FOR APPROVAL **PUBLIC** **OPEN SESSION**

TO:	UTSC Academic Affairs Committee
SPONSOR:	Prof. Karin Ruhlandt, Vice-Principal Academic and Dean
CONTACT INFO:	416-208-7027, vpdean.utsc@utoronto.ca
PRESENTER:	Prof. Katie Larson, Vice-Dean Teaching, Learning & Undergraduate Programs
CONTACT INFO:	(416) 208-2978, vdundergrad.utsc@utoronto.ca
DATE:	February 06, 2025
AGENDA ITEM:	6

ITEM IDENTIFICATION:

Minor Modifications: Undergraduate Curriculum Changes, Sciences UTSC (For approval)

JURISDICTIONAL INFORMATION:

The UTSC 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 AAC 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 and 3.3).

GOVERNANCE PATH:

1. **UTSC Academic Affairs Committee [For Approval] (February 06, 2025)**

PREVIOUS ACTION TAKEN:

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

HIGHLIGHTS:

This package contains minor modifications to the undergraduate curriculum submitted by the UTSC Sciences academic units listed below. These changes require governance approval. Minor modifications are defined as adjustments that do not substantially alter program or course learning outcomes but may

involve modest changes to the structure of a program or course. Upon approval, these updates will be implemented for the 2025-2026 academic year.

- Department of Psychology (Report: Undergraduate Minor Curriculum Modifications Sciences for Approval)
    - 9 Program Changes:
        - SCMAJ1472C: MAJOR (CO-OPERATIVE) PROGRAM IN NEUROSCIENCE (SCIENCE)
        - SCMAJ1472: MAJOR PROGRAM IN NEUROSCIENCE (SCIENCE)
        - SCSPE1160N: SPECIALIST (CO-OPERATIVE) PROGRAM IN MENTAL HEALTH STUDIES (SCIENCE)
        - SCSPE1272C: SPECIALIST (CO-OPERATIVE) PROGRAM IN NEUROSCIENCE - Cellular/Molecular Stream (SCIENCE)
        - SCSPE1172C: SPECIALIST (CO-OPERATIVE) PROGRAM IN NEUROSCIENCE - Cognitive Stream (SCIENCE)
        - SCSPE1372C: SPECIALIST (CO-OPERATIVE) PROGRAM IN NEUROSCIENCE - Systems/Behavioural Stream (SCIENCE)
        - SCSPE1272: SPECIALIST PROGRAM IN NEUROSCIENCE - Cellular/Molecular Stream (SCIENCE)
        - SCSPE1172: SPECIALIST PROGRAM IN NEUROSCIENCE - Cognitive Stream (SCIENCE)
        - SCSPE1372: SPECIALIST PROGRAM IN NEUROSCIENCE - Systems/Behavioural Stream (SCIENCE)
    - 1 New Course:
        - PSYB83H3: Psychology and Videogames
    - 2 Course Changes:
        - PSYB03H3: Introduction to Computers in Psychological Research
        - PSYC03H3: Computers in Psychological Research: Advanced Topics
        - PSYC90H3 Supervised Study in Psychology
        - PSYC93H3 Supervised Study in Psychology

FINANCIAL IMPLICATIONS:

There are no significant financial implications to the campus operating budget.

RECOMMENDATION:

Be It Resolved:

THAT the proposed Sciences undergraduate curriculum changes for the 2025-26 academic year, as detailed in the respective curriculum report, be approved.

DOCUMENTATION PROVIDED:

1. Report - Undergraduate Minor Curriculum Modifications Sciences for Approval

University of Toronto Scarborough
2025-26 Curriculum Cycle
Undergraduate Minor Curriculum Modifications Sciences for Approval
February 06, 2025

Psychology (UTSC), Department of

9 Minor Program Mod Full Reviews

SCMAJ1472C: MAJOR (CO-OPERATIVE) PROGRAM IN NEUROSCIENCE (SCIENCE)

Description:

Previous:
Academic Program Advisor: psychundergrad.utsc@utoronto.ca
Co-op Program Coordinator: coopsuccess.utsc@utoronto.ca

The Major 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.

New:

Academic Program Advisor: psychundergrad.utsc@utoronto.ca
Co-op Program Coordinator: coopsuccess.utsc@utoronto.ca

The Major 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 may not combine a Neuroscience Major program with a Minor program from the Department of Biological Sciences. Students who wish to combine the Major in Neuroscience with another Major from the Department of Psychology or Department of Biological Sciences are advised to pay careful attention to the 12.0 distinct credits requirement to receive a certification of the completion of both programs. Consultation with the respective Program Supervisors in the selection of credits is recommended. For more information, see the Degree Requirements section in the UTSC *Calendar*.

Enrolment Requirements:

Previous:
Enrolment in the program is limited. Students may apply after completing a minimum of 4.0 credits including: BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3. Admission to this program requires a CGPA of 2.5 or higher.

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 for this program.

Prospective Co-op Students:
Prospective Co-op students (i.e., those not yet admitted to a Co-op Degree POSt) must submit a program request on ACORN, and meet the minimum qualifications noted above. Deadlines follow the Limited Enrolment Program Application Deadlines set by the Office of the Registrar each year. Failure to submit the program request on ACORN will result in that student's application not being considered.

New:

Enrolment in the Program is limited. The admission requirements may change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enrol in backup programs.

The minimum requirements to be considered for admission are: Completion of 4.0 credits including BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3, and a CGPA of 2.5 or higher.

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Description of Proposed Changes:
1. Program description: adding clarifying language to about allowed program combinations. 2. Enrolment requirements: updating language to clarify that spaces in the program are limited.

Rationale:
1. There is significant overlap between the Neuroscience Major and Biology Minor, so this particular program combinations is being disallowed.
2. Capacity in the neuroscience programs is limited by the number of available spaces in our laboratory courses. The department has added additional language (modelled after similar statements from UTSC Computer Science programs) stating that enrollment requirements may vary year-to-year depending on available spaces and the pool of eligible applicants. The department hopes to continue to admit all students who meet the minimum enrolment thresholds, however, as the program becomes more popular, this language provides a safety net in place to ensure capacity is not exceeded.

Impact: None

Consultations: Psychology DCC approvals on Oct 10 and Oct 23, 2024

Resource Implications: None

Proposal Status: Under Review

SCMAJ1472: MAJOR PROGRAM IN NEUROSCIENCE (SCIENCE)

Completion Requirements:

Previous:
Program Requirements
Students must complete a total of 8.5 credits.

1. Scientific Foundations (3.0 credits)
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 or CHMA12H3 Advanced General Chemistry]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.5 credits)
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
[PSYB07H3 Data Analysis in Psychology or STAB22H3 Statistics I]

3. Advanced Foundations (1.5 credits)
at least 1.0 credit must be taken from:
NROC34H3 Neuroethology
NROC36H3 Molecular Neuroscience
NROC61H3 Learning and Motivation
NROC64H3 Sensorimotor Systems
NROC69H3 Synaptic Organization and Physiology of the Brain

the remaining 0.5 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)
BIOD06H3 Advanced Topics in Neural Basis of Motor Control
BIOD07H3 Advanced Topics and Methods in Neural Circuit Analysis
BIOD19H3 Epigenetics in Health and Disease
BIOD45H3 Animal Communication
BIOD65H3 Pathologies of the Nervous System
NROD08H3/BIOD08H3 Theoretical Neuroscience*
NROD60H3 Current Topics in Neuroscience
NROD61H3 Emotional Learning Circuits
NROD66H3 Drug Addiction
NROD67H3 Neuroscience of Aging
NROD98Y3 Thesis in Neuroscience
PSYD62H3 Neuroscience of Pleasure and Reward
PSYD66H3 Current Topics in Human Brain and Behaviour

*Note: NROD08H3 has a calculus prerequisite that is not part of this program. Students interested in this course should plan accordingly.

New:
Program Requirements
Students must complete a total of 8.5 credits.

1. Scientific Foundations (3.0 credits)
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 *or* CHMA12H3 Advanced General Chemistry]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.5 credits)
BIOB10H3 Cell Biology
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
PSYB70H3 Methods in Psychological Science
[PSYB07H3 Data Analysis in Psychology *or* STAB22H3 Statistics I]

3. Advanced Foundations (1.5 credits)
at least 1.0 credit must be taken from:
BIOC44H3/(NROC34H3) Neuroethology
NROC36H3 Molecular Neuroscience
NROC61H3 Learning and Motivation
NROC64H3 Sensorimotor Systems
NROC69H3 Synaptic Organization and Physiology of the Brain

the remaining 0.5 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)
one of the following:
BIOD06H3 Advanced Topics in Neural Basis of Motor Control
BIOD07H3 Advanced Topics and Methods in Neural Circuit Analysis
BIOD08H3/(NROD08H3) Theoretical Neuroscience*
BIOD45H3 Animal Communication
BIOD65H3 Pathologies of the Nervous System
NROD60H3 Current Topics in Neuroscience
NROD61H3 Emotional Learning Circuits
NROD66H3 Drug Addiction
NROD67H3 Neuroscience of Aging
NROD98Y3 Thesis in Neuroscience
PSYD62H3 Neuroscience of Pleasure and Reward
PSYD66H3 Current Topics in Human Brain and Behaviour

*Note: BIOD08H3/(NROD08H3) has a calculus prerequisite that is not part of this program. Students interested in this course should plan accordingly.

Description:

Previous:
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 the Degree Requirements section in the UTSC *Calendar*. Consultation with the respective Program Supervisors in the selection of credits is recommended.

New:
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 may not combine a Neuroscience Major program with a Minor program from the Department of Biological Sciences. Students who wish to combine the Major in Neuroscience with another Major from the Department of Psychology or Department of Biological Sciences are advised to pay careful attention to the 12.0 distinct credits requirement to receive a certification of the completion of both programs. Consultation with the respective Program Supervisors in the

selection of credits is recommended. For more information, see the Degree Requirements section in the UTSC *Calendar*.

Enrolment Requirements:

Previous:
Enrolment in the program is limited. Students may apply after completing a minimum of 4.0 credits including: BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3. Admission to this program requires a CGPA of 2.0 or higher. Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

New:
Enrolment in the Program is limited. The admission requirements may change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enrol in backup programs.

The minimum requirements to be considered for admission are: Completion of 4.0 credits including BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 *or* CHMA12H3], PSYA01H3, and PSYA02H3, and a CGPA of 2.0 or higher.

Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Description of Proposed Changes:
1. Description: adding clarifying language about allowed program combinations.
2. Enrolment Requirements: clarify that spaces in the program are limited.
3. Requirement 2: removing retired PSYB65H3 as optional course to PSYB55H3
4. Requirement 3: NROC34H3 renumbered to BIOC44H3
5. Requirement 4: removing BIOD19H3 as an optional course and indicating the retirement of NROD08

Rationale:
1. There is significant overlap between the Neuroscience Major and Biology Minor, so this particular program combinations is being disallowed.
2. Capacity in the neuroscience programs is limited by the number of available spaces in laboratory courses. Added a statement that enrollment requirements may vary year-to-year depending on available spaces and the pool of eligible applicants. The department hopes to continue to admit all students who meet the minimum enrolment thresholds, however, as the program becomes more popular, they need this safety net in place to ensure we do not to exceed our capacity.
3. PSYB65 has been retired for more than five years. Removing this code from the program to de-clutter.
4. The NROC34H3 course is double numbered with BIOC44H3. The Department of Biological Sciences has decided to remove the double numbering and only have BIOC44H3 active
5. The Department of Biological Sciences cannot continue to accommodate Neuroscience students in BIOD19H3 so this course has been removed as an option.

Impact: None

Consultations:
Dept. of Biological Sciences consultation: Sept 2024.
Psychology DCC approvals on Oct 10 and Oct 23, 2024.

Resource Implications: None

Proposal Status: Under Review

SCSPE1160N: SPECIALIST (CO-OPERATIVE) PROGRAM IN MENTAL HEALTH STUDIES (SCIENCE)

Completion Requirements:

Previous:
Academic 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 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
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. PSYB55H3 Introduction to Cognitive Neuroscience (0.5 credit)

8. Psychosocial and Psychobiological Breadth (2.5 credits)
Students are required to take 1.5 credits from one group and 1.0 credit from the other group:

Psycho-Social Grouping
PSYB38H3/(PSYB45H3) Introduction to Behaviour Modification
PSYC15H3 Foundations in Community Psychology
PSYC17H3 Meeting Minds: The Psychology of Interpersonal Interactions
PSYC18H3 The Psychology of Emotion
PSYC30H3/(PSYC35H3) Advanced Personality Psychology
PSYC34H3 Happiness and Meaning
PSYC36H3 Psychotherapy
PSYC39H3 Psychology and the Law

Psycho-Biological Grouping
PSYB64H3 Introduction to Behavioural Neuroscience
PSYC31H3 Neuropsychological Assessment
(PSYC33H3) Neuropsychological Rehabilitation
PSYC38H3 Adult Psychopathology
PSYC62H3 Drugs and the Brain

9. Seminars in Psychology at the D-level (1.0 credit):
All PSY D-level courses are considered "seminars," with the exception of PSYD98Y3. Student must take 1.0 credit of seminars in Psychology at the D-level, of which 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 in Clinical Psychology
PSYD35H3 Clinical Psychopharmacology
PSYD37H3 Social Context of Mental Health and Illness
PSYD39H3 Cognitive Behavioural Therapy

10. An additional credit in Psychology at the B-level or higher (0.5 credit)

11. 2.0 credits from the following courses:
BIOC70H3 An Introduction to Bias in the Sciences
HLTA91H3 A Health Campus for Students: Prioritizing Mental Health
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
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 Program Requirements
Students must satisfactorily complete Co-op work term(s) as follows: three 4-month work terms, one 4-month work term and one 8-month work term, or one 12-month work term.

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 7.0 credits, achieve a cumulative GPA of 2.5 or higher, and complete COPB50H3 and COPB51H3. It is strongly recommended that PSYB07H3, PSYB32H3, PSYB55H3, and PSYB70H3 be completed before the first work term, and, PSYC02H3, [PSYC08H3 or PSYC09H3], and PSYC70H3 be completed before the second work term.

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 requires that students take courses during at least one Summer semester.

Co-op Course Requirements
In addition to their academic program requirements, Co-op students complete the following Co-op specific courses as part of their degree:

- Co-op Preparation courses: COPB50H3 and COPB51H3 (completed in first year)
- Work Term Search courses: COPB52H3 (semester prior to first work term), COPC98H3 (semester prior to second work term), and COPC99H3 (semester prior to third work term)

- Co-op Work Term courses: COPC40H3 (each semester a student is on work term)

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 must be completed in sequence, and fall into three categories: Co-op Preparation courses (COPB50H3 & COPB51H3) are completed in first year, and cover a variety of topics intended to assist students in developing the skills and tools required to secure a work term; Work Term Search Courses (COPB52H3, COPC98H3, & COPC99H3) are completed in the semester prior to each work term, and support students while competing for work terms that are appropriate to their program of study, as well as preparing students for the transition into and how to succeed the workplace; Co-op Work Term courses (COPC40H3) are completed during each semester that a student is on work term, and support students' success while on work term, as well as connecting their academics and the workplace experience.

Co-op courses 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.

For information on fees, status in Co-op programs, and certification of completion of Co-op programs, see the Co-operative Programs section and the Arts and Science Co-op section in the UTSC *Calendar*.

New:
Academic 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 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
PSYC37H3 Psychological Assessment
PSYC70H3 Advanced Research Methods Laboratory
PSYC73H3 Wellness and Resilience 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. PSYC01H3/(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. PSYB55H3 Introduction to Cognitive Neuroscience (0.5 credit)

8. Psychosocial and Psychobiological Breadth (2.5 credits)
Students are required to take 1.5 credits from one group and 1.0 credit from the other group:

Psycho-Social Grouping
PSYB38H3 Introduction to Behaviour Modification
PSYC15H3 Foundations in Community Psychology
PSYC17H3 Meeting Minds: The Psychology of Interpersonal Interactions
PSYC18H3 The Psychology of Emotion
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PSYD32H3 Personality Disorders
PSYD33H3 Current Topics in Clinical Psychology
PSYD35H3 Clinical Psychopharmacology
PSYD37H3 Social Context of Mental Health and Illness
PSYD39H3 Cognitive Behavioural Therapy

10. Additional credits in Psychology at the B-level or higher (1.0 credit)
Supervised study [PSYB90H3 *or* PSYC90H3 *or* PSYC93H3] *or* thesis [PSYD98Y3] courses may be used to fulfill a maximum of 0.5 credit.

11. 1.5 credits from the following courses:
BIOC70H3 An Introduction to Bias in STEMM (Science, Technology, Engineering, Mathematics and Medicine)
HLTA91H3 A Health Campus for Students: Prioritizing Mental Health
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
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
PHLB18H3 Ethics of Artificial Intelligence
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 Program Requirements
Students must satisfactorily complete Co-op work term(s) as follows: three 4-month work terms, one 4-month work term and one 8-month work term, or one 12-month work term.

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 7.0 credits, achieve a cumulative GPA of 2.5 or higher, and complete COPB50H3 and COPB51H3. It is strongly recommended that PSYB07H3, PSYB32H3, PSYB55H3, and PSYB70H3 be completed before the first work term, and, PSYC02H3, [PSYC08H3 or PSYC09H3], and PSYC70H3 be completed before the second work term.

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 requires that students take courses during at least one Summer semester.

Co-op Course Requirements
In addition to their academic program requirements, Co-op students complete the following Co-op specific courses as part of their degree:

- Co-op Preparation courses: COPB50H3 and COPB51H3 (completed in first year)
- Work Term Search courses: COPB52H3 (semester prior to first work term), COPC98H3 (semester prior to second work term), and COPC99H3 (semester prior to third work term)
- Co-op Work Term courses: COPC40H3 (each semester a student is on work term)

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 must be completed in sequence, and fall into three categories: Co-op Preparation courses (COPB50H3 & COPB51H3) are completed in first year, and cover a variety of topics intended to assist students in developing the skills and tools required to secure a work term; Work Term Search Courses (COPB52H3, COPC98H3, & COPC99H3) are completed in the semester prior to each work term, and support students while competing for work terms that are appropriate to their program of study, as well as preparing students for the transition into and how to succeed the workplace; Co-op Work Term courses (COPC40H3) are completed during each semester that a student is on work term, and support students' success while on work term, as well as connecting their academics and the workplace experience.

Co-op courses 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.

For information on fees, status in Co-op programs, and certification of completion of Co-op programs, see the Co-operative Programs section and the Arts and Science Co-op section in the UTSC *Calendar*.

Enrolment Requirements:

Previous:
Enrolment Requirements
Enrolment in the Program is limited. Admission will require:
(a.) completion of any Grade 12 U/M high school math course or equivalent (or successful completion of the UTSC Online Mathematics Preparedness Course or equivalent), and
(b.) completion of Grade 12 U/M high school biology or equivalent (or BIOA11H3 or equivalent), and
(c.) completion of a minimum of 4.0 credits, including 1.0 credit in Psychology, and
(d.) a cumulative GPA of at least 2.75, and
(e.) 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 [PSYB07H3 or equivalent] and PSYB70H3.

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:
Prospective Co-op students (i.e., those not yet admitted to a Co-op Degree POSt) must submit a program request on ACORN, and meet the minimum qualifications noted above. Deadlines follow the Limited Enrolment Program Application Deadlines set by the Office of the Registrar each year. Failure to submit the program request on ACORN will result in that student's application not being considered.

New:
Enrolment Requirements
Enrolment in the Program is limited. Admission will require:
(a.) completion of any Grade 12 U/M high school math course or equivalent (or successful completion of the UTSC Online Mathematics Preparedness Course or equivalent), and
(b.) completion of Grade 12 U/M high school biology or equivalent (or BIOA12H3 or equivalent), and
(c.) completion of a minimum of 4.0 credits, including 1.0 credit in Psychology, and
(d.) a cumulative GPA of at least 2.75, and
(e.) 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 [PSYB07H3 or equivalent] and PSYB70H3.

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:
Prospective Co-op students (i.e., those not yet admitted to a Co-op Degree POSt) must submit a program request on ACORN, and meet the minimum qualifications noted above. Deadlines follow the Limited Enrolment Program Application Deadlines set by the Office of the Registrar each year. Failure to submit the program request on ACORN will result in that student's application not being considered.

