



FOR APPROVAL

PUBLIC

OPEN SESSION

TO: UTSC Academic Affairs Committee

SPONSOR: Prof. William Gough, Vice-Principal Academic and Dean
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DATE: March 18 for March 25, 2020

AGENDA ITEM: 4

ITEM IDENTIFICATION:

Undergraduate Curricular Minor Modifications - Sciences

JURISDICTIONAL INFORMATION:

University of Toronto Scarborough Academic Affairs Committee (AAC) “is concerned with matters affecting the teaching, learning and research functions of the Campus” (*AAC Terms of Reference, Section 4*). Under section 5.6 of its terms of reference, the Committee is responsible for approval of “Major and minor modifications to existing degree programs.” The AAC has responsibility for the approval of Major and Minor modifications to existing programs as defined by the University of Toronto Quality Assurance Process (*UTQAP, Section 3.1*).

GOVERNANCE PATH:

1. UTSC Academic Affairs Committee [For Approval] (February 10, 2020)

PREVIOUS ACTION TAKEN:

No previous action in governance has been taken on this item.

HIGHLIGHTS:

This package includes minor modifications to undergraduate curriculum, submitted by the Sciences academic units identified below, which require governance approval. Minor modifications to curriculum are understood as those that do not have a significant impact on program or course learning outcomes. They require governance approval when they modestly change the nature of a program or course.

- The Department of Psychology (Report: Psychology)
 - 7 program changes
 - MAJOR PROGRAM IN MENTAL HEALTH STUDIES (SCIENCE)
 - MAJOR PROGRAM IN NEUROSCIENCE (SCIENCE)
 - MAJOR PROGRAM IN PSYCHOLOGY (SCIENCE)
 - SPECIALIST (CO-OPERATIVE) PROGRAM IN MENTAL HEALTH STUDIES (SCIENCE)
 - SPECIALIST (CO-OPERATIVE) PROGRAM IN PSYCHOLOGY (SCIENCE)
 - SPECIALIST PROGRAM IN MENTAL HEALTH STUDIES (SCIENCE)
 - SPECIALIST PROGRAM IN PSYCHOLOGY (SCIENCE)
 - 5 new courses
 - NROB61H2
 - PSYB90H3
 - PSYC53H3
 - PSYD10H3
 - PSYD52H3

FINANCIAL IMPLICATIONS:

There are no net implications to the campus operating budget.

RECOMMENDATION:

Be It Resolved,

THAT the minor modifications to undergraduate programs, submitted by UTSC undergraduate Sciences academic units, as described in Undergraduate Minor Curriculum Modifications for Approval, Report: Psychology, dated March 25, 2020, and recommended by the Vice-Principal Academic and Dean, Professor William Gough, be approved to be effective as of Fall 2020 for the academic year 2020-21.

DOCUMENTATION PROVIDED:

1. 2020-21 Curriculum Cycle: Undergraduate Minor Curriculum Modifications for Approval Report: Psychology, dated March 25, 2020



2020-21 Curriculum Cycle

Undergraduate Minor Curriculum Modifications for Approval

Report: Psychology

March 25, 2020

Psychology (UTSC), Department of

7 Minor Program Modifications:

MAJOR PROGRAM IN MENTAL HEALTH STUDIES (SCIENCE)

Enrolment Requirements:

Enrolment Requirements

Enrolment in the Program is limited. Students **must complete** ~~may apply to the program after completing~~ a minimum of 4.0 credits, including 1.0 credit in Psychology. Admission will require either : (1) a final grade of 67% or higher in both of PSYA01H3 and PSYA02H3, or (2) a final grade of 60% or higher in both of PSYA01H3 and PSYA02H3, and a final grade of 72% or higher in two B-level psychology courses .

Students are cautioned that effective Fall 2022, the program will also require the minimum of any Grade 12 U/M high school math course or equivalent (or successful completion of the UTSC Online Mathematics Preparedness Course or equivalent) , as well as Grade 12 U/M high school biology or equivalent (or BIOA11H3 or equivalent) . Please note that these requirements will not be waived.

Application for admission will be made to the Office of the Registrar through ACORN, in April/May and July/August.

Completion Requirements:

Program Requirements

The program requires 7.0 credits, of which at least 2.0 credits must be at the C- or D-level:

1. Introduction to Psychology (1.0 credit):

PSYA01H3 Introduction to Biological and Cognitive Psychology

PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Laboratory Methods (1.0 credit):

[PSYB70H3 Methods in Psychological Science or (PSYB01H3) Psychological Research Laboratory or (PSYB04H3) Foundations in Psychological Research]

PSYC37H3 Psychological Assessment

3. Statistical Methods (0.5 credit):

PSYB07H3 Data Analysis in Psychology

STAB22H3 Statistics I

STAB23H3 Introduction to Statistics for the Social Sciences

4. Personality and Clinical Psychology (1.0 credit) :

PSYB30H3 Introduction to Personality

PSYB32H3 Introduction to Clinical Psychology

5. Psychosocial and Psychobiological Breadth (1.5 credits):

Students are required to take 1.0 credit from one group and 0.5 credit from the other group:

Psycho-Social Grouping:

[PSYB38H3 or (PSYB45H3) Introduction to Behaviour Modification]

PSYC18H3 The Psychology of Emotion

PSYC35H3 Advanced Personality Psychology

PSYC36H3 Psychotherapy

PSYC39H3 Psychology and the Law

Psycho-Biological Grouping:

[PSYB55H3 Introduction to Cognitive Neuroscience or (PSYB65H3) Human Brain and Behaviour]

PSYB64H3 Introduction to **Behavioural Neuroscience** **Physiological Psychology**

PSYC31H3 Clinical Neuropsychology

PSYC33H3 Neuropsychological Rehabilitation

PSYC62H3 Drugs and the Brain

6. Seminar in Psychology at the D-level (0.5 credits)

7. Additional credits in Psychology (1.5 credits)

Supervised study [PSYC90H3 or PSYC93H3] or thesis [PSYD98Y3] courses may be used to fulfill a maximum of 0.5 credit.

Description of Proposed Changes:

1. Enrolment Requirements: added high school admission requirements (any grade 12 math plus grade 12 Biology).
2. Requirement 5: updated PSYB64H3 course title change

Rationale:

1. Data on students currently enrolled in psychology or mental health studies program suggests that students who have completed a grade 12 math or a grade 12 science course perform significantly better in 6 of the department's 9 required courses than when they do not. The data also suggests that a background in biology is particularly useful as preparation for PSY courses. Given this concern, the department is proposing that students entering our programs have a background in one grade 12 math (or equivalent) and grade 12 Biology (or equivalent), in addition to English. This change will ensure that the students with the best chance for success are the ones that gain entry to PSY programs.
2. PSYB64H3 course title update is necessary to ensure consistency throughout the Calendar.

Impact:

1. The Department of Psychology has worked closely with the Admissions & Student Recruitment Office to ensure all prospective students will be aware of this change well before they apply to university. The change will take into effect Fall 2022 and will not impact current students.

Consultation:

1. DCC Approval: October 2, 2019.
2. High school equivalents Department approvals:
 - Bio Sci Approval: October 18, 2019.
 - CTL Approval: October 9, 2019.
 - CMS Approval: November 18, 2019.

Resource Implications: None.

MAJOR PROGRAM IN NEUROSCIENCE (SCIENCE)

Description:

The Major program in Neuroscience focuses on both Cellular/Molecular and Systems/Behavioural Neuroscience and requires less research-intensive coursework than the Specialist programs. The Major focuses more on how to be a skilled consumer of neuroscience research, providing a valuable foundation for a variety of career paths .

Students who wish to combine the Major in Neuroscience with a Major in any one of Biology, Human Biology, Mental Health Studies or Psychology are advised that they must complete 12.0 distinct credits to receive a certification of the completion of both programs. For more information, see section 6A.2 (Degree Requirements) in the UTSC Academic Calendar . Consultation with the respective Program Supervisors in the selection of credits is recommended.

Enrolment Requirements:

Enrolment Requirements

Enrolment in the program is limited. Students may apply after completing a minimum of 4.0 credits including : BIOA01H3 1.0 credit in each of biology , BIOA02H3 , CHMA10H3 , CHMA11H3 , PSYA01H3 , chemistry and PSYA02H3 psychology .

Admission to this program requires a CGPA of will be based on the cumulative GPA ; with 2.0 or higher guaranteeing admission to the Major Program : Students with lower CGPAs will be considered to the extent that laboratory spaces are available : The minimum CGPA used to admit these students will be determined in May (after the Winter session) and August (after the Summer session) . Application for admission will be made to the Office of the Registrar through ACORN, in March April / April May and June July / July August .

Completion Requirements:

Program Requirements

~~The Program requires completion of 8.0 credits . Students who wish to combine the Major Program in Neuroscience with the Major in Biology or the Major in Mental Health Studies or the Major in Psychology are advised that they must complete a total present 12.0 credits to receive certification of the completion of both programs . Consultation with the respective Program Supervisors in the selection of 8.5 credits is recommended .~~

~~The following indicates the required credits for the Major Program in Neuroscience :~~

Students must complete a total of 8.5 credits.

