensorimotor Behaviour (3 credits)
PSYC 502 Psychoneuroendocrinology (3 credits)
PSYC 514 Neurobiology of Learning and Memory (3 credits) **
PSYC 522 Neurochemistry and Behaviour (3 credits)
PSYC 526 Advances in Visual Perception (3 credits)
PSYC 532 Cognitive Science (3 credits)
PSYT 301 Issues in Drug Dependence (3 credits)
PSYT 500 Advances: Neurobiology of Mental Disorders (3 credits)
PSYT 502 Brain Evolution and Psychiatry (3 credits)
PSYT 515 Advanced Studies in Addiction (3 credits)

Research Courses
COGS 401 Research Cognitive Science 1 (6 credits)
COGS 402 Research Cognitive Science 2 (6 credits)
8.0 Consultation with Related Units
   ☐ Yes ☐ No

Financial Consult ☐ Yes ☐ No

Attach list of consultations - Please see Attachment 1C

9. Approvals

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<tr>
<th>Routing Sequence</th>
<th>Name</th>
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<tr>
<td>CUBS Program (Comm)</td>
<td>Wendy Brett</td>
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<td>Nov. 21 2012</td>
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<td>Curric/ Acad/ Committee</td>
<td>Malek Yalgun</td>
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<td>Nov. 26 2012</td>
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<td>Susan Sharpe</td>
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<td>Joeie D'Amico</td>
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Submitted by

Name: Ian Gold
Phone: x3418
Email: ian.gold@mcgill.ca

To be completed by ARR:

GIP Code

Submission Date

Program/Major or Minor/ Concentration Revision Form P2-3