Description of Proposed Changes:
1. Enrolment Requirement: replacing BIOA11H3 with new course BIOA12H3
2. Requirement 2: correcting course title for PSYC73H3
3. Requirement 5: renumbering PSYC85H3 to PSYC01H3
4. Requirement 8: removing retired course PSYB45H3 as an optional course
5. Requirement 10: adding note about how research courses can apply to program
6. Requirement 10 and 11: shifting 0.5 credit weight from Req 11 to Req 10
7. Requirement 11: Course title change for BIOC70 and adding PHLB18 to Req 11

Rationale:
1. The department of Biological Sciences is creating BIOA12H3. This will be grade 12 Biology equivalent virtual course as a gateway for students who do not have grade 12 Biology. This will alleviate the BIOA11H3 enrolment pressures, allowing BIOA11 to return to its original purpose as course requirement in the Health Studies programs.
2. Title update was editorial
3. The 80-series of the PSY courses is now being used for courses in applied psychology. PSYC85H3 does not fit into these categories, so moving it to the 00-series with other general PSY courses live (research methods, statistics, etc.)
4. PSYB45 has been retired for more than five years. Removing this retired course to de-clutter the program.
5. Only 0.5 credits of the research courses can count toward the program. This ensures students are taking sufficient lecture-based courses in the program.
6. Expanding the 80-series "applied psychology" courses, this change will provide students with more flexibility to take these courses and have them count toward program requirements. By shifting 0.5 credits from Requirement 11 (specified courses) to Requirement 10 (all PSY courses), students have more flexibility in their course selection.
7. BIOC70H3 course title was changed from An Introduction to Bias in the Sciences to An Introduction to Bias in STEMM (Science, Technology, Engineering, Mathematics and Medicine). PHLB18H3 was added last year. Its content aligns with the other options in Requirement 10 of the program, and therefore, is a good option for students to complete this requirement.

Impact: None

Consultations: DCC approved Oct 10, 2024.

Resource Implications: None

Proposal Status: Under Review

SCSPE1272C: SPECIALIST (CO-OPERATIVE) PROGRAM IN NEUROSCIENCE - Cellular/Molecular Stream (SCIENCE)

Completion Requirements:

Previous:
Academic Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 7.0 credits, specific to the Cellular/Molecular stream, for a total of 13.5 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
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 or CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences or MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology or STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

CELLULAR/MOLECULAR STREAM (7.0 credits)

3. Quantitative Logic and Reasoning (1.0 credit):
PSYC08H3 Advanced Data Analysis in Psychology
and one of the following:
CSCA20H3 Introduction to Programming
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]

4. Advanced Foundations (2.5 credits):
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
BIOB12H3 Cell and Molecular Biology Laboratory
CHMB41H3 Organic Chemistry I
NROC36H3 Molecular Neuroscience
NROC69H3 Synaptic Organization & Physiology of the Brain

5. Stream-specific electives (1.0 credit):
BIOC12H3 Biochemistry I: Proteins & Enzymes
BIOC13H3 Biochemistry II: Bioenergetics & Metabolism
BIOC14H3 Genes, Environment and Behaviour
CHMB42H3 Organic Chemistry II
NROC34H3 Neuroethology
NROC61H3 Learning and Motivation
NROC64H3 Sensorimotor Systems
PSYC62H3 Drugs and the Brain

6. Breadth in Neuroscience (1.0 credit):
NROC34H3 Neuroethology*
NROC61H3 Learning and Motivation*
NROC64H3 Sensorimotor Systems*
PSYB51H3 Introduction to Perception
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language
**only if not used to complete component 5 of the requirements*

7. Laboratory Course (0.5 credit):
NROC60H3 Cellular Neuroscience Laboratory (recommended)
NROC63H3 Behavioural Neuroscience Laboratory
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience

8. Capstone Courses (1.0 credit):
BIOD06H3 Advanced Topics in Neural Basis of Motor Control
BIOD07H3 Advanced Topics and Methods in Neural Circuit Analysis
BIOD19H3 Epigenetics in Health and Disease
BIOD65H3 Pathologies of the Nervous System
NROD08H3/BIOD08H3 Theoretical Neuroscience
NROD60H3 Current Topics in Neuroscience
NROD61H3 Emotional Learning Circuits
NROD66H3 Drug Addiction
NROD67H3 Neuroscience of Aging
NROD98Y3 Thesis in Neuroscience*
PSYD66H3 Current Topics in Human Brain & Behaviour
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

Co-op Program Requirements

Students must satisfactorily complete Co-op work term(s) as follows: three 4-month work terms, one 4-month work term and one 8-month work term, or one 12-month work term.

To be eligible for their first work term, students must be enrolled in the Specialist Co-op Program in Neuroscience, and have completed at least 7.0 credits, achieve a cumulative GPA of 2.5 or higher, and complete COPB50H3 and COPB51H3. It is recommended that PSYB07H3, PSYB70H3, NROB60H3, at least one of [BIOB10H3, BIOB11H3], and at least one of [NROB61H3, PSYB55H3] be completed before the first work term. Any of these courses that are not completed prior to the first work term are recommended to be completed before the second work term. The following additional courses are recommended to be completed before the second work term for the Cellular/Molecular stream: BIOB12H3, CHMB41H3, and CHMB42H3.

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 requires that students take courses during at least one Summer semester.

Co-op Course Requirements
In addition to their academic program requirements, Co-op students complete the following Co-op specific courses as part of their degree:

- Co-op Preparation courses: COPB50H3 and COPB51H3 (completed in first year)
- Work Term Search courses: COPB52H3 (semester prior to first work term), COPC98H3 (semester prior to second work term), and COPC99H3 (semester prior to third work term)
- Co-op Work Term courses: COPC40H3 (each semester a student is on work term)

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 must be completed in sequence, and fall into three categories: Co-op Preparation courses (COPB50H3 & COPB51H3) are completed in first year, and cover a variety of topics intended to assist students in developing the skills and tools required to secure a work term; Work Term Search Courses (COPB52H3, COPC98H3, & COPC99H3) are completed in the semester prior to each work term, and support students while competing for work terms that are appropriate to their program of study, as well as preparing students for the transition into and how to succeed the workplace; Co-op Work Term courses (COPC40H3) are completed during each semester that a student is on work term, and support students' success while on work term, as well as connecting their academics and the workplace experience.

Co-op courses 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.

For information on fees, status in Co-op programs, and certification of completion of Co-op programs, see the Co-operative Programs section and the Arts and Science Co-op section in the UTSC *Calendar*.

New:
Academic Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 7.0 credits, specific to the Cellular/Molecular stream, for a total of 13.5 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
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 *or* CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences *or* MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology *or* STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

CELLULAR/MOLECULAR STREAM (7.0 credits)

3. Quantitative Logic and Reasoning (1.0 credit):
PSYC08H3 Advanced Data Analysis in Psychology
and one of the following:
CSCA20H3 Introduction to Programming
[PHYA10H3 Physics I for the Physical Sciences *or* PHYA11H3 Physics I for the Life Sciences]

4. Advanced Foundations (2.5 credits):
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
BIOB12H3 Cell and Molecular Biology Laboratory
CHMB41H3 Organic Chemistry I
NROC36H3 Molecular Neuroscience
NROC69H3 Synaptic Organization & Physiology of the Brain

5. Stream-specific electives (1.0 credit):
two of the following:
BIOC12H3 Biochemistry I: Proteins & Enzymes
BIOC13H3 Biochemistry II: Bioenergetics & Metabolism
BIOC14H3 Genes, Environment and Behaviour
BIOC44H3/(NROC34H3) Neuroethology
CHMB42H3 Organic Chemistry II
NROC61H3 Learning and Motivation
NROC64H3 Sensorimotor Systems
PSYC62H3 Drugs and the Brain

6. Breadth in Neuroscience (1.0 credit):
two of the following:
BIOC44H3/(NROC34H3) Neuroethology*
NROC61H3 Learning and Motivation*
NROC64H3 Sensorimotor Systems*
PSYB51H3 Introduction to Perception
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language
**only if not used to complete component 5 of the requirements*

7. Laboratory Course (0.5 credit):
one of the following:
NROC60H3 Cellular Neuroscience Laboratory *(recommended)*
NROC63H3 Behavioural Neuroscience Laboratory
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience

8. Capstone Courses (1.0 credit):
two of the following:
BIOD06H3 Advanced Topics in Neural Basis of Motor Control
BIOD07H3 Advanced Topics and Methods in Neural Circuit Analysis
BIOD08H3/(NROD08H3) Theoretical Neuroscience
BIOD65H3 Pathologies of the Nervous System
NROD60H3 Current Topics in Neuroscience
NROD61H3 Emotional Learning Circuits
NROD66H3 Drug Addiction
NROD67H3 Neuroscience of Aging
NROD98Y3 Thesis in Neuroscience*
PSYD66H3 Current Topics in Human Brain & Behaviour
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

Co-op Program Requirements
Students must satisfactorily complete Co-op work term(s) as follows: three 4-month work terms, one 4-month work term and one 8-month work term, or one 12-month work term.

To be eligible for their first work term, students must be enrolled in the Specialist Co-op Program in Neuroscience, and have completed at least 7.0 credits, achieve a cumulative GPA of 2.5 or higher, and complete COPB50H3 and COPB51H3. It is recommended that PSYB07H3, PSYB70H3, NROB60H3, at least one of [BIOB10H3, BIOB11H3], and at least one of [NROB61H3, PSYB55H3] be completed before the first work term. Any of these courses that are not completed prior to the first work term are recommended to be completed before the second work term. The following additional courses are recommended to be completed before the second work term for the Cellular/Molecular stream: BIOB12H3, CHMB41H3, and CHMB42H3.

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 requires that students take courses during at least one Summer semester.

Co-op Course Requirements
In addition to their academic program requirements, Co-op students complete the following Co-op specific courses as part of their degree:

- Co-op Preparation courses: COPB50H3 and COPB51H3 (completed in first year)
- Work Term Search courses: COPB52H3 (semester prior to first work term), COPC98H3 (semester prior to second work term), and COPC99H3 (semester prior to third work term)
- Co-op Work Term courses: COPC40H3 (each semester a student is on work term)

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 must be completed in sequence, and fall into three categories: Co-op Preparation courses (COPB50H3 & COPB51H3) are completed in first year, and cover a variety of topics intended to assist students in developing the skills and tools required to secure a work term; Work Term Search Courses (COPB52H3, COPC98H3, & COPC99H3) are completed in the semester prior to each work term, and support students while competing for work terms that are appropriate to their program of study, as well as preparing students for the transition into and how to succeed the workplace; Co-op Work Term courses (COPC40H3) are completed during each semester that a student is on work term, and support students' success while on work term, as well as connecting their academics and the workplace experience.

Co-op courses 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.

For information on fees, status in Co-op programs, and certification of completion of Co-op programs, see the Co-operative Programs section and the Arts and Science Co-op section in the UTSC *Calendar*.

Description:

Previous:
Academic Program Advisor: psychundergrad.utsc@utoronto.ca
Co-op Program Coordinator: coopsuccess.utsc@utoronto.ca

The Specialist program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience, as well as an opportunity to intensively focus on one of three streams. The **Cellular/Molecular** stream explores the nervous system at its most fundamental level, investigating the influence of genes, signaling molecules, and cellular morphology on the development and maintenance of brain function, predominantly through the use of *in vitro* techniques (e.g., immunohistochemistry, patch clamp).