1. Scientific Foundations (3.0 credits) as follows :

BIOA01H3 Life on Earth: Unifying Principles
BIOA02H3 Life on Earth: Form, Function and Interactions
CHMA10H3 Introductory Chemistry I: Structure and Bonding
CHMA11H3 Introductory Chemistry II: Reactions and Mechanisms
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.5 2.5 credits) as follows :

BIOB10H3 Cell Biology
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
[PSYB55H3 Introduction to Cognitive Neuroscience or (PSYB65H3) Human Brain and Behaviour]
PSYB70H3 Methods in Psychological Science
[STAB22H3 Statistics I or PSYB07H3 Data Analysis in Psychology or STAB22H3 Statistics I]

3. Advanced Foundations (1.5 credits) as follows :

at least 1.0 credit must be taken from :

NROC34H3 Neuroethology
NROC36H3 Molecular Neuroscience
BIOC32H3 Human Physiology I
NROC61H3 Learning and Motivation
NROC64H3 Sensorimotor Systems

NROC69H3 Synaptic Organization and Physiology of the Brain

If not used above, the remaining 0.5 ~~4~~ ~~1.0~~ credit should be taken from the following:

BIOC14H3 Genes, Environment and Behaviour

NROC60H3 Cellular Neuroscience Laboratory

NROC63H3 Behavioural Neuroscience Laboratory

NROC90H3 Supervised Study in Neuroscience

NROC93H3 Supervised Study in Neuroscience

PSYC62H3 Drugs and the Brain

4. Capstone Course (0.5 credit ~~BIOC33H3~~) ~~Human Physiology II: Lecture and Laboratory~~

~~BIOD07H3 Advanced Topics and Methods in Neural Circuit Analysis~~ ~~BIOC34H3 Human Physiology II: Lect~~
~~ure~~

BIOD19H3 Epigenetics in Health and Disease

~~BIOD27H3 Vertebrate Endocrinology~~

BIOD45H3 Animal Communication

BIOD65H3 Pathologies of the Nervous System

~~NROC34H3 Neuroethology~~

~~NROC36H3 Molecular Neuroscience~~

~~NROC60H3 Cellular Neuroscience Laboratory~~

~~NROC63H3 Neuroscience Laboratory~~

~~NROC69H3 Synaptic Organization and Physiology of the Brain~~

~~NROC90H3 Supervised Study in Neuroscience~~

NROD08H3/BIOD08H3 ~~Theoretical~~ ~~Theoretical~~ Neuroscience*

NROD60H3 Current Topics in Neuroscience

NROD61H3 Emotional Learning Circuits

~~(NROD63H3) Advanced Neuroscience Laboratory~~

NROD66H3 Drug Addiction

NROD67H3 ~~Neuroscience~~ ~~Psychobiology~~ of Aging

~~PSYC62H3 Drugs and the Brain~~

~~PSYD17H3 Social Neuroscience~~

~~NROD98Y3 Thesis~~ ~~PSYD33H3 Current Topics in Neuroscience~~ ~~Clinical Psychology~~

PSYD66H3 Current Topics in Human Brain and Behaviour

* Note : NROD08 has a calculus prerequisite that is not part of this program . Students interested in this course should plan accordingly .

Description of Proposed Changes:

1. The enrolment requirements have been revised to: (a) remove "1.0 credit in each of biology, chemistry and psychology," and add the specific course requirements; (b) clarify the CGPA requirement.
2. The total credits required to complete the program has been increased from 8.0 to 8.5.
3. NROB61H3 and PSYB70H3 have been added as required courses to component 2; this component increases from 2.5 to 3.5 credits.
4. Component 3 has been updated to focus on Advanced Foundations; course options have been updated to add relevant courses, and remove courses that are not needed in the program.
5. Component 4 has been updated to focus on Capstone; course options have been updated to add relevant courses, and remove courses that are not needed in the program; this component decreases from 1.0 to 0.5 credit.
6. A new note has been added to clarify that NROD08 has a calculus requirement that is not part of the program.

Rationale:

1. Changes to the enrolment requirements ensure that students are taking the courses in biology, chemistry, and psychology they need to best be prepared for the program, and more clearly communicate that a cGPA of 2.0 or higher is needed for admission to this program.
2. The total credits to complete the program have been increased to reflect the necessary changes in the program - specifically the increase in component 3 from 2.5 to 3.5 credits for Advanced Foundations is needed to ensure students achieve the program learning outcomes. The increase is partially off-set by an decrease in the credit count for component 4, but the overall credit count for the program needed to be increased.
3. NROB61 (Neurophysiology) and PSYB70H3 (Neurophysiology) are new courses that are being added as program

requirements to all Neuroscience programs to strengthen knowledge and skill development at the B-level of study.

4. The “Advanced Foundations” grouping will only consist of appropriate courses at the C-level of study, which includes two of the courses already in this grouping (NROC61, NROC64), as well as a number of courses from grouping 4 which have been moved into this bin.

5. Component 4 will focus on capstone courses. Appropriate D-level courses have been moved to this grouping and since only 0.5 credit of D-level courses is required, the credit requirement for this grouping has dropped to 0.5.

6. NROD08 requires a course in mathematics that is not part of the NRO Major. The note has been added to ensure that students engage in appropriate course/program planning.

Impact:

1. The addition of NROB61 (Neurophysiology) provides valuable content knowledge and skill development for our students, and earlier than it would typically occur.

2. The addition of PSYB70 (Methods in Psychological Science) fills a critical methodology gap that currently exists in the curriculum, allowing us to strengthen our student’s understanding of research designs, whether a research design is appropriate given the research question, as well as the ability to effectively describe and interpret data patterns. This course will also strengthen a student’s ability to locate, critically evaluate, and consume primary literature.

3. The changes double the number of optional courses to complete the program requirements (from 1.0 to 2.0 FCE); this will greatly improve the flexibility of the program.

4. The changes are aligned with changes to the Specialist programs - allowing students to more easily change programs without losing ground.

5. The strengthening of prerequisites for the NRO C-level courses will create a course access issue during the first year of implementation for grandfathered-in NRO Majors. As to not lock these students out of NRO C-level courses because they have not taken NROB61 or PSYB70, we will honour current calendar requirements for all NRO C-level courses for one academic year after implementation. To help students with their academic planning around this issue, the Department will provide clear communication to these students as soon as the proposal is approved by university governance, and we will provide monthly email reminders to these students for one calendar year.

6. Some current NRO Majors may wish to switch to the new NRO Major calendar requirements. The Department is committed to ensuring that there will be adequate space in both NROB61 and PSYB70 to absorb any such students. Likewise, this would also be the case for grandfathered NRO Majors who fail to complete their NRO C-level courses one academic year after implementation.

Consultation:

These changes were approved by the Psychology Curriculum Committee on 12-Jun-2019, and by the Psychology faculty at a departmental meeting on 27-Jun-2019.

These changes were approved by the Department of Biological Sciences on July 3rd, 2019.

Resource Implications:

1. Creation of NROB61H3: Resources requested for a CLTA, TA support, and space renovations have been approved by the Dean's Office (December 2, 2019). Resources needed for supplies will be covered by the unit's existing budget.

2. Addition of PSYB70 as a required course: additional TA resources will be needed to support this course; these will be covered by the unit's existing budget.

MAJOR PROGRAM IN PSYCHOLOGY (SCIENCE)

Enrolment Requirements:

Enrolment Requirements

Enrolment in the Program is limited. Students ~~must complete~~ ~~may apply to the program after completing~~ a minimum of 4.0 credits, including 1.0 credit in psychology. Admission will require either : (1) a final grade of 67% or higher in both PSYA01H3 and PSYA02H3, or (2) a final grade of 60% or higher in both PSYA01H3 and PSYA02H3, and a final grade of 72% or higher in two B-level psychology courses .

Students are cautioned that effective Fall 2022 , the program will also require the minimum of any Grade 12 U/M high school math course or equivalent (or successful completion of the UTSC Online Mathematics Preparedness Course or equivalent) , as well as Grade 12 U/M high school biology or equivalent (or BIOA11H3 or equivalent) . Please note that these requirements will not be waived.

Application for admission will be made to the Office of the Registrar through ACORN, in April/May and July/August.

Completion Requirements:**Program Requirements**

The Program requires completion of 7.0 credits, of which at least 2.0 credits must be at the C- or D-level:

1. Introduction to Psychology (1.0 credit):

PSYA01H3 Introduction to Biological and Cognitive Psychology

PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Laboratory Methods (0.5 credit):

[PSYB70H3 Methods in Psychological Science or (PSYB01H3) Psychological Research Laboratory or (PSYB04H3) Foundations in Psychological Research]

3. Statistical Methods (0.5 credit):

[PSYB07H3 Data Analysis in Psychology or STAB22H3 Statistics I or STAB23H3 Introduction to Statistics for the Social Sciences]

4. Breadth in Psychology at the B-level and C-level (2.5 credits)

Students are required to take 1.5 credits from one of the groups and 1.0 credit from the other group:

- a. Social and Developmental (courses listed in the 10- and 20-series)
- b. Perception, Cognition and Physiology (courses listed in the 50- and 60-series)

5. Seminar in Psychology at the D-level (0.5 credit)

Certain D-level NRO courses may be used to fulfill this requirement with departmental approval.

6. Additional credits in Psychology (2.0 credits)

Of the 2.0 credits, at least 1.0 credit must be at the C-level. Supervised study [PSYC90H3 or PSYC93H3] or thesis [PSYD98Y3] courses may be used to fulfill a maximum of 0.5 credit.

Description of Proposed Changes:

Add high school admission requirements (any grade 12 math plus grade 12 Biology).