This is a Work Integrated Learning (WIL) program that combines academic studies with paid work terms in the public, private, and/or non-profit sectors. The program provides students with the opportunity to develop the academic and professional skills required to pursue employment in these areas, or to continue on to graduate training in an academic field related to Neuroscience upon graduation.

In addition to their academic course requirements, students must successfully complete the additive Arts & Science Co-op Work Term Preparation courses and a minimum of three Co-op work terms.

New:
Academic Program Advisor: psychundergrad.utsc@utoronto.ca
Co-op Program Coordinator: coopsuccess.utsc@utoronto.ca

The Specialist program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience, as well as an opportunity to intensively focus on one of three streams. The **Cellular/Molecular** stream explores the nervous system at its most fundamental level, investigating the influence of genes, signaling molecules, and cellular morphology on the development and maintenance of brain function, predominantly through the use of *in vitro* techniques (e.g., immunohistochemistry, patch clamp).

This is a Work Integrated Learning (WIL) program that combines academic studies with paid work terms in the public, private, and/or non-profit sectors. The program provides students with the opportunity to develop the academic and professional skills required to pursue employment in these areas, or to continue on to graduate training in an academic field related to Neuroscience upon graduation.

In addition to their academic course requirements, students must successfully complete the additive Arts & Science Co-op Work Term Preparation courses and a minimum of three Co-op work terms.

Students may not combine a Neuroscience Specialist program with a Minor or Major program from the Department of Biological Sciences.

Enrolment Requirements:

Previous:
Enrolment in the Program is limited, and takes place in two stages.

Stage 1:
Students may apply to Stage 1 after successfully completing a minimum of 4.0 credits, including the following courses: BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3. Students must have a CGPA of 2.75 or higher to be admitted to the program. Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. When applying, note that the Subject POSt code for Co-op Stage 1 is **SCSPE1072C**. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available streams. Students who have successfully met the enrolment requirements of their chosen stream will be admitted to the Specialist Neuroscience Stage 2 category. Application for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods.

Before applying to their chosen stream, students must:

1. Complete a minimum of 10.0 credits including all Stage 1 course requirements, [MATA29H3 or MATA30H3], and the Neuroscience Foundations courses which include BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3;

2. Complete 1.0 credit in Stream Foundations courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

***Notes:**

(i) students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams;
(ii) the Cognitive stream does not include a component called "Stream-specific electives"; students interested in this stream should select from the following: MATA23H3, BIOB11H3, CHMB41H3, PSYB51H3, [PSYC08H3 or PSYC09H3].

3. Have achieved a CGPA of 2.5 or higher.

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.

Prospective Co-op Students:
Prospective Co-op students (i.e., those not yet admitted to a Co-op Degree POSt) must submit a program request on ACORN, and meet the minimum qualifications noted above. Deadlines follow the Limited Enrolment Program Application Deadlines set by the Office of the Registrar each year. Failure to submit the program request on ACORN will result in that student's application not being considered.

New:
Enrolment in the Program is limited. The admission requirements may change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enrol in backup programs.

Enrolment takes place in two stages:

Stage 1:
The minimum requirements to be considered for admission are:

1. Completion of 4.0 credits, including BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3

2. A CGPA of 2.75 or higher.

Students will typically apply to Stage 1 at the end of their first year of study. **When applying, note that the Subject POSt code for Stage 1 Co-op is SCSPE1072C.** Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available "Stage 2" streams: the Cognitive Stream, the Cellular/Molecular Stream, or the Systems/Behavioural Stream. Students will typically apply to Stage 2 at the end of their second year of study.

The minimum requirements to be considered for stream admission are:

1. Completion of 10.0 credits including: all Stage 1 course requirements, [MATA29H3 or MATA30H3], and all *Neuroscience Foundations* courses: BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3

2. Completion of 1.0 credit in *Stream Foundations* courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

**Note: Students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams.*

3. A CGPA of 2.5 or higher.

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.

Prospective Co-op Students:
Prospective Co-op students (i.e., those not yet admitted to a Co-op Degree POSt) must submit a program request on ACORN, and meet the minimum qualifications noted above. Deadlines follow the Limited Enrolment Program Application Deadlines set by the Office of the Registrar each year. Failure to submit the program request on ACORN will result in that student's application not being considered.

Description of Proposed Changes:
1. Description: adding clarifying language about allowed program combinations.
2. Enrolment Requirements: clarify that spaces in the program are limited and some editorial changes
3. Requirement 5&6: NROC34H3 renumbered to BIOC44H3
4. Requirement 8: Removing BIOD19H3 as an option and indicating the renumbering of NROD08H3 to BIOD08H3 as optional course

Rationale:
1. There is significant overlap between the Neuroscience Major and Biology Minor, so this particular program combinations is being disallowed.

2. Capacity in the neuroscience programs is limited by the number of available spaces in laboratory courses. Added a statement that enrollment requirements may vary year-to-year depending on available spaces and the pool of eligible applicants. The department hopes to continue to admit all students who meet the minimum enrolment thresholds, however, as the program becomes more popular, they need this safety net in place to ensure we do not to exceed our capacity.
3. The NROC34H3 course belongs to the Department of Biological Sciences. They are renumbering this course to BIOC44H3
4. The Department of Biological Sciences are not able to accommodate Neuroscience students in BIOD19H3 so this course is being removed accordingly. The Department of Biological Sciences also will be removing the double-numbering of BIOD08H3/NROD08H3 and keeping only the BIOD08H3 course code.

Impact: None

Consultations:
Ongoing conversations over 2023/2024 took place between Biology and Psychology regarding allowed program combinations.
Dept. of Biological Sciences consultation: Sept 2024.
DCC Approval: Oct 10 and Oct 23, 2024

Resource Implications: None.

Proposal Status: Under Review

SCSPE1172C: SPECIALIST (CO-OPERATIVE) PROGRAM IN NEUROSCIENCE - Cognitive Stream (SCIENCE)

Completion Requirements:

Previous:
Academic Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 7.0 credits, specific to the Cognitive stream, for a total of 13.5 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
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 or CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences or MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology or STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

COGNITIVE STREAM (7.0 credits)

3. Quantitative and Methodological Skills (1.5 credits):
PSYC02H3 Scientific Communication in Psychology
PSYC70H3 Advanced Research Methods Laboratory
[PSYC08H3 Advanced Data Analysis in Psychology or PSYC09H3 Applied Multiple Regression in Psychology]

4. Advanced Programming (1.5 credits):
MATA23H3 Linear Algebra
[[CSCA08H3 Introduction to Computer Science I and CSCA48H3 Introduction to Computer Science II]* or [PSYB03H3 Introduction to Computers in Psychological Research and PSYC03H3 Introduction to Computers in Psychological Research: Advanced Topics]]
**Note: students are strongly advised to choose the [PSYB03H3 and PSYC03H3] pairing.*

5. Advanced Foundations (1.5 credits):
PSYB51H3 Introduction to Perception
and two of the following:
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language

6. Breadth in Neuroscience (1.0 credit):
(at least 0.5 credit must be a C-level NRO course)
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CHMB41H3 Organic Chemistry I
NROC34H3 Neuroethology
NROC36H3 Molecular Neuroscience
NROC61H3 Learning and Motivation
NROC64H3 Sensorimotor Systems
NROC69H3 Synaptic Organization & Physiology of the Brain

7. Laboratory Course (0.5 credit):

NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience
PSYC75H3 Cognitive Psychology Laboratory
PSYC76H3 Brain Imaging Laboratory

8. Capstone Courses (1.0 credit):
PSYD17H3 Social Neuroscience
PSYD50H3 Current Topics in Memory and Cognition
PSYD51H3 Current Topics in Perception
PSYD54H3 Current Topics in Visual Recognition
PSYD55H3 Functional Magnetic Resonance Imaging Laboratory
PSYD62H3 Neuroscience of Pleasure and Reward
PSYD66H3 Current Topics in Human Brain & Behaviour
NROD98Y3 Thesis in Neuroscience*
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

Co-op Program Requirements
Students must satisfactorily complete Co-op work term(s) as follows: three 4-month work terms, one 4-month work term and one 8-month work term, or one 12-month work term.

To be eligible for their first work term, students must be enrolled in the Specialist Co-op Program in Neuroscience, and have completed at least 7.0 credits, achieve a cumulative GPA of 2.5 or higher, and complete COPB50H3 and COPB51H3. It is recommended that PSYB07H3, PSYB70H3, NROB60H3, at least one of [BIOB10H3, BIOB11H3], and at least one of [NROB61H3, PSYB55H3] be completed before the first work term. Any of these courses that are not completed prior to the first work term are recommended to be completed before the second work term. The following additional courses are recommended to be completed before the second work term for the Cognitive stream: PSYC02H3, [PSYC08H3 or PSYC09H3], and PSYC70H3.

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 requires that students take courses during at least one Summer semester.

Co-op Course Requirements
In addition to their academic program requirements, Co-op students complete the following Co-op specific courses as part of their degree:

- Co-op Preparation courses: COPB50H3 and COPB51H3 (completed in first year)
- Work Term Search courses: COPB52H3 (semester prior to first work term), COPC98H3 (semester prior to second work term), and COPC99H3 (semester prior to third work term)
- Co-op Work Term courses: COPC40H3 (each semester a student is on work term)

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 must be completed in sequence, and fall into three categories: Co-op Preparation courses (COPB50H3 & COPB51H3) are completed in first year, and cover a variety of topics intended to assist students in developing the skills and tools required to secure a work term; Work Term Search Courses (COPB52H3, COPC98H3, & COPC99H3) are completed in the semester prior to each work term, and support students while competing for work terms that are appropriate to their program of study, as well as preparing students for the transition into and how to succeed the workplace; Co-op Work Term courses (COPC40H3) are completed during each semester that a student is on work term, and support students' success while on work term, as well as connecting their academics and the workplace experience.

Co-op courses 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.

For information on fees, status in Co-op programs, and certification of completion of Co-op programs, see the Co-operative Programs section and the Arts and Science Co-op section in the UTSC *Calendar*.