Rationale:

Data on students currently enrolled in psychology or mental health studies program suggests that students who have completed a grade 12 math or a grade 12 science course perform significantly better in 6 of the department's 9 required courses than when they do not. The data also suggests that a background in biology is particularly useful as preparation for PSY courses. Given this concern, the department is proposing that students entering our programs have a background in one grade 12 math (or equivalent) and grade 12 biology (or equivalent), in addition to English. This change will ensure that the students with the best chance for success are the ones that gain entry to PSY programs.

Impact:

The Department of Psychology has worked closely with the Admissions & Student Recruitment Office to ensure all prospective students will be aware of this change well before they apply to university. The change will take into effect Fall 2022 and will not impact current students.

Consultation:

1. DCC Approval: October 2, 2019.
2. High school equivalents Department approvals:
 - Bio Sci Approval: October 18, 2019.
 - CTL Approval: October 9, 2019.
 - CMS Approval: November 18, 2019.

Resource Implications: None.

**SPECIALIST (CO-OPERATIVE) PROGRAM IN MENTAL HEALTH STUDIES
(SCIENCE)**

Enrolment Requirements:

Enrolment Requirements

Enrolment in the Program is limited. Students must complete a minimum of qualifications for entry are 4.0 credits, including 1.0 credit in Psychology PSYA01H3 and PSYA02H3 plus a cumulative GPA of at least 2.75. Admission will require either: (1) a final grade of 75% or higher Grades in both PSYA01H3 and PSYA02H3, or (2) a final grade of 64% or higher in both PSYA01H3 and PSYA02H3, and a final grade of 72% ~~must be 75%~~ or higher in [PSYB70H3 or (PSYB01H3)] and [PSYB07H3 or equivalent].

Students are cautioned that effective Fall 2022, the program will also require the minimum of any Grade 12 U/M high school math course or equivalent (or successful completion of the UTSC Online Mathematics Preparedness Course or equivalent), as well as Grade 12 U/M high school biology or equivalent (or BIOA11H3 or equivalent). Please note that these requirements will not be waived.

Current Co-op Students:

Students admitted to a Co-op Degree POST in their first year of study must request a Co-op Subject POST on ACORN upon completion of 4.0 credits and must meet the minimum qualifications for entry as noted above. Students who have completed 10.0 credits or more, are not eligible to apply to the program.

Students currently enrolled in the Specialist Co-op Program in Mental Health Studies who have completed 10.0 credits or more, are not eligible to transfer to the Specialist Co-op Program in Psychology or vice-versa.

Prospective Co-op Students:

In addition to requesting the program on ACORN, prospective Co-op students (i.e., those not yet admitted to a Co-op Degree POST) must also submit a Co-op Supplementary Application Form, which is available from the Arts & Science Co-op Office [Arts and Science Co-op Office](#). Submission deadlines follow the Limited Enrolment Program Application Deadlines set by the Office of the Registrar each year. Failure to submit both the Supplementary Application Form and the program request on ACORN will result in that student's application not being considered.

Completion Requirements:

Program Requirements

The program requires 12.5 credits as follows, including at least 4.0 credits at the C-level, of which at least 1.0 credit must be at the D-level:

1. Introduction to Psychology (1.0 credit)

PSYA01H3 Introduction to Biological and Cognitive Psychology

PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Laboratory Methods (2.0 credits)

[PSYB70H3 Methods in Psychological Science or (PSYB01H3) Psychological Research Laboratory]

PSYC37H3 Psychological Assessment

PSYC70H3 Advanced Research Methods Laboratory

PSYC73H3 Clinical Neuropsychology Laboratory

3. Statistical Methods (1.0 credit)

PSYB07H3 Data Analysis in Psychology

[PSYC08H3 Advanced Data Analysis in Psychology or PSYC09H3 Applied Multiple Regression in Psychology]

4. PSYC02H3 Scientific Communication in Psychology (0.5 credit)

5. PSYC85H3 History of Psychology (0.5 credit)

6. Personality and Clinical Psychology (1.0 credit):

PSYB30H3 Introduction to Personality

PSYB32H3 Introduction to Clinical Psychology

7. Psychosocial and Psychobiological Breadth (3.0 credits)

Students are required to take 2.0 credits from one group and 1.0 credit from the other group:

Psycho-Social Grouping

[PSYB38H3 or (PSYB45H3) Introduction to Behaviour Modification]

PSYC18H3 The Psychology of Emotion

PSYC35H3 Advanced Personality Psychology

PSYC36H3 Psychotherapy

PSYC39H3 Psychology and the Law

Psycho-Biological Grouping

[PSYB55H3 Introduction to Cognitive Neuroscience or (PSYB65H3) Human Brain and Behaviour]

PSYB64H3 Introduction to Behavioural Neuroscience ~~Physiological Psychology~~

PSYC33H3 Neuropsychological Rehabilitation

PSYC62H3 Drugs and the Brain

8. Seminars in Psychology at the D-level (1.0 credit):

0.5 credit must come from the PSY D30-series:

PSYD30H3 Current topics in Personality Psychology

PSYD31H3 Cultural-Clinical Psychology

PSYD32H3 Personality Disorders

PSYD33H3 Current ~~topics~~ **Topics** in Clinical Psychology

PSYD35H3 Clinical Psychopharmacology

PSYD39H3 Cognitive Behavioural Therapy

9. An **additional** ~~Additional~~ credit in Psychology (0.5 credit)

10. 2.0 credits from the following courses:

HLTB40H3 Health Policy and Health Systems

HLTB41H3 Introduction to the Social Determinants of Mental Health

HLTB42H3 Perspectives of Culture, Illness and Healing

HLTB50H3 Introduction to Health Humanities

(HLTC05H3) Society, Health and Illness

HLTC22H3 Health, Aging, and the Life Cycle

HLTC23H3 Issues in Child Health and Development

HLTC42H3 Emerging Health Issues and Policy Needs

HLTC49H3 Indigenous Health

IDSB04H3 Introduction to International/Global Health

IDSC11H3 Issues in Global and International Health

LINB20H3 Sociolinguistics

PHLA11H3 Introduction to Ethics

PHLB07H3 Ethics

PHLB09H3 Biomedical Ethics

PHLB81H3 Theories of Mind

PHLC07H3 Death and Dying

PHLC10H3 Topics in Bioethics

SOCB22H3 Sociology of Gender

SOCB49H3 Sociology of Family

SOCB50H3 Deviance and Normality I

SOCC49H3 Indigenous Health

Co-op Work Term Requirements

Students must satisfactorily complete two Co-op work terms, each of four-months duration. To be eligible for their first work term, students must be enrolled in the Specialist Co-op Program in Mental Health Studies and have completed at least 10.0 credits, including [PSYB70H3 or (PSYB01H3)], PSYB07H3, PSYB32H3, [PSYB55H3 or (PSYB65H3)], PSYC02H3, [PSYC08H3 or PSYC09H3], and [PSYC73H3 or (PSYC32H3)].

In addition to their academic program requirements, Co-op students complete up to four Co-op specific courses. These courses are designed to prepare students for their job search and work term experience, and to maximize the benefits of their Co-op work terms. They cover a variety of topics intended to assist students in developing the skills and tools required to secure work terms that are appropriate to their program of study, and to perform professionally in the workplace. These courses must be completed in sequence, and are taken in addition to a full course load. They are recorded on transcripts as credit/no credit (CR/NCR) and are considered to be additive credit to the 20.0 required degree credits. No additional course fee is assessed as registration is included in the Co-op Program fee.

Co-op Preparation Course Requirements:

1. COPB50H3/(COPD01H3) – Foundations for Success in Arts & Science Co-op
 - Students entering Co-op from outside of UTSC (high school or other postsecondary) will complete this course in Fall or Winter of their first year at UTSC. Enrolment in each section is based on admission category: Typically, students in Computer Science, Mathematics and Statistics enroll in the Fall semester while all other Arts & Science Co-op admission categories enroll in the Winter semester however this may vary year to year.
 - Current UTSC students entering Co-op in April/May will complete this course in the Summer semester.
 - Current UTSC students entering Co-op in July/August will complete this course in the Fall semester.
2. COPB51H3/(COPD03H3) – Preparing to Compete for your Co-op Work Term
 - This course will be completed eight months in advance of the first scheduled work term.
3. COPB52H3/(COPD11H3) – Managing your Work Term Search & Transition to Work
 - This course will be completed four months in advance of the first work scheduled work term.
4. COPC98H3/(COPD12H3) – Integrating Your Work Term Experience Part I
 - This course will be completed four months in advance of the second scheduled work term.
5. COPC99H3/(COPD13H3) – Integrating Your Work Term Experience Part II
 - This course will be completed four months in advance of the third scheduled work term (for programs that require the completion of 3 work terms and/or four months in advance of any additional work terms that have been approved by the Arts and Science Co-op Office.

Students must be available for work terms in each of the Fall, Winter and Summer semesters and must complete at least one of their required work terms in either a Fall or Winter semester. This, in turn, requires that students take courses during at least one Summer semester.

For information on fees, status in Co-op programs, and certification of completion of Co-op programs, see Section 6B.5 or the Arts and Science Co-op section in the UTSC *Calendar*.