New:
Academic Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 7.0 credits, specific to the Cognitive stream, for a total of 13.5 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
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 *or* CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences *or* MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology *or* STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

COGNITIVE STREAM (7.0 credits)

3. Quantitative and Methodological Skills (1.5 credits):
PSYC02H3 Scientific Communication in Psychology
PSYC70H3 Advanced Research Methods Laboratory
[PSYC08H3 Advanced Data Analysis in Psychology *or* PSYC09H3 Applied Multiple Regression in Psychology]

4. Advanced Programming (1.5 credits):
MATA23H3 Linear Algebra
[[CSCA08H3 Introduction to Computer Science I *and* CSCA48H3 Introduction to Computer Science II]* *or* [PSYB03H3 Introduction to Computers in Psychological Research *and* PSYC03H3 Introduction to Computers in Psychological Research: Advanced Topics]]
**Note: students are strongly advised to choose the [PSYB03H3 and PSYC03H3] pairing.*

5. Advanced Foundations (1.5 credits):
PSYB51H3 Introduction to Perception
and two of the following:
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language

6. Breadth in Neuroscience (1.0 credit):
two of the following (at least 0.5 credit must be at the C-level):
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
BIOC44H3/(NROC34H3) Neuroethology
CHMB41H3 Organic Chemistry I
NROC36H3 Molecular Neuroscience
NROC61H3 Learning and Motivation
NROC64H3 Sensorimotor Systems
NROC69H3 Synaptic Organization & Physiology of the Brain

7. Laboratory Course (0.5 credit):
one of the following:
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience
PSYC75H3 Cognitive Psychology Laboratory
PSYC76H3 Brain Imaging Laboratory

8. Capstone Courses (1.0 credit):
two of the following:
PSYD17H3 Social Neuroscience
PSYD50H3 Current Topics in Memory and Cognition
PSYD51H3 Current Topics in Perception
PSYD54H3 Current Topics in Visual Recognition
PSYD55H3 Functional Magnetic Resonance Imaging Laboratory
PSYD62H3 Neuroscience of Pleasure and Reward
PSYD66H3 Current Topics in Human Brain & Behaviour
NROD98Y3 Thesis in Neuroscience*
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

Co-op Program Requirements
Students must satisfactorily complete Co-op work term(s) as follows: three 4-month work terms, one 4-month work term and one 8-month work term, or one 12-month work term.

To be eligible for their first work term, students must be enrolled in the Specialist Co-op Program in Neuroscience, and have completed at least 7.0 credits, achieve a cumulative GPA of 2.5 or higher, and complete COPB50H3 and COPB51H3. It is recommended that PSYB07H3, PSYB70H3, NROB60H3, at least one of [BIOB10H3, BIOB11H3], and at least one of [NROB61H3, PSYB55H3] be completed before the first work term. Any of these courses that are not completed prior to the first work term are recommended to be completed before the second work term. The following additional courses are recommended to be completed before the second work term for the Cognitive stream: PSYC02H3, [PSYC08H3 *or* PSYC09H3], and PSYC70H3.

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 requires that students take courses during at least one Summer semester.

Co-op Course Requirements
In addition to their academic program requirements, Co-op students complete the following Co-op specific courses as part of their degree:

- Co-op Preparation courses: COPB50H3 and COPB51H3 (completed in first year)
- Work Term Search courses: COPB52H3 (semester prior to first work term), COPC98H3 (semester prior to second work term), and COPC99H3 (semester prior to third work term)
- Co-op Work Term courses: COPC40H3 (each semester a student is on work term)

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

must be completed in sequence, and fall into three categories: Co-op Preparation courses (COPB50H3 & COPB51H3) are completed in first year, and cover a variety of topics intended to assist students in developing the skills and tools required to secure a work term; Work Term Search Courses (COPB52H3, COPC98H3, & COPC99H3) are completed in the semester prior to each work term, and support students while competing for work terms that are appropriate to their program of study, as well as preparing students for the transition into and how to succeed the workplace; Co-op Work Term courses (COPC40H3) are completed during each semester that a student is on work term, and support students' success while on work term, as well as connecting their academics and the workplace experience.

Co-op courses 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.

For information on fees, status in Co-op programs, and certification of completion of Co-op programs, see the Co-operative Programs section and the Arts and Science Co-op section in the UTSC *Calendar*.

Description:

Previous:
Academic Program Advisor: psychundergrad.utsc@utoronto.ca
Co-op Program Coordinator: coopsuccess.utsc@utoronto.ca

The Specialist program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience, as well as an opportunity to intensively focus on one of three streams. The **Cognitive** stream focuses on understanding the neural basis of human cognition (e.g., language, memory, attention, decision-making) predominantly through the use of patient neuropsychology and neuroimaging techniques (e.g., magnetic resonance imaging (MRI), electroencephalography (EEG)).

This is a Work Integrated Learning (WIL) program that combines academic studies with paid work terms in the public, private, and/or non-profit sectors. The program provides students with the opportunity to develop the academic and professional skills required to pursue employment in these areas, or to continue on to graduate training in an academic field related to Neuroscience upon graduation.

In addition to their academic course requirements, students must successfully complete the additive Arts & Science Co-op Work Term Preparation courses and a minimum of three Co-op work terms.

New:
Academic Program Advisor: psychundergrad.utsc@utoronto.ca
Co-op Program Coordinator: coopsuccess.utsc@utoronto.ca

The Specialist program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience, as well as an opportunity to intensively focus on one of three streams. The **Cognitive** stream focuses on understanding the neural basis of human cognition (e.g., language, memory, attention, decision-making) predominantly through the use of patient neuropsychology and neuroimaging techniques (e.g., magnetic resonance imaging (MRI), electroencephalography (EEG)).

This is a Work Integrated Learning (WIL) program that combines academic studies with paid work terms in the public, private, and/or non-profit sectors. The program provides students with the opportunity to develop the academic and professional skills required to pursue employment in these areas, or to continue on to graduate training in an academic field related to Neuroscience upon graduation.

In addition to their academic course requirements, students must successfully complete the additive Arts & Science Co-op Work Term Preparation courses and a minimum of three Co-op work terms.

Students may not combine a Neuroscience Specialist program with a Minor or Major program from the Department of Biological Sciences.

Enrolment Requirements:

Previous:
Enrolment in the Program is limited, and takes place in two stages.

Stage 1:
Students may apply to Stage 1 after successfully completing a minimum of 4.0 credits, including the following courses: BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3. Students must have a CGPA of 2.75 or higher to be admitted to the program. Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. When applying, note that the Subject POSt code for Co-op Stage 1 is **SCSPE1072C**. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available streams. Students who have successfully met the enrolment requirements of their chosen stream will be admitted to the Specialist Neuroscience Stage 2 category. Application for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods.

Before applying to their chosen stream, students must:

1. Complete a minimum of 10.0 credits including all Stage 1 course requirements, [MATA29H3 or MATA30H3], and the Neuroscience Foundations courses which include BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3;

2. Complete 1.0 credit in Stream Foundations courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I

CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

***Notes:**
(i) students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams;
(ii) the Cognitive stream does not include a component called "Stream-specific electives"; students interested in this stream should select from the following: MATA23H3, BIOB11H3, CHMB41H3, PSYB51H3, [PSYC08H3 or PSYC09H3].

3. Have achieved a CGPA of 2.5 or higher.

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.

Prospective Co-op Students:
Prospective Co-op students (i.e., those not yet admitted to a Co-op Degree POSt) must submit a program request on ACORN, and meet the minimum qualifications noted above. Deadlines follow the Limited Enrolment Program Application Deadlines set by the Office of the Registrar each year. Failure to submit the program request on ACORN will result in that student's application not being considered.

New:
Enrolment in the Program is limited. The admission requirements may change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enrol in backup programs.

Enrolment takes place in two stages:

Stage 1:
The minimum requirements to be considered for admission are:

1. Completion of 4.0 credits, including BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3

2. A CGPA of 2.75 or higher.

Students will typically apply to Stage 1 at the end of their first year of study. **When applying, note that the Subject POSt code for Stage 1 Co-op is SCSPE1072C.** Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available "Stage 2" streams: the Cognitive Stream, the Cellular/Molecular Stream, or the Systems/Behavioural Stream. Students will typically apply to Stage 2 at the end of their second year of study.

The minimum requirements to be considered for stream admission are:

1. Completion of 10.0 credits including: all Stage 1 course requirements, [MATA29H3 or MATA30H3], and all *Neuroscience Foundations* courses: BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3

2. Completion of 1.0 credit in *Stream Foundations* courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

**Note: Students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams.*

3. A CGPA of 2.5 or higher.

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.

Prospective Co-op Students:
Prospective Co-op students (i.e., those not yet admitted to a Co-op Degree POSt) must submit a program request on ACORN, and meet the minimum qualifications noted above. Deadlines follow the Limited Enrolment Program Application Deadlines set by the Office of the Registrar each year. Failure to submit the program request on ACORN will result in that student's application not being considered.

Description of Proposed Changes:

1. Description: adding clarifying language about allowed program combinations.
2. Enrolment Requirements: clarify that spaces in the program are limited, also some editorial and structural changes to the formatting/phrasing of this section.
3. Requirement 6: NROC34H3 is being renumbered to BIOC44H3.

Rationale:

1. There is significant overlap between the Neuroscience Major and Biology Minor, so this particular program combinations is being disallowed.
2. Capacity in the neuroscience programs is limited by the number of available spaces in laboratory courses. Added a statement that enrollment requirements may vary year-to-year depending on available spaces and the pool of eligible applicants. The department hopes to continue to admit all students who meet the minimum enrolment thresholds, however, as the program becomes more popular, they need this safety net in place to ensure we do not to exceed our capacity. The structural changes to the formatting/phrasing in this section do not change the requirements but are meant to improve clarity and better understanding to students.
3. The NROC34H3 course belongs to the Department of Biological Sciences and is therefore being renumbered to BIOC44H3.

Impact: None

Consultations:

Ongoing conversations over 2023/2024 took place between Biology and Psychology regarding allowed program combinations.
Dept. of Biological Sciences: Sept 2024.
DCC Approval: Oct 10 and Oct 23, 2024

Resource Implications: None.

Proposal Status: Under Review

SCSPE1372C: SPECIALIST (CO-OPERATIVE) PROGRAM IN NEUROSCIENCE - Systems/Behavioural Stream (SCIENCE)

Completion Requirements:

Previous:

Academic Program Requirements

This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 7.0 credits, specific to the Systems/Behavioural stream, for a total of 13.5 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
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 or CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences or MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology or STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

SYSTEMS/BEHAVIOURAL STREAM (7.0 credits)

3. Quantitative Logic and Reasoning (1.0 credit):
PSYC08H3 Advanced Data Analysis in Psychology
and one of the following:
CSCA20H3 Introduction to Programming
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]

4. Advanced Foundations (2.5 credits):
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
BIOB12H3 Cell and Molecular Biology Laboratory
NROC61H3 Learning and Motivation
and two of the following:
NROC34H3 Neuroethology
NROC64H3 Sensorimotor Systems
NROC69H3 Synaptic Organization & Physiology of the Brain

5. Stream-specific electives (1.0 credit):
CHMB41H3 Organic Chemistry I
and one of the following:
BIOC14H3 Genes, Environment and Behaviour
CHMB42H3 Organic Chemistry II
NROC36H3 Molecular Neuroscience
PSYC62H3 Drugs and the Brain

6. Breadth in Neuroscience (1.0 credit):
NROC36H3 Molecular Neuroscience*
NROC69H3 Synaptic Organization & Physiology of the Brain*
PSYB51H3 Introduction to Perception

PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language
**only if not used to complete components 4 or 5 of the requirements*

7. Laboratory Course (0.5 credit):
NROC60H3 Cellular Neuroscience Laboratory
NROC63H3 Behavioural Neuroscience Laboratory (recommended)
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience
PSYC74H3 Human Movement Laboratory

8. Capstone Courses (1.0 credit):
BIOD06H3 Advanced Topics in Neural Basis of Motor Control
BIOD07H3 Advanced Topics and Methods in Neural Circuit Analysis
BIOD19H3 Epigenetics in Health and Disease
BIOD45H3 Animal Communication
BIOD65H3 Pathologies of the Nervous System
NROD08H3/BIOD08H3 Theoretical Neuroscience
NROD60H3 Current Topics in Neuroscience
NROD61H3 Emotional Learning Circuits
NROD66H3 Drug Addiction
NROD67H3 Neuroscience of Aging
NROD98Y3 Thesis in Neuroscience*
PSYD66H3 Current Topics in Human Brain & Behaviour
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

Co-op Program Requirements
Students must satisfactorily complete Co-op work term(s) as follows: three 4-month work terms, one 4-month work term and one 8-month work term, or one 12-month work term.

To be eligible for their first work term, students must be enrolled in the Specialist Co-op Program in Neuroscience, and have completed at least 7.0 credits, achieve a cumulative GPA of 2.5 or higher, and complete COPB50H3 and COPB51H3. It is recommended that PSYB07H3, PSYB70H3, NROB60H3, at least one of [BIOB10H3, BIOB11H3], and at least one of [NROB61H3, PSYB55H3] be completed before the first work term. Any of these courses that are not completed prior to the first work term are recommended to be completed before the second work term. The following additional courses are recommended to be completed before the second work term for the Systems/Behavioural stream: BIOB12H3, CHMB41H3, and CHMB42H3.

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 requires that students take courses during at least one Summer semester.

Co-op Course Requirements
In addition to their academic program requirements, Co-op students complete the following Co-op specific courses as part of their degree:

- Co-op Preparation courses: COPB50H3 and COPB51H3 (completed in first year)
- Work Term Search courses: COPB52H3 (semester prior to first work term), COPC98H3 (semester prior to second work term), and COPC99H3 (semester prior to third work term)
- Co-op Work Term courses: COPC40H3 (each semester a student is on work term)

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 must be completed in sequence, and fall into three categories: Co-op Preparation courses (COPB50H3 & COPB51H3) are completed in first year, and cover a variety of topics intended to assist students in developing the skills and tools required to secure a work term; Work Term Search Courses (COPB52H3, COPC98H3, & COPC99H3) are completed in the semester prior to each work term, and support students while competing for work terms that are appropriate to their program of study, as well as preparing students for the transition into and how to succeed the workplace; Co-op Work Term courses (COPC40H3) are completed during each semester that a student is on work term, and support students' success while on work term, as well as connecting their academics and the workplace experience.

Co-op courses 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.

For information on fees, status in Co-op programs, and certification of completion of Co-op programs, see the Co-operative Programs section and the Arts and Science Co-op section in the UTSC *Calendar*.

New:
Academic Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 7.0 credits, specific to the Systems/Behavioural stream, for a total of 13.5 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
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 *or* CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences *or* MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology *or* STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

SYSTEMS/BEHAVIOURAL STREAM (7.0 credits)

3. Quantitative Logic and Reasoning (1.0 credit):
PSYC08H3 Advanced Data Analysis in Psychology
and one of the following:
CSCA20H3 Introduction to Programming
[PHYA10H3 Physics I for the Physical Sciences *or* PHYA11H3 Physics I for the Life Sciences]

4. Advanced Foundations (2.5 credits):
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
BIOB12H3 Cell and Molecular Biology Laboratory
NROC61H3 Learning and Motivation
and two of the following:
BIOC44H3/(NROC34H3) Neuroethology
NROC64H3 Sensorimotor Systems
NROC69H3 Synaptic Organization & Physiology of the Brain

5. Stream-specific electives (1.0 credit):
CHMB41H3 Organic Chemistry I
and one of the following:
BIOC14H3 Genes, Environment and Behaviour
CHMB42H3 Organic Chemistry II
NROC36H3 Molecular Neuroscience
PSYC62H3 Drugs and the Brain

6. Breadth in Neuroscience (1.0 credit):
two of the following:
NROC36H3 Molecular Neuroscience*
NROC69H3 Synaptic Organization & Physiology of the Brain*
PSYB51H3 Introduction to Perception
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language
**only if not used to complete components 4 or 5 of the requirements*

7. Laboratory Course (0.5 credit):
one of the following:
NROC60H3 Cellular Neuroscience Laboratory
NROC63H3 Behavioural Neuroscience Laboratory *(recommended)*
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience
PSYC74H3 Human Movement Laboratory

8. Capstone Courses (1.0 credit):
two of the following:
BIOD06H3 Advanced Topics in Neural Basis of Motor Control
BIOD07H3 Advanced Topics and Methods in Neural Circuit Analysis
BIOD08H3/(NROD08H3) Theoretical Neuroscience
BIOD45H3 Animal Communication
BIOD65H3 Pathologies of the Nervous System
NROD60H3 Current Topics in Neuroscience
NROD61H3 Emotional Learning Circuits
NROD66H3 Drug Addiction
NROD67H3 Neuroscience of Aging
NROD98Y3 Thesis in Neuroscience*
PSYD66H3 Current Topics in Human Brain & Behaviour
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

Co-op Program Requirements

Students must satisfactorily complete Co-op work term(s) as follows: three 4-month work terms, one 4-month work term and one 8-month work term, or one 12-month work term.

To be eligible for their first work term, students must be enrolled in the Specialist Co-op Program in Neuroscience, and have completed at least 7.0 credits, achieve a cumulative GPA of 2.5 or higher, and complete COPB50H3 and COPB51H3. It is recommended that PSYB07H3, PSYB70H3, NROB60H3, at least one of [BIOB10H3, BIOB11H3], and at least one of [NROB61H3, PSYB55H3] be completed before the first work term. Any of these courses that are not completed prior to the first work term are recommended to be completed before the second work term. The following additional courses are recommended to be completed before the second work term for the Systems/Behavioural stream: BIOB12H3, CHMB41H3, and CHMB42H3.

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 requires that students take courses during at least one Summer semester.

Co-op Course Requirements
In addition to their academic program requirements, Co-op students complete the following Co-op specific courses as part of their degree:

- Co-op Preparation courses: COPB50H3 and COPB51H3 (completed in first year)
- Work Term Search courses: COPB52H3 (semester prior to first work term), COPC98H3 (semester prior to second work term), and COPC99H3 (semester prior to third work term)
- Co-op Work Term courses: COPC40H3 (each semester a student is on work term)

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 must be completed in sequence, and fall into three categories: Co-op Preparation courses (COPB50H3 & COPB51H3) are completed in first year, and cover a variety of topics intended to assist students in developing the skills and tools required to secure a work term; Work Term Search Courses (COPB52H3, COPC98H3, & COPC99H3) are completed in the semester prior to each work term, and support students while competing for work terms that are appropriate to their program of study, as well as preparing students for the transition into and how to succeed the workplace; Co-op Work Term courses (COPC40H3) are completed during each semester that a student is on work term, and support students' success while on work term, as well as connecting their academics and the workplace experience.

Co-op courses 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.

For information on fees, status in Co-op programs, and certification of completion of Co-op programs, see the Co-operative Programs section and the Arts and Science Co-op section in the UTSC *Calendar*.

Description:

Previous:
Academic Program Advisor: psychundergrad.utsc@utoronto.ca
Co-op Program Coordinator: coopsuccess.utsc@utoronto.ca

The Specialist Program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience, as well as an opportunity to intensively focus on one of three streams. The **Systems/Behavioural** stream examines the neural mechanisms underlying behaviour and how brain circuits work together to analyze external stimuli, internal biological states, and past experiences in order to coordinate appropriate responses, predominantly through the use of *in vivo* approaches in behaving subjects (e.g., optogenetics, chemogenetics).

This is a Work Integrated Learning (WIL) program that combines academic studies with paid work terms in the public, private, and/or non-profit sectors. The program provides students with the opportunity to develop the academic and professional skills required to pursue employment in these areas, or to continue on to graduate training in an academic field related to Neuroscience upon graduation.

In addition to their academic course requirements, students must successfully complete the additive Arts & Science Co-op Work Term Preparation courses and a minimum of three Co-op work terms.

New:
Academic Program Advisor: psychundergrad.utsc@utoronto.ca
Co-op Program Coordinator: coopsuccess.utsc@utoronto.ca

The Specialist Program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience, as well as an opportunity to intensively focus on one of three streams. The **Systems/Behavioural** stream examines the neural mechanisms underlying behaviour and how brain circuits work together to analyze external stimuli, internal biological states, and past experiences in order to coordinate appropriate responses, predominantly through the use of *in vivo* approaches in behaving subjects (e.g., optogenetics, chemogenetics).

This is a Work Integrated Learning (WIL) program that combines academic studies with paid work terms in the public, private, and/or non-profit sectors. The program provides students with the opportunity to develop the academic and professional skills required to pursue employment in these areas, or to continue on to graduate training in an academic field related to Neuroscience upon graduation.

In addition to their academic course requirements, students must successfully complete the additive Arts & Science Co-op Work Term Preparation courses and a minimum of three Co-op work terms.

Students may not combine a Neuroscience Specialist program with a Minor or Major program from the Department of Biological Sciences.

Enrolment Requirements:

Previous:
Enrolment in the Program is limited, and takes place in two stages.