Description of Proposed Changes:

1. Enrolment Requirements: added high school admission requirements (any grade 12 math plus grade 12 Biology).
2. Enrolment Requirements: added a second pathway for admission as an option for students currently in a co-op degree post.
3. Requirement 7: PSYB64H3 course title change
4. Requirement 10: added HLTC49H3 and SOCC49H3 as optional courses

Rationale:

1. Data on students currently enrolled in psychology or mental health studies program suggests that students who have completed a grade 12 math or a grade 12 science course perform significantly better in 6 of the department's 9 required

courses than when they do not. The data also suggests that a background in biology is particularly useful as preparation for PSY courses. Given this concern, the department is proposing that students entering our programs have a background in one grade 12 math (or equivalent) and grade 12 biology (or equivalent), in addition to English. This change will ensure that the students with the best chance for success are the ones that gain entry to PSY programs.

2. This second pathway already exists for the Specialist program in Mental Health Studies and the Departments of Psychology and A&S Co-op have been using it to assess admission to the Co-op stream. Adding it to the calendar makes it clear and transparent for students so they can plan accordingly.

3. PSYB64H3 course title update is necessary to ensure consistency throughout the Calendar.

4. HLTC49H3 and SOCC49H3 both present relevant and related content to the study of mental health and will provide students with additional C-level options to complete this requirement.

Impact:

The Department of Psychology has worked closely with the Admissions & Student Recruitment Office to ensure all prospective students will be aware of this change well before they apply to university. The change will take into effect Fall 2022 and will not impact current students.

Consultation:

1. DCC Approval: October 2, 2019.

2. High school equivalents Department approvals:

-Bio Sci Approval: October 18, 2019.

-CTL Approval: October 9, 2019.

-CMS Approval: November 18, 2019.

-A&S Co-op Approval: June 5, 2019.

Resource Implications: None.

SPECIALIST (CO-OPERATIVE) PROGRAM IN PSYCHOLOGY (SCIENCE)

Enrolment Requirements:

Enrolment Requirements

Enrolment in the Program is limited. Students must complete a ~~The~~ minimum of ~~qualifications for entry are~~ 4.0 credits, including 1.0 credit in Psychology ~~PSYA01H3 and PSYA02H3~~ plus a cumulative GPA of at least 2.75. Admission will require either: (1) a final grade of 75% or higher ~~Grades~~ in both PSYA01H3 and PSYA02H3, or (2) a final grade of 64% or higher in both PSYA01H3 and PSYA02H3, and a final grade of 72% ~~must be 75%~~ or higher in [PSYB70H3 or (PSYB01H3)] and [PSYB07H3 or equivalent].

Students are cautioned that effective Fall 2022, the program will also require the minimum of any Grade 12 U/M high school math course or equivalent (or successful completion of the UTSC Online Mathematics Preparedness Course or equivalent), as well as Grade 12 U/M high school biology or equivalent (or BIOA11H3 or equivalent). Please note that these requirements will not be waived.

Current Co-op Students:

Students admitted to a Co-op Degree POST in their first year of study must request a Co-op Subject POST on ACORN upon completion of 4.0 credits and must meet the minimum qualifications for entry as noted above. Students who have completed 10.0 credits or more, are not eligible to apply to the program.

Students currently enrolled in the Specialist Co-op Program in Psychology who have completed 10.0 credits or more, are not eligible to transfer to the Specialist Co-op Program in Mental Health Studies or vice-versa.

Prospective Co-op Students:

In addition to requesting the program on ACORN, prospective Co-op students (i.e., those not yet admitted to a Co-op Degree POST) must also submit a Co-op Supplementary Application Form, which is available from the Arts & Science Co-op Office [Arts and Science Co-op Office](#). Submission deadlines follow the Limited Enrolment Program Application Deadlines set by the Office of the Registrar each year. Failure to submit both the Supplementary Application Form and the program request on ACORN will result in that student's application not being considered.

Completion Requirements:

Program Requirements

The program requires students to complete a total of 12.5 credits, including at least 4.0 credits at the C- or D-level, of which at 1.0 credit must be at the D-level:

1. Introduction to Psychology (1.0 credit)

PSYA01H3 Introduction to Biological and Cognitive Psychology

PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Laboratory Methods (1.5 credits)

[PSYB70H3 Methods in Psychological Science or (PSYB01H3) Psychological Research Laboratory]

PSYC70H3 Advanced Research Methods Laboratory

and

0.5 credit from among the following :

PSYC06H3 Psychophysiology Laboratory

[PSYC71H3 or (PSYC11H3) Social Psychology Laboratory]

[PSYC72H3 or (PSYC26H3) Developmental Psychology Laboratory]

[PSYC74H3 or (PSYC05H3) Human Movement Laboratory]

[PSYC75H3 or (PSYC58H3) Cognitive Psychology Laboratory]

[PSYC76H3 or (PSYC04H3) Brain Imaging Laboratory]

3. Statistical Methods (1.0 credit)

PSYB07H3 Data Analysis in Psychology

[PSYC08H3 Advanced Data Analysis in Psychology or PSYC09H3 Applied Multiple Regression in Psychology]

4. PSYC02H3 Scientific Communication in Psychology (0.5 credit)

5. PSYC85H3 History of Psychology (0.5 credit)

6. Breadth in Psychology at the B-level and C-level (5.0 credits)

Students are required to take 3.0 credits at the B-level or C-level from one of the two content groups listed below and 2.0 credits from the other group:

(a) Social and Developmental (courses listed in the 10- and 20-series)

(b) Perception, Cognition and Physiology (courses listed in the 50- and 60-series)

7. Seminars in Psychology at the D-level (1.0 credit)

Students must take 0.5 credit from each grouping below:

(a) Social and Developmental (courses listed in the 10- and 20-series)

(b) Perception, Cognition and Physiology (courses listed in the 50- and 60-series)

8. Additional credits in Psychology (2.0 credits)

Of the 2.0 credits, at least 1.0 credit must be at the C-level. Supervised study [PSYC90H3 or PSYC93H3] or thesis [PSYD98Y3] courses may be used to fulfill a maximum of 0.5 credit.

Co-op Work Term Requirements

Students must satisfactorily complete two Co-op work terms, each of four-months duration. To be eligible for their first work term, students must be enrolled in the Specialist Co-op Program in Psychology and have completed at least 10.0 credits, including [PSYB70H3 or (PSYB01H3)], PSYB07H3, PSYC02H3 and [PSYC08H3 or PSYC09H3].

In addition to their academic program requirements, Co-op students complete up to four Co-op specific courses. These courses are designed to prepare students for their job search and work term experience, and to maximize the benefits of their Co-op work terms. They cover a variety of topics intended to assist students in developing the skills and tools required to secure work terms that are appropriate to their program of study, and to perform professionally in the workplace. These courses must be completed in sequence, and are taken in addition to a full course load. They are recorded on transcripts as credit/no credit (CR/NCR) and are considered to be additive credit to the 20.0 required degree credits. No additional course fee is assessed as registration is included in the Co-op Program fee.

Co-op Preparation Course Requirements:

1. COPB50H3/(COPD01H3) – Foundations for Success in Arts & Science Co-op
 - Students entering Co-op from outside of UTSC (high school or other postsecondary) will complete this course in Fall or Winter of their first year at UTSC. Enrolment in each section is based on admission category: Typically, students in Computer Science, Mathematics and Statistics enroll in the Fall semester while all other Arts & Science Co-op admission categories enroll in the Winter semester however this may vary year to year.
 - Current UTSC students entering Co-op in April/May will complete this course in the Summer semester.
 - Current UTSC students entering Co-op in July/August will complete this course in the Fall semester.
2. COPB51H3/(COPD03H3) – Preparing to Compete for your Co-op Work Term
 - This course will be completed eight months in advance of the first scheduled work term.
3. COPB52H3/(COPD11H3) – Managing your Work Term Search & Transition to Work
 - This course will be completed four months in advance of the first work scheduled work term.
4. COPC98H3/(COPD12H3) – Integrating Your Work Term Experience Part I
 - This course will be completed four months in advance of the second scheduled work term.
5. COPC99H3/(COPD13H3) – Integrating Your Work Term Experience Part II
 - This course will be completed four months in advance of the third scheduled work term (for programs that require the completion of 3 work terms and/or four months in advance of any additional work terms that have been approved by the Arts and Science Co-op Office.

Students must be available for work terms in each of the Fall, Winter and Summer semesters and must complete at least one of their required work terms in either a Fall or Winter semester. This, in turn, requires that students take courses during at least one Summer semester.

For information on fees, status in Co-op programs, and certification of completion of Co-op programs, see Section 6B.5 or the Arts and Science Co-op section in the UTSC *Calendar*.

Description of Proposed Changes:

1. Enrolment Requirements: added high school admission requirements (any grade 12 math plus grade 12 Biology).
2. Enrolment Requirements: added a second pathway for admission as an option for students currently in a co-op degree post.

Rationale:

1. Data on students currently enrolled in psychology or mental health studies program suggests that students who have completed a grade 12 math or a grade 12 science course perform significantly better in 6 of the department's 9 required courses than when they do not. The data also suggests that a background in biology is particularly useful as preparation for PSY courses. Given this concern, the department is proposing that students entering our programs have a background in one grade 12 math (or equivalent) and grade 12 Biology (or equivalent), in addition to English. This change will ensure that the students with the best chance for success are the ones that gain entry to PSY programs.
2. This second pathway already exists for the Specialist program in Psychology and the Departments of Psychology and A&S Co-op have been using it to assess admission to the Co-op stream. Adding it to the calendar makes it clear and transparent for students so they can plan accordingly.

Impact:

The Department of Psychology has worked closely with the Admissions & Student Recruitment Office to ensure all prospective students will be aware of this change well before they apply to university. The change will take into effect Fall 2022 and will not impact current students.

Consultation:

1. DCC Approval: October 2, 2019.
2. High school equivalents Department approvals:
 - Bio Sci Approval: October 18, 2019.
 - CTL Approval: October 9, 2019.
 - CMS Approval: November 18, 2019.
 - A&S Co-op Approval: June 5, 2019.

Resource Implications: None.

SPECIALIST PROGRAM IN MENTAL HEALTH STUDIES (SCIENCE)

Enrolment Requirements:

Enrolment Requirements

Enrolment in the Program is limited. Students **must complete** ~~may apply to the program after completing~~ a minimum of 4.0 credits, including 1.0 credit in Psychology. Admission will require either :(1) a final grade of 75% or higher in both PSYA01H3 and PSYA02H3, or (2) a final grade of 64% or higher in both PSYA01H3 and PSYA02H3, and a final grade of 72% or higher in [PSYB70H3 or (PSYB01H3)] and [PSYB07H3 or equivalent] .

Students are cautioned that effective Fall 2022 , the program will also require the minimum of any Grade 12 U/M high school math course or equivalent (or successful completion of the UTSC Online Mathematics Preparedness Course or equivalent) , as well as Grade 12 U/M high school biology or equivalent (or BIOA11H3 or equivalent) . Please note that these requirements will not be waived.

Application for admission will be made to the Office of the Registrar through ACORN, in April/May and July/August.

Completion Requirements:

Program Requirements

The program requires completion of 12.5 credits as follows, including at least 4.0 credits at the C- or D-level, of which at least 1.0 must be at the D-level:

1. Introductory Psychology (1.0 credit)

PSYA01H3 Introduction to Biological and Cognitive Psychology

PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Laboratory Methods (1.5 credit)

[PSYB70H3 Methods in Psychological Science or (PSYB01H3) Psychological Research Laboratory]

PSYC37H3 Psychological Assessment

PSYC70H3 Advanced Research Methods Laboratory

3. Statistical Methods (1.0 credit)

PSYB07H3 Data Analysis in Psychology

[PSYC08H3 Advanced Data Analysis in Psychology or PSYC09H3 Applied Multiple Regression in Psychology]

4. PSYC02H3 Scientific Communication in Psychology (0.5 credit)

5. PSYC85H3 History of Psychology (0.5 credit)

6. Personality and Clinical Psychology (1.0 credit):

PSYB30H3 Introduction to Personality

PSYB32H3 Introduction to Clinical Psychology

7. Psychosocial and Psychobiological Breadth (3.0 credits)

Students are required to take 2.0 credits from one group and 1.0 credit from the other group:

Psycho-Social Grouping

[PSYB38H3 or (PSYB45H3) Introduction to Behaviour Modification]

PSYC18H3 The Psychology of Emotion

PSYC35H3 Advanced Personality Psychology

PSYC36H3 Psychotherapy

PSYC39H3 Psychology and the Law

Psycho-Biological Grouping

[PSYB55H3 Introduction to Cognitive Neuroscience or (PSYB65H3) Human Brain and Behaviour]

PSYB64H3 Introduction to Behavioural Neuroscience ~~Physiological Psychology~~

PSYC31H3 Clinical Neuropsychology

PSYC33H3 Neuropsychological Rehabilitation

PSYC62H3 Drugs and the Brain

8. Seminars in Psychology at the D-level (1.0 credit):

0.5 credit must come from the PSY D30-series:

PSYD30H3 Current topics in Personality Psychology

PSYD31H3 Cultural-Clinical Psychology

PSYD32H3 Personality Disorders

PSYD33H3 Current ~~topics~~ **Topics** in Clinical Psychology

PSYD35H3 Clinical Psychopharmacology

PSYD39H3 Cognitive Behavioural Therapy

9. Additional credits in Psychology (1.0 credits)

10. 2.0 credits from the following courses:

HLTB40H3 Health Policy and Health Systems

HLTB41H3 Introduction to the Social Determinants of Health

HLTB42H3 Perspectives of Culture, Illness and Healing

HLTB50H3 Introduction to Health Humanities

(HLTC05H3) Society, Health and Illness

HLTC22H3 Health, Aging, and the Life Cycle

HLTC23H3 Issues in Child Health and Development

HLTC42H3 Emerging Health Issues and Policy Needs

HLTC49H3 Indigenous Health

IDSB04H3 Introduction to International/Global Health

IDSC11H3 Issues in Global and International Health

LINB20H3 Sociolinguistics

PHLA11H3 Introduction to Ethics

PHLB07H3 Ethics

PHLB09H3 Biomedical Ethics

PHLB81H3 Theories of Mind

PHLC07H3 Death and Dying

PHLC10H3 Topics in Bioethics

SOCB22H3 Sociology of Gender

SOCB49H3 Sociology of Family

SOCB50H3 Deviance and Normality I

SOCC49H3 Indigenous Health

Description of Proposed Changes:

1. Enrolment Requirements: Add high school admission requirements (any grade 12 math plus grade 12 Biology).
2. Requirement 7: PSYB64H3 course title change
3. Requirement 10: Add HLTC49H3 and SOCC49H3 as optional courses

Rationale:

1. Data on students currently enrolled in psychology or mental health studies program suggests that students who have completed a grade 12 math or a grade 12 science course perform significantly better in 6 of the department's 9 required courses than when they do not. The data also suggests that a background in biology is particularly useful as preparation for PSY courses. Given this concern, the department is proposing that students entering our programs have a background in one grade 12 math (or equivalent) and grade 12 biology (or equivalent), in addition to English. This change will ensure that the students with the best chance for success are the ones that gain entry to PSY programs.
2. PSYB64H3 course title update is necessary to ensure consistency throughout the Calendar.
3. HLTC49H3 and SOCC49H3 both present relevant and related content to the study of mental health and will provide students with additional C-level options to complete this requirement.

Impact:

The Department of Psychology has worked closely with the Admissions & Student Recruitment Office to ensure all prospective students will be aware of this change well before they apply to university. The change will take into effect Fall 2022 and will not impact current students.

Consultation:

1. DCC Approval: October 2, 2019.
2. High school equivalents Department approvals:
 - Bio Sci Approval: October 18, 2019.
 - CTL Approval: October 9, 2019.
 - CMS Approval: November 18, 2019.

Resource Implications: None.

SPECIALIST PROGRAM IN PSYCHOLOGY (SCIENCE)

Enrolment Requirements:**Enrolment Requirements**

Enrolment in the Program is limited. Students **must complete** ~~may apply to the program after completing~~ a minimum of 4.0 credits, including 1.0 credit in psychology. Admission will require either : (1) a final grade of 75% or higher in both PSYA01H3 and PSYA02H3, or (2) a final grade of 64% or higher in both PSYA01H3 and PSYA02H3, and a final grade of 72% or higher in [PSYB70H3 or (PSYB01H3)] and [PSYB07H3 or equivalent] .

Students are cautioned that effective Fall 2022 , the program will also require the minimum of any Grade 12 U/M high school math course or equivalent (or successful completion of the UTSC Online Mathematics Preparedness Course or equivalent) , as well as Grade 12 U/M high school biology or equivalent (or BIOA11H3 or equivalent) . Please note that these requirements will not be waived.

Application for admission will be made to the Office of the Registrar through ACORN, in April/May and July/August.

Completion Requirements:**Program Requirements**

The Program requires completion of 12.5 credits, including at least 4.0 credits at the C- or D-level, of which at least 1.0 credit must be at the D-level:

1. Introduction to Psychology (1.0 credit)

PSYA01H3 Introduction to Biological and Cognitive Psychology

PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Laboratory Methods (1.5 credits)

[PSYB70H3 Methods in Psychological Science or (PSYB01H3) Psychological Research Laboratory]

PSYC70H3 Advanced Research Methods Laboratory

and

0.5 credit from among the following:

PSYC06H3 Psychophysiology Laboratory

[PSYC71H3 or (PSYC11H3) Social Psychology Laboratory]

[PSYC72H3 or (PSYC26H3) Developmental Psychology Laboratory]

[PSYC74H3 or (PSYC05H3) Human Movement Laboratory]

[PSYC75H3 or (PSYC58H3) Cognitive Psychology Laboratory]

[PSYC76H3 or (PSYC04H3) Brain Imaging Laboratory]

3. Statistical Methods (1.0 credit)

PSYB07H3 Data Analysis in Psychology

[PSYC08H3 Advanced Data Analysis in Psychology or PSYC09H3 Applied Multiple Regression in Psychology]

4. PSYC02H3 Scientific Communication in Psychology (0.5 credit)

5. PSYC85H3 History of Psychology (0.5 credit)

6. Breadth in Psychology at the B-level and C-level (5.0 credits)

Students are required to take 3.0 credits at the B-level or C-level from one of the two content groups listed below and 2.0 credits from the other group:

- (a) Social and Developmental (courses listed in the 10- and 20-series)
- (b) Perception, Cognition and Physiology (courses listed in the 50- and 60-series)

7. Seminars in Psychology at the D-level (1.0 credit)

Students must take 0.5 credit from each grouping below:

- (a) Social and Developmental (courses listed in the 10- and 20-series)
- (b) Perception, Cognition and Physiology (courses listed in the 50- and 60-series)

8. Additional credits in Psychology (2.0 credits)

Of the 2.0 credits, at least 1.0 credit must be at the C-level. Supervised study [PSYC90H3 or PSYC93H3] or thesis [PSYD98Y3] courses may be used to fulfill a maximum of 0.5 credit.