Stage 1:
Students may apply to Stage 1 after successfully completing a minimum of 4.0 credits, including the following courses: BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3. Students must have a CGPA of 2.75 or higher to be admitted to the program. Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. When applying, note that the Subject POSt code for Co-op Stage 1 is **SCSPE1072C**. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available streams. Students who have successfully met the enrolment requirements of their chosen stream will be admitted to the Specialist Neuroscience Stage 2 category. Application for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods.

Before applying to their chosen stream, students must:

1. Complete a minimum of 10.0 credits including all Stage 1 course requirements, [MATA29H3 or MATA30H3], and the Neuroscience Foundations courses which include BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3;

2. Complete 1.0 credit in Stream Foundations courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

***Notes:**
(i) students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams;
(ii) the Cognitive stream does not include a component called "Stream-specific electives"; students interested in this stream should select from the following: MATA23H3, BIOB11H3, CHMB41H3, PSYB51H3, [PSYC08H3 or PSYC09H3].

3. Have achieved a CGPA of 2.5 or higher.

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.

Prospective Co-op Students:
Prospective Co-op students (i.e., those not yet admitted to a Co-op Degree POSt) must submit a program request on ACORN, and meet the minimum qualifications noted above. Deadlines follow the Limited Enrolment Program Application Deadlines set by the Office of the Registrar each year. Failure to submit the program request on ACORN will result in that student's application not being considered.

New:
Enrolment in the Program is limited. The admission requirements may change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enrol in backup programs.

Enrolment takes place in two stages:

Stage 1:
The minimum requirements to be considered for admission are:

1. Completion of 4.0 credits, including BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3

2. A CGPA of 2.75 or higher.

Students will typically apply to Stage 1 at the end of their first year of study. **When applying, note that the Subject POSt code for Stage 1 Co-op is SCSPE1072C.** Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available "Stage 2" streams: the Cognitive Stream, the Cellular/Molecular Stream, or the Systems/Behavioural Stream. Students will typically apply to Stage 2 at the end of their second year of study.

The minimum requirements to be considered for stream admission are:

1. Completion of 10.0 credits including: all Stage 1 course requirements, [MATA29H3 or MATA30H3], and all *Neuroscience Foundations* courses: BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3

2. Completion of 1.0 credit in *Stream Foundations* courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

**Note: Students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams.*

3. A CGPA of 2.5 or higher.

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.

Prospective Co-op Students:
Prospective Co-op students (i.e., those not yet admitted to a Co-op Degree POSt) must submit a program request on ACORN, and meet the minimum qualifications noted above. Deadlines follow the Limited Enrolment Program Application Deadlines set by the Office of the Registrar each year. Failure to submit the program request on ACORN will result in that student's application not being considered.

Description of Proposed Changes:
1. Description: adding clarifying language about allowed program combinations.
2. Enrolment Requirements: clarify that spaces in the program are limited, also some editorial and structural changes to the formatting/phrasing of this section.
3. Requirement 4: renumbering NROC34H3 to BIOC44H3
4. Requirement 8: Removing BIOD19H3 as an optional course and renumbering NROD08H3 to BIOD08H3.

Rationale:
1. There is significant overlap between the Neuroscience Major and Biology Minor, so this particular program combinations is being disallowed.
2. Capacity in the neuroscience programs is limited by the number of available spaces in laboratory courses. Added a statement that enrollment requirements may vary year-to-year depending on available spaces and the pool of eligible applicants. The department hopes to continue to admit all students who meet the minimum enrolment thresholds, however, as the program becomes more popular, they need this safety net in place to ensure we do not to exceed our capacity. The structural changes to the formatting/phrasing in this section do not change the requirements, but are meant to improve clarity and better understanding to students.
3. The NROC34H3 course belongs to the Department of Biological Sciences and is therefore being renumbered to BIOC44H3.
4. The Department of Biological Sciences is not able to accommodated Neuroscience students in BIOD19H3 and is not longer an option for NRO students. Also, the Department of Biological Sciences will be removing the double-numbering of BIOD08H3/NROD08H3 and keeping only the BIOD08H3 course code.

Impact: None

Consultations:
Ongoing conversations over 2023/2024 took place between Biology and Psychology regarding allowed program combinations.
Dept. of Biological Sciences consultation: Sept 2024.
DCC Approval: Oct 10 and Oct 23, 2024

Resource Implications: None.

Proposal Status: Under Review

SCSPE1272: SPECIALIST PROGRAM IN NEUROSCIENCE - Cellular/Molecular Stream (SCIENCE)

Completion Requirements:

Previous:
Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 6.5 credits, specific to the Cellular/Molecular stream, for a total of 13.0 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
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 or CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences *or* MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology or STAB22H3 Statistics I]

PSYB70H3 Methods in Psychological Science

CELLULAR/MOLECULAR STREAM (6.5 credits)

3. Quantitative Logic and Reasoning (1.0 credit):
PSYC08H3 Advanced Data Analysis in Psychology
and one of the following:
CSCA20H3 Introduction to Programming
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]

4. Advanced Foundations (2.0 credits)
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CHMB41H3 Organic Chemistry I
NROC36H3 Molecular Neuroscience
NROC69H3 Synaptic Organization & Physiology of the Brain

5. Stream-specific electives (1.0 credit)
two of the following:
BIOC12H3 Biochemistry I: Proteins & Enzymes
BIOC13H3 Biochemistry II: Bioenergetics & Metabolism
BIOC14H3 Genes, Environment and Behaviour
CHMB42H3 Organic Chemistry II
NROC34H3 Neuroethology
NROC61H3 Learning and Motivation
NROC64H3 Sensorimotor Systems
PSYC62H3 Drugs and the Brain

6. Breadth in Neuroscience (1.0 credit):
two of the following:
NROC34H3* Neuroethology
NROC61H3* Learning and Motivation
NROC64H3* Sensorimotor Systems
PSYB51H3 Introduction to Perception
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language
**only if not used to complete component 5 of the requirements*

7. Laboratory Course (0.5 credit):
one of the following:
BIOB12H3 Cell and Molecular Biology Laboratory
NROC60H3 Cellular Neuroscience Laboratory (recommended)
NROC63H3 Behavioural Neuroscience Laboratory
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience

8. Capstone Courses (1.0 credit):
two of the following:
BIOD06H3 Advanced Topics in Neural Basis of Motor Control
BIOD07H3 Advanced Topics and Methods in Neural Circuit Analysis
BIOD19H3 Epigenetics in Health and Disease
BIOD65H3 Pathologies of the Nervous System
NROD08H3/BIOD08H3 Theoretical Neuroscience
NROD60H3 Current Topics in Neuroscience
NROD61H3 Emotional Learning Circuits
NROD66H3 Drug Addiction
NROD67H3 Neuroscience of Aging
NROD98Y3 Thesis in Neuroscience*
PSYD66H3 Current Topics in Human Brain & Behaviour
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

New:
Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 6.5 credits, specific to the Cellular/Molecular stream, for a total of 13.0 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
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 *or* CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences *or* MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology *or* STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

CELLULAR/MOLECULAR STREAM (6.5 credits)

3. Quantitative Logic and Reasoning (1.0 credit):
PSYC08H3 Advanced Data Analysis in Psychology
and one of the following:
CSCA20H3 Introduction to Programming
[PHYA10H3 Physics I for the Physical Sciences *or* PHYA11H3 Physics I for the Life Sciences]

4. Advanced Foundations (2.0 credits)
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CHMB41H3 Organic Chemistry I
NROC36H3 Molecular Neuroscience
NROC69H3 Synaptic Organization & Physiology of the Brain

5. Stream-specific electives (1.0 credit)
two of the following:
BIOC12H3 Biochemistry I: Proteins & Enzymes
BIOC13H3 Biochemistry II: Bioenergetics & Metabolism
BIOC14H3 Genes, Environment and Behaviour
BIOC44H3/(NROC34H3) Neuroethology
CHMB42H3 Organic Chemistry II
NROC61H3 Learning and Motivation
NROC64H3 Sensorimotor Systems
PSYC62H3 Drugs and the Brain

6. Breadth in Neuroscience (1.0 credit):
two of the following:
BIOC44H3/(NROC34H3)* Neuroethology
NROC61H3* Learning and Motivation
NROC64H3* Sensorimotor Systems
PSYB51H3 Introduction to Perception
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language
**only if not used to complete component 5 of the requirements*

7. Laboratory Course (0.5 credit):
one of the following:
BIOB12H3 Cell and Molecular Biology Laboratory
NROC60H3 Cellular Neuroscience Laboratory *(recommended)*
NROC63H3 Behavioural Neuroscience Laboratory
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience

8. Capstone Courses (1.0 credit):
two of the following:
BIOD06H3 Advanced Topics in Neural Basis of Motor Control
BIOD07H3 Advanced Topics and Methods in Neural Circuit Analysis
BIOD08H3/(NROD08H3) Theoretical Neuroscience
BIOD65H3 Pathologies of the Nervous System
NROD60H3 Current Topics in Neuroscience
NROD61H3 Emotional Learning Circuits
NROD66H3 Drug Addiction
NROD67H3 Neuroscience of Aging
NROD98Y3 Thesis in Neuroscience*
PSYD66H3 Current Topics in Human Brain & Behaviour
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

Description:

Previous:
The Specialist program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience. The **Cellular/Molecular** stream explores the nervous system at its most fundamental level, investigating the influence of genes, signaling molecules, and cellular morphology on the development and maintenance of brain function, predominantly through the use of *in vitro* techniques (e.g., immunohistochemistry, patch clamp).

New:
The Specialist program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience. The **Cellular/Molecular** stream explores the nervous system at its most fundamental level, investigating the influence of genes, signaling molecules, and cellular morphology on the development and maintenance of brain function, predominantly through the use of *in vitro* techniques (e.g., immunohistochemistry, patch clamp).

Students may not combine a Neuroscience Specialist program with a Minor or Major program from the Department of Biological Sciences.

Enrolment Requirements:

Previous:
Enrolment in the Program is limited, and takes place in two stages.

Stage 1:
Students may apply to Stage 1 after successfully completing a minimum of 4.0 credits, including the following courses: BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3. Students must have a CGPA of 2.75 or higher to be admitted to the program. Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. When applying, note that the Subject POSt code for Stage 1 is **SCSPE1072**. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available streams. Students who have successfully met the enrolment requirements of their chosen stream will be admitted to the Specialist Neuroscience Stage 2 category. Applications for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods.

Before applying to their chosen stream, students must:

1. Complete a minimum of 10.0 credits including all Stage 1 course requirements, [MATA29H3 or MATA30H3], and the Neuroscience Foundations courses which include BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3;

2. Complete 1.0 credit in Stream Foundations courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

***Notes:**
(i) students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams;
(ii) the Cognitive stream does not include a component called "Stream-specific electives"; students interested in this stream should select from the following: MATA23H3, BIOB11H3, CHMB41H3, PSYB51H3, [PSYC08H3 or PSYC09H3].

3. Have achieved a CGPA of 2.5 or higher.

Students who do not meet the Stage 1 enrolment requirements can still apply to the Specialist program at Stage 2. This pathway requires students to complete a minimum of 10.0 credits, including all of the core courses of the program (Scientific Foundations, Neuroscience Foundations, and Stream Foundations). In addition to completing the course requirements, students must also have achieved a CGPA of 2.5 or higher across all courses, and a CGPA of 2.75 or higher across the Neuroscience Foundations and Stream Foundations courses. Application for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. Admission through this route is dependent upon the availability of space in the program.

New:
Enrolment in the Program is limited. The admission requirements may change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enrol in backup programs.

Enrolment takes place in two stages:

Stage 1:
The minimum requirements to be considered for admission are:

1. Completion of 4.0 credits, including BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3

2. A CGPA of 2.75 or higher.

Students will typically apply to Stage 1 at the end of their first year of study. **When applying, note that the Subject POSt code for Stage 1 is SCSPE1072.** Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available "Stage 2" streams: the Cognitive Stream, the Cellular/Molecular Stream, or the Systems/Behavioural Stream. Students will typically apply to Stage 2 at the end of their second year of study.

The minimum requirements to be considered for stream admission are:

1. Completion of 10.0 credits including: all Stage 1 course requirements, [MATA29H3 or MATA30H3], and all *Neuroscience Foundations* courses: BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3

2. Completion of 1.0 credit in *Stream Foundations* courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

**Note: Students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams.*

3. A CGPA of 2.5 or higher.
Students who are not enrolled in the Stage 1 Neuroscience Specialist can still apply to the program at Stage 2. The minimum requirements to be considered for admission via this pathway are: completion of 10.0 credits, including all Stage 1 course requirements, [MATA29H3 or MATA30H3], all *Neuroscience Foundations* courses, and 1.0 credits from *Stream Foundations*. Students must also have achieved a CGPA of 2.5 or higher across all courses, and a CGPA of 2.75 or higher across the *Neuroscience Foundations* and *Stream Foundations* courses.

Application for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods.

Description of Proposed Changes:
1. Description: adding clarifying language about allowed program combinations.
2. Enrolment Requirements: clarify that spaces in the program are limited, also some editorial and structural changes to the formatting/phrasing of this section.
3. Requirement 5&6: renumbering NROC34H3 to BIOC44H3
4. Requirement 8: Removing BIOD19H3 as an optional course, and renumbering NROD08H3 to BIOD08H3

Rationale:
1. There is significant overlap between the Neuroscience and Biology Major and Minor, so this particular program combinations is being disallowed.
2. Capacity in the neuroscience programs is limited by the number of available spaces in laboratory courses. Added a statement that enrollment requirements may vary year-to-year depending on available spaces and the pool of eligible applicants. The department hopes to continue to admit all students who meet the minimum enrolment thresholds, however, as the program becomes more popular, they need this safety net in place to ensure we do not to exceed our capacity. The structural changes to the formatting/phrasing in this section do not change the requirements but are meant to improve clarity and better understanding to students.
3. The NROC34H3 course belongs to the Department of Biological Sciences and is therefore being renumbered to BIOC44H3.
4. The Department of Biological Sciences is not able to accommodate Neuroscience students in BIOD19H3, so this course is being removed as an option for NRO students. Also, the Department of Biological Sciences will be removing the double-numbering of BIOD08H3/NROD08H3 and keeping only the BIOD08H 3course code.

Impact: None.

Consultations:
Ongoing conversations over 2023/2024 took place between Biology and Psychology regarding allowed program combinations.
Dept. of Biological Sciences consultation: Sept 2024.
DCC Approval: Oct 10 and Oct 23, 2024

Resource Implications: None.

Proposal Status: Under Review

SCSPE1172: SPECIALIST PROGRAM IN NEUROSCIENCE - Cognitive Stream (SCIENCE)

Completion Requirements:

Previous:
Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 7.0 credits, specific to the Cognitive stream, for a total of 13.5 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
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 or CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences *or* MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology or STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

COGNITIVE STREAM (7.0 credits)

3. Quantitative and Methodological Skills (1.5 credits):
PSYC02H3 Scientific Communication in Psychology
PSYC70H3 Advanced Research Methods Laboratory
[PSYC08H3 Advanced Data Analysis in Psychology or PSYC09H3 Applied Multiple Regression in Psychology]

4. Advanced Programming (1.5 credits)
MATA23H3 Linear Algebra
[[CSCA08H3 Introduction to Computer Science I and CSCA48H3 Introduction to Computer Science II]* *or* [PSYB03H3 Introduction to Computers in Psychological Research and PSYC03H3 Introduction to Computers in Psychological Research: Advanced Topics]]
*Note: students are strongly advised to choose the [PSYB03H3 and PSYC03H3] pairing.

5. Advanced Foundations (1.5 credits)
PSYB51H3 Introduction to Perception
and two of the following:
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language

6. Breadth in Neuroscience (1.0 credit):
two of the following (at least 0.5 credit must be a C-level NRO course):
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CHMB41H3 Organic Chemistry I
NROC34H3 Neuroethology
NROC36H3 Molecular Neuroscience
NROC61H3 Learning and Motivation
NROC64H3 Sensorimotor Systems
NROC69H3 Synaptic Organization & Physiology of the Brain

7. Laboratory Course (0.5 credit):
one of the following:
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience
PSYC75H3 Cognitive Psychology Laboratory
PSYC76H3 Brain Imaging Laboratory

8. Capstone Courses (1.0 credit):
two of the following:
PSYD17H3 Social Neuroscience
PSYD50H3 Current Topics in Memory and Cognition
PSYD51H3 Current Topics in Perception
PSYD54H3 Current Topics in Visual Recognition
PSYD55H3 Functional Magnetic Resonance Imaging Laboratory
PSYD62H3 Neuroscience of Pleasure and Reward
PSYD66H3 Current Topics in Human Brain & Behaviour
NROD98Y3 Thesis in Neuroscience*
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

New:
Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 7.0 credits, specific to the Cognitive stream, for a total of 13.5 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
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 *or* CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences *or* MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology *or* STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

COGNITIVE STREAM (7.0 credits)

3. Quantitative and Methodological Skills (1.5 credits):
PSYC02H3 Scientific Communication in Psychology
PSYC70H3 Advanced Research Methods Laboratory
[PSYC08H3 Advanced Data Analysis in Psychology *or* PSYC09H3 Applied Multiple Regression in Psychology]

4. Advanced Programming (1.5 credits)
MATA23H3 Linear Algebra
[[CSCA08H3 Introduction to Computer Science I *and* CSCA48H3 Introduction to Computer Science II]* *or* [PSYB03H3 Introduction to Computers in Psychological Research *and* PSYC03H3 Introduction to Computers in Psychological Research: Advanced Topics]]
**Note: students are strongly advised to choose the [PSYB03H3 and PSYC03H3] pairing.*

5. Advanced Foundations (1.5 credits)
PSYB51H3 Introduction to Perception
and two of the following:
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language

6. Breadth in Neuroscience (1.0 credit):
two of the following (at least 0.5 credit must be at the C-level):
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
BIOC44H3/(NROC34H3) Neuroethology
CHMB41H3 Organic Chemistry I
NROC36H3 Molecular Neuroscience
NROC61H3 Learning and Motivation
NROC64H3 Sensorimotor Systems
NROC69H3 Synaptic Organization & Physiology of the Brain

7. Laboratory Course (0.5 credit):
one of the following:
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience
PSYC75H3 Cognitive Psychology Laboratory
PSYC76H3 Brain Imaging Laboratory

8. Capstone Courses (1.0 credit):
two of the following:
PSYD17H3 Social Neuroscience
PSYD50H3 Current Topics in Memory and Cognition
PSYD51H3 Current Topics in Perception
PSYD54H3 Current Topics in Visual Recognition
PSYD55H3 Functional Magnetic Resonance Imaging Laboratory
PSYD62H3 Neuroscience of Pleasure and Reward
PSYD66H3 Current Topics in Human Brain & Behaviour
NROD98Y3 Thesis in Neuroscience*
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

Description:

Previous:
The Specialist program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience. The **Cognitive** stream focuses on understanding the neural basis of human cognition (e.g., language, memory, attention, decision-making) predominantly through the use of patient neuropsychology and neuroimaging techniques (e.g., magnetic resonance imaging (MRI), electroencephalography (EEG)).

New:

The Specialist program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience. The **Cognitive** stream focuses on understanding the neural basis of human cognition (e.g., language, memory, attention, decision-making) predominantly through the use of patient neuropsychology and neuroimaging techniques (e.g., magnetic resonance imaging (MRI), electroencephalography (EEG)).

Students may not combine a Neuroscience Specialist program with a Minor or Major program from the Department of Biological Sciences.

Enrolment Requirements:

Previous:
Enrolment in the Program is limited, and takes place in two stages.

Stage 1:
Students may apply to Stage 1 after successfully completing a minimum of 4.0 credits, including the following courses: BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3. Students must have a CGPA of 2.75 or higher to be admitted to the program. Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. When applying, note that the Subject POSt code for Stage 1 is **SCSPE1072**. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available streams. Students who have successfully met the enrolment requirements of their chosen stream will be admitted to the Specialist Neuroscience Stage 2 category. Applications for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods.

Before applying to their chosen stream, students must:

1. Complete a minimum of 10.0 credits including all Stage 1 course requirements, [MATA29H3 or MATA30H3], and the Neuroscience Foundations courses which include BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3;

2. Complete 1.0 credit in Stream Foundations courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

***Notes:**
(i) students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams;
(ii) the Cognitive stream does not include a component called "Stream-specific electives"; students interested in this stream should select from the following: MATA23H3, BIOB11H3, CHMB41H3, PSYB51H3, [PSYC08H3 or PSYC09H3].

3. Have achieved a CGPA of 2.5 or higher.

Students who do not meet the Stage 1 enrolment requirements can still apply to the Specialist program at Stage 2. This pathway requires students to complete a minimum of 10.0 credits, including all of the core courses of the program (Scientific Foundations, Neuroscience Foundations, and Stream Foundations). In addition to completing the course requirements, students must also have achieved a CGPA of 2.5 or higher across all courses, and a CGPA of 2.75 or higher across the Neuroscience Foundations and Stream Foundations courses. Application for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. Admission through this route is dependent upon the