Description of Proposed Changes:

Enrolment Requirements: added high school admission requirements (any grade 12 math plus grade 12 Biology).

Rationale:

Data on students currently enrolled in psychology or mental health studies program suggests that students who have completed a grade 12 math or a grade 12 science course perform significantly better in 6 of the department's 9 required courses than when they do not. The data also suggests that a background in biology is particularly useful as preparation for PSY courses. Given this concern, the department is proposing that students entering our programs have a background in one grade 12 math (or equivalent) and grade 12 biology (or equivalent), in addition to English. This change will ensure that the students with the best chance for success are the ones that gain entry to PSY programs.

Impact:

The Department of Psychology has worked closely with the Admissions & Student Recruitment Office to ensure all prospective students will be aware of this change well before they apply to university. The change will take into effect Fall 2022 and will not impact current students.

Consultation:

1. DCC Approval: October 2, 2019.
2. High school equivalents Department approvals:
 - Bio Sci Approval: October 18, 2019.
 - CTL Approval: October 9, 2019.
 - CMS Approval: November 18, 2019.

Resource Implications: None.

5 New Courses:

NROB61H3: Neurophysiology

Description:

This course focuses on the electrical properties of neurons and the ways in which electrical signals are generated, received, and integrated to underlie neuronal communication. Topics include principles of bioelectricity, the ionic basis of the resting potential and action potential, neurotransmission, synaptic integration, and neural coding schemes. Content will be delivered through lectures, labs, and tutorials.

Prerequisites: NROB60H3; this course is restricted to students in the Specialist/Specialist Co-op and Major programs in Neuroscience

Enrolment Limits: 175

Learning Outcomes:

By the end of this course, a successful learner will be able to:

1. Explain how the properties of ion channels, transporters and receptors contribute to synaptic function and neural communication in neurons
2. Apply their understanding of neurotransmission and biophysical properties to predict what will happen to an excitable cell with a change in electrochemical gradient or synaptic input
3. Understand the core principles of how transmitted signals are integrated within and across neurons to encode and decode sensory information
4. Describe several classic and modern experimental techniques used in neurophysiology and explain how they can be used to address different types of research questions
5. Exercise scientific inquiry by formulating hypothesis-driven questions, designing an appropriate experimental approach, and analyzing neurophysiological data to illustrate results
6. Demonstrate the foundational skills necessary for locating, comprehending, and referencing primary literature relevant to neuroscience
7. Develop strategies for effective scientific communication through written laboratory reports and summaries of primary research articles

Topics Covered:

Lecture topics:

Review of key scientific foundations

Ion channels and signaling

Measuring ion channel conductance

Ionic Basis of the Resting Potential

Ionic Basis of the Action Potential

Sensory Transduction & Neural Coding Schemes

Electrical Signaling and Spread in Neurons

Pre- and Post-synaptic Mechanisms Underlying Synaptic Transmission

Synaptic Integration & Plasticity

Labs:

1. Working with breadboard circuits to model passive and active electrical properties
2. Introduction to extracellular recordings (using cricket tibia and femur)
3. Design an experiment demonstrating sensory coding and the influence of neuromodulators (using cricket cerci ganglion)
4. Introduction to basic analysis of electrophysiology data

Tutorials:

1. Discussion of Paper #1 (special focus on understanding Introduction and Methods sections)
2. Skills Training: conducting effective article searches & how to reference primary sources
3. Discussion of Paper #2 (special focus on understanding Results and Discussion sections)
4. Skills Training: how to appropriately summarize and paraphrase the work of others & effective strategies for writing argumentation

Methods of Assessment:

Evaluations in this course will assess both lecture content and skills developed through labs or tutorials.

1. There will be two-term tests (15% each, total 30%) that assess students on their understanding of material related to the first and second modules, respectively. [LO #1-4]
2. There will be a cumulative final exam (30%) to assess mastery of course content. [LO #1-4]
3. For each week of lab/tutorial, students will be assessed on their understanding of the material and/or skill-developed being covered (2% x 8 weeks, total of 16%). This may come in the form of concept quizzes related to lab/tutorial, submitting discussion questions on article readings, and/or participation-related exercises. [LO #1-7]
4. Students will create a group lab report (15%) that details their experimental design, results, and interpretation of their work conducted in labs #3 and 4. [LO #5, 7]
5. Each student will submit a 1-page summary of a primary article (9%) relating to the topic of “ion channels and disease” to demonstrate skills developed in the tutorial. This assignment will assess their ability to conduct article searches, understand and effectively communicate about primary research, and properly reference their sources. [LO #6, 7]

Mode of Delivery: In Class

Breadth Requirements: Natural Sciences

Rationale:

NROB61H3 has been developed to provide content that is an essential part of neuroscience education in a more cohesive, fulsome manner than it is currently provided, and will be a required course in the Specialist/Specialist Co-op and Major programs in Neuroscience. The skill development integrated into this course has been designed to complement the skill development opportunities found in NROB60H3 and PSYB55H3, which also serve as requirements for all NRO students in the second year. Collectively, this trio of courses will further fortify student knowledge and skills prior to them engaging in upper-level courses, and will also help orient students to major subdisciplines in neuroscience.

Consultation:

DCC Approval: June 12, 2019.

RO Approval: May 28, 2019.

Consultation with Department of Bio Sci: July 3r 2019.

Resources:

The department is currently engaged in a search for tenure stream behavioural neuroscientist. Until the hire is made the course will be taught by Dr. Marie Gadziola, a CLTA in Neuroscience. Resources to support the CLTA have been approved by the Dean's Office (December 2, 2019).

This course requires TA support of approximately 700 hours in order to offer the sufficient number of laboratory and tutorial sections given an estimated enrolment of 175 in the Winter, and approximately 300 hours in order to offer it in the Summer with an estimated enrolment of 75. Resources required to provide this TA support have been approved by the Dean's Office (December 2, 2019).

This course requires an initial budget of approximately \$37,300 to make the necessary space modifications to SW-148 to permit capacity and teaching needs (e.g., removal of cabinetry on one wall, purchasing 4 tables, 16 chairs, and a TV), and includes the \$3300 to purchase supplies needed for 10 functioning "group stations" used for laboratories (e.g. Backyard Brain Neuron SpikerBox Pro kits, replacement recording electrodes, faraday cage material, terrariums and cricket supplies, breadboard circuit materials, voltmeters). The most expensive lab equipment should function for several years, and components susceptible to wear and tear by students are low-cost and relatively easy to replace. Each lab section in the course should only require a maximum of 5 "group stations", so this budget has already incorporated an appropriate buffer of replacement supplies. The Dean has approved a budget of \$34,000 for the space renovations (confirmed, December 2, 2019). The department will cover the cost of course supplies from its base budget, with an ask for an increase as necessary.

PSYB90H3: Supervised Introductory Research in Psychology

Description:

This course provides an introduction to, and experience in, ongoing theoretical and empirical research in any field of psychology. Supervision of the work is arranged by mutual agreement between student and instructor. Students will typically engage in an existing research project within a supervisor's laboratory. Regular consultation with the supervisor is necessary, which will enhance communication skills and enable students to develop proficiency in speaking about scientific knowledge with other experts in the domain. Students will also develop documentation and writing skills through a final report and research journal. This course requires students to complete a permission form obtained from the Department of Psychology. This form must outline agreed-upon work that will be performed, must be signed by the intended supervisor, and returned to the Department of Psychology.

Prerequisites:

PSYA01H3 and PSYA02H3 with at least an 80% average across both courses. A minimum of 4.0 credits [including PSYA01H3 and PSYA02H3] in any discipline, with an average cGPA of 3.0 . A maximum of 9.5 credits completed. Enrolment in a Psychology, Mental Health Studies, Neuroscience or Psycholinguistics program.

Exclusions: ROP299Y, LINB98H3

Recommended Preparation: B-level courses in Psychology or Psycholinguistics

Note:

1. Students receive a half credit spread across two-terms, therefore, the research in this course must take place across two consecutive terms.
2. Priority will be given to students enrolled in a Specialist/Major program in Psychology or Mental health studies, followed by students enrolled in a Specialist/Major program in Neuroscience or Psycholinguistics.
3. Enrolment will depend each year on the research opportunities available with each individual faculty member and the interests of the students who apply.

Learning Outcomes:

Students will gain fundamental research skills and hands-on experience in conducting psychological research. This work enables students to better understand and think about core findings in psychology that they will learn about in subsequent courses at the B-, C-, and D-level, and in particular, prepare students for research projects at the higher levels of the psychology and psycholinguistics programs (e.g., theses, supervised studies). This training will also provide a foundation in hands-on work that will be valuable in graduate school applications. Students will work closely with their faculty supervisor and with other members of each faculty's research group (e.g., other graduate and undergraduate students, postdocs), which will enhance communication skills and enable students to develop proficiency in speaking about scientific knowledge with other experts in the domain. Students will also develop documentation and writing skills through their final report and research journal (see evaluation methods, below).

Topics Covered:

The topics will vary from year to year depending on the research projects that are being pursued by individual faculty members. For example, students could learn how to implement classic psychology experiments such as the Stroop task (name the colour of the font in which a word appears, when some of the words are colour names) to measure cognitive control. Or, students might learn how to build and pilot the use of a new questionnaire for measuring "creativity" under the close supervision of a faculty member. Or, a student may learn how to record and process audio recordings of single words, and then determine how much auditory noise/signal degradation can be employed before the words cannot be heard, in preparation for a speech perception/decision making a study.

In essence, this course aims to put individual students in the shoes of a faculty or senior graduate student and gain basic experience in the day-to-day hands-on work that is done within the field of psychology, with a focus on developing fundamental skills needed to learn more advanced skills in future studies. In contrast to higher-level supervised study offerings, however, this course will involve closer "hands-on" supervision of the day-to-day work of the student by the faculty member and other members of the lab. The scope of the task will be reduced so that students learn about the entire experimental project but hone in to develop proficiency in a narrower portion of the project commensurate with the knowledge and skills of a second-year undergraduate student.

Methods of Assessment:

Before enrolling in the course, the student and supervising faculty member will agree on a marking scheme for the course, which may vary slightly depending on the specific project in question. However, the basic template rubric will comprise the following:

- 1) Evaluation of lab work over the term. This includes attendance and contribution to lab meetings, and conducting research in an efficient, effective and professional manner, including consistent attendance and completion of tasks assigned by the faculty (e.g., recording audio files, running participants). Students will be expected to work at least 6 hours per week in a research lab (or on lab-related tasks in the field) 40% of the grade.
- 2) Research journal. Each student is expected to keep a research journal to record their activities every week, including lab hours, tasks and progress, research ideas, challenges encountered in their work, and comments on discussions held with other lab members regarding the research project. This journal will also include step-by-step tutorials that explain how they complete each task that they are assigned suitable for use in educating other students on the technique. 20% of total grade
- 3) Final Report. Students will provide a summary report on the skills that they acquired and how the project advanced as a result of their contributions to the lab. 20% of the final mark.

Breadth Requirements: Social & Behavioural Sciences

Rationale:

The provincial Ministry of Education has recently encouraged universities to increase their offerings of "experiential learning" opportunities. This course is designed to bring students into the psychological research community early on in their undergraduate careers to give them foundational skills in the field and to give them hands-on experience that can help inform them of how psychology as a field develops. These skills will not only provide a deeper appreciation of Psychology, but will provide an excellent experiential opportunity for students to consider careers and advanced training related to linguistics. This new course will also help students gain hands-on experience early on in their undergraduate career that can help inform whether they choose to become specialists or majors in psychology. This will complement the department's broader curriculum mapping initiative and revisions to the prerequisite requirements so as to encourage students to specialize early on, potentially starting even in the second semester of their second year of study.

Consultation:

DCC Approval: May 2019.

RO Approval: September 13, 2019

Resources:

Faculty in the psychology department at UTSC will offer this course to individual students. Offering this course will not impact their regular teaching load. No additional resources are necessary.

PSYC53H: Cognitive Neuroscience of Memory

Description:

An exploration of how the brain supports different forms of memory, drawing on evidence from electrophysiological, patient neuropsychological and neuroimaging research. Topics include short-term working memory, general knowledge of the world (semantic memory), implicit memory, and memory for personally experienced events (episodic memory).

Prerequisites: [PSYB55H3 or (PSYB65H3) if taken in Fall 2017 or Summer 2018)] and [(PSYB01H3) or (PSYB04H3) or PSYB70H3] and [PSYB07H3 or STAB22H3 or STAB23H3]

Exclusions: PSY372H

Recommended Preparation: PSYB57H3

Enrolment Limits: 100

Note:

Priority will be given to students in the Specialist/Specialist Co-op program in Neuroscience, and the Specialist/Specialist Co-op/Major programs in Psychology and Mental Health Studies. Students in the Minor in Psychology will be admitted as space permits.

Learning Outcomes:

Upon completing the proposed course, students should be able to

- 1) Differentiate between different types of memory and how they underlie everyday behaviour.
- 2) Understand how different brain regions and brain networks sub serve different forms of memory.
- 3) Appreciate how a range of experimental approaches have contributed to our understanding of memory and how these approaches complement one another.
- 4) Evaluate cognitive neuroscientific theories of memory on the basis of experimental data.
- 5) Navigate, consume and critically evaluate primary literature pertaining to the cognitive neuroscience of memory, including experimental articles, reviews, and opinion pieces.
- 6) Communicate scientific ideas and arguments relating to the cognitive neuroscience of memory in written form.

Topics Covered:

There will be ten lectures, each covering a different topic:

- 1) Introduction to the Cognitive Neuroscience of Memory
 - Overview of the field and its relevance to basic and clinical neuroscience.
 - Fundamentals of human brain anatomy and methodology central to the cognitive neuroscience of memory.
- 2) Working Memory
 - Neural mechanisms underlying the online storage and manipulation of short-term memories.
- 3) Implicit Memory
 - Neural mechanisms underlying memory processing in the absence of awareness.
- 4) Semantic Memory
 - Neural mechanisms underlying our general knowledge of the world.
 - Semantic memory disorders.
- 5) Episodic Memory: What
 - The importance of object information in memories for past events.
 - Neural mechanisms of object memory.
- 6) Episodic Memory: Where
 - The importance of spatial information in memories for past events.
 - Neural mechanisms of spatial memory and navigation.
- 7) Episodic Memory: When
 - The importance of temporal information in memories for past events.
 - Neural mechanisms of different facets of temporal memory including order and duration memory.
- 8) Autobiographical Memory
 - Episodic memory in the real world: neural bases of memories of personal experiences and future thinking.
 - Autobiographical memory disorders.
- 9) Emotional Memory
 - How motivation (e.g. reward and punishment) impacts memory processing and its underlying mechanisms.

- Mood disorders: when emotional memories go awry.
- 10) Memory Consolidation
- The neural mechanisms underlying the consolidation of memories.
 - The importance of sleep.
 - How memory consolidation can be disrupted.

Methods of Assessment:

Students will be assessed as follows:

1) Two in-class mid-term tests (20% each, 40% total)– Learning Outcomes 1, 2, 3, 4, and 5.

The first mid-term will cover the content in the first four lectures, while the second mid-term will cover the content in the fifth to seventh lectures of the course. Each mid-term will consist of multiple choice and short answer questions that will either assess students’ knowledge of the material (e.g. ‘what is episodic memory?’) or their understanding of the material and ability to apply their knowledge of the material (e.g. ‘how does episodic memory draw on elements from other forms of memory?’).

2) A final cumulative examination (30%) – Learning Outcomes 1, 2, 3, 4, 5, and 6.

This exam will be composed of two sections. The first will contain a short multiple choice and short answer question section (similar in style to those in the mid-term tests) covering lectures eight to ten. In the second section, students will be asked to write two essays based on content covered in lectures two to ten. They will be given a choice of seven questions (one on each lecture topic) and will be required to choose and answer one of these.

3) Two critical analysis assignments (10% and 20% each, 30% total)– Learning Outcomes 2, 3, 4, 5, and 6.

During the course of the term, each student will be asked to write two short critical analysis papers, each on an instructor-selected primary research article. For each assignment, students will be required to write a summary and short critique of the article. A detailed rubric will be used to score students work on the criteria presented to students.

Breadth Requirements: Natural Sciences

Rationale:

The goal of PSYC53H3 is to provide students with an understanding of how the brain supports different forms of memory that underlie everyday behaviour. This course will join the PSYC50H3s Cognitive Neuroscience series of courses, which provide insight into a range of fundamental cognitive domains from a cognitive neuroscientific perspective, including PSYC51H3, PSYC52H3, PSYC57H3, and PSYC59H3. The PSYC50s Cognitive Neuroscience courses form an important component of the Psychology program. Currently, there are no second or third-year courses in Psychology or Neuroscience programs at UTSC that are devoted exclusively to memory and as such, PSYC53H3 will be unique and add much-needed instruction on a core domain of cognition at UTSC.

Consultation:

DCC Approval: September 19, 2019

RO Approval: July 8th, 2019

Resources:

This course will be taught by Andy Lee, an Associate Professor in the Department of Psychology, as part of his regular teaching load.

Additional T.A. support will be required and will be covered by the Department's existing budget. There are no other exceptional infrastructural or space requirements for the proposed course.

PSYD10H3: Community and Applied Social Psychology

Description:

This course examines the applications of social psychological theory and research to understand and address social issues that affect communities. In doing so the course bridges knowledge from the areas of social psychology and community psychology. In the process, students will have the opportunity to gain a deeper understanding of how theories and research in social psychology can be used to explain everyday life, community issues, and societal needs and how, reciprocally, real-life issues can serve to guide the direction of social psychological theories and research.

Prerequisites: PSYB10H3 and [0.5 credit at the C-level from PSY courses in the 10-series or 30-series] and [PSYB70H3 or (PSYB01H3) or (PSYB04H3)] and [PSYB07H3 or STAB22H3 or STAB23H3]

Exclusions:

PSYD15H3 (if taken in Spring or Fall 2019)

Enrolment Limits: 24

Learning Outcomes:

Foundational knowledge

1. Recognize the value of using the theories and research of social psychology to explain everyday life, community issues, and societal needs and the value of using real-life issues to guide the direction of social psychological theories and research.
2. Integrate and apply theories and research in social psychology to explain how the communities in which we live, attend school, work, travel, and interact shape beliefs, values, identities, relationships, and worldviews.
3. Apply principles of intersectionality theory to understand and examine how Indigenous, racial, cultural, ethnic, gender, sexual, social class, dis/ability, and other identities influence communities and community members, especially with respect to issues of colonization, power, privilege, and discrimination.

Values and ethics

4. Explain how to apply social psychological theory, research, and principles to promote social justice, activism, and empowerment that advances civic, social, and community outcomes that benefit communities and address pressing societal needs.
5. Identify the values of community and applied social psychology and discuss the ethical considerations of community research, intervention, and assessment, especially in relation to the guiding value of “nothing about us without us” and in consideration of documents such as the Canadian Psychological Association’s (CPA) response to the Truth and Reconciliation Commission (TRC).

Research, Intervention, and Evaluation

6. Explain how social psychology can inform the development of community research, intervention, and evaluation, and provide examples from within our own communities.
7. Critically evaluate the value, applicability, and limitations of various approaches to research, intervention, and evaluation when it comes to applying the theories, research, and principles of social psychology within community contexts.
8. Propose and justify appropriate research, interventions, and/or evaluations that could facilitate social change in applied and community settings.

Personal growth

9. Appreciate the importance of developing critical consciousness and cultural humility in order to respond authentically to the ever-changing complexities of community work, especially in regards to promoting cultural safety and empowerment when interacting with peoples of diverse backgrounds, abilities, and cultural perspectives.
10. Reflect on how you can apply your knowledge of psychology to pursue personal opportunities to promote civic, social, and global outcomes that benefit the people living within your own communities.

Topics Covered:

1. Defining social psychology in a community context
2. Understanding professional and scientific values and ethics in a community context
3. Studying social psychology at multiple levels of analysis
4. Integrating theory, research, and practice
5. Research, intervention, and evaluation
6. Self-advocacy and social change

Methods of Assessment:

The learning objectives of this seminar-style course will be supported through a variety of participation and reflection assignments, as well as through a community-based inquiry project that students will work on throughout the term.

EXAMPLE: For the community-based inquiry project, students could pick a real or imaginary community partner (e.g., a social service agency, association, hospital, advocacy group, etc.) and identify a topic of social psychological interest that would be central to members of the community served by that partner. Work on the project could unfold over several progress reports that would correspond with the topics that are being discussed in class each week. Students could also be responsible for giving at least one oral presentation on a ‘challenging’ aspect of their topic with the goal of receiving feedback from their peers on how to potentially address that challenge within their papers. The project will wrap-up with the submission of a final written report. An example distribution of the course assessments that could be associated with this project is outlined below:

Progress reports (30%)

- Progress report 1 (10%): Who is the community partner and why does this partner interest you? What are the primary goals of this community partner? What is the social-ecological context in which this community partner operates?
- Progress report 2 (10%): What is a key topic or issue of interest to members of this community? How do social psychological theory and research inform this topic/issue?
- Progress report 3 (10%): What is an actionable recommendation that arises from the social psychological theory and research in relation to this topic/issue? How could this recommendation be put into practice and its effectiveness

evaluated within an applied community context?

Oral presentation (15%)

Participation (15%). Students are expected to actively participate in all course discussions and activities.

Final written report (40%). Integrate the feedback that you received on your project from our class discussions, progress reports, and the oral presentation and use this information to build on your progress reports to write a final written report for your project. The final report must include the following sections:

- Community profile: Identify the community partner and its goals and discuss the social-ecological context in which your community partner operates. Identify a key issue/topic that affects this community that will be the core focus of your paper.
- Literature review. Provide a literature review on the identified issue/topic that summarizes the psychological theories and research related to this topic.
- Recommendation. Identify at least one actionable recommendation or intervention that arises from the social psychological theory and research. Discuss how this recommendation or intervention be put into practice. Outline how the effectiveness of this recommendation/intervention could be evaluated within an applied community context.
- Reflection. Reflect on what you personally gained or learned as a consequence of writing this paper. How has writing this paper changed your own approach to self-advocacy and social change? How has it shaped your perceptions of the community and/or topic that you researched?

Breadth Requirements: Social & Behavioural Sciences

Rationale:

This new course will create more D-level opportunities for students enrolled in the Mental Health and Psychology programs, especially those who are enrolled as majors. PSYD10H3 will create more course options for students interested in social service type professions by providing students an opportunity to reflect on the potential applications of psychology in social service and community sectors, which may be particularly important for students in the Major and Specialist programs who do not have an opportunity to formally pursue a co-op program option.

Consultation:

DCC Approval: September 19, 2019

RO Approval: June 27, 2019

Resources: This course will be taught by Kosha Bramesfeld, an Assistant Professor in the Department of Psychology, as part of her regular teaching load. No additional resources are required.

PSYD52H3: Neural Network Models of Cognition Laboratory

Description:

This course provides an overview of neural-network models of perception, memory, language, knowledge representation, and higher-order cognition. The course consists of lectures and a lab component. Lectures will cover the theory behind the models and their application to specific empirical domains. Labs will provide hands-on experience running and analyzing simulation models.

Prerequisites: [0.5 credit at the C-level in PSY 50-series courses] and [(PSYB01H3) or (PSYB04H3) or PSYB70H3] and [PSYB07H3 or STAB22H3 or STAB23H3]

Recommended Preparation: [PSYB03H3 or CSCA08H3 or CSCA20H3] and [MATA23H3 and [MATA29H3 or MATA30H3]]

Enrolment Limits: 24

Learning Outcomes:

Upon completing the proposed course, students should be able to:

- 1) Understand and extend the breadth of knowledge regarding how neural network models learn from experience and can be used to simulate psychological phenomena, and, understand the range of topics to which neural network models have been applied in psychology and cognitive science.
- 2) Differentiate between different neural network architectures and learning algorithms and state the strengths and weaknesses of each.
- 3) Evaluate the effectiveness of a model in accounting for data and/or discriminating among theories of cognition.
- 4) Locate, consume and critically evaluate primary literature pertaining to the use of neural network models in the study of cognition.
- 5) Communicate scientific ideas and arguments relating to the use of neural network models in cognition in written,

oral, and algorithmic form.

6) Foster critical thinking and creativity through in-class discussions and the formulation and execution of a final project.

These course learning outcomes link to the program learning outcomes as follows:

- Develop fundamental knowledge from the core domains of math and science that provide a critical foundation for psychology and neuroscience (1, 2, 3).
- Develop knowledge within the major subdisciplines of psychology and neuroscience and appreciate the complementary nature of these approaches (1).
- Develop the ability to understand, recognize, and implement a variety of methodological approaches in neuroscience research (1, 2).
- Develop and apply statistical knowledge to evaluate data, generate plausible interpretations, and plan future analyses (3, 4)
- Develop fundamental skills with computer programming to strengthen logical thinking and problem-solving, and the ability to create experimental paradigms and to process data (3, 6).
- Navigate and consume primary literature in psychology and neuroscience, and identify, articulate, and address gaps in knowledge (4, 5).
- Develop a robust set of strategies for effective communications in a variety of contexts (5).

Topics Covered:

Lectures and labs will cover a number of topics, including the history of the use of neural networks in psychology and neuroscience, exposure to the math behind several key learning algorithms that are commonly used to train neural networks, how to implement the architectures and algorithms in Python, how to perform simple analyses of simulations in Python and R, and detailed analysis of key papers in the field exploring how neural network models have been used to shine light on cognitive phenomena.

Learning algorithms and neural network architectures to be covered will include: Hebbian learning, backpropagation, self-organizing learning, feedforward networks, recurrent networks, and deep learning.

Applications of how neural networks can be used to explore cognitive phenomena will include:

1. Memory
2. Semantic Cognition
3. Word Recognition
4. Language Processing & Syntax
5. Cognitive Control

Methods of Assessment:

1) Three lab assignments– Learning Outcomes 2, 4, 5, and 6. (30%)

Students will complete 3 lab assignments that will test their understanding of how to implement and test a specific neural network model of cognition. Assignments will be scaffolded so as to build on concepts discussed in class and skills developed in the labs, and then extend those concepts and skills for the students to produce novel results, developing their understanding of how models can be used to stimulate cognition.

2) A final cumulative examination – Learning Outcomes 1, 2, 3, 4, 5, and 6. (30%)

The exam will be comprised of short answer questions designed to probe the understanding of the key conceptual issues discussed in the course.

3) A final project – Learning Outcomes 2, 3, 5, and 6. (40%)

Students will implement and test their own neural network model of cognition, and report the results in a 6-page paper using the format for submission to the Annual Meeting of the Cognitive Science Society. Students will be required in the paper to provide a short literature review motivating the simulation, report on the methods used in the simulation, and report the results and conclusions derived from those results. 5% of this 40% will be based on an oral presentation of their project proposal.

Breadth Requirements: Natural Sciences

Rationale:

This course is designed to provide psychology and neuroscience students with a hands-on introduction to how neural network models can be used to explore and understand cognition. Computer science has witnessed an increase of interest in machine learning and deep learning neural network methods in the last 5 years, and this has served into an interest in neural network modelling in psychology and neuroscience. This course will provide students in these fields with the fundamental skills required to understand and implement some of these new techniques at the D-level, with a clear focus on how they can be used to understand how the brain gives rise to cognition. Upon completion of the course, students will have the skills required to implement neural network models, and will have some of the skills required to perform simple analyses of the workings of those models, with pointers to how to develop those skills if interested. Students will also be better able to read

primary literature that includes neural network modeling, and will develop basic skills in assessing whether or not models have been used appropriately to explain patterns in behavioural and/or neuroimaging data, and to discriminate among competing theories.

Consultation:

DCC Approval: September 19, 2019

RO Approval: May 1, 2018

Resources: This course will be taught by George Cree, a full-time associate professor in the Department of Psychology, as part of his regular teaching load. There are no other additional resources required for this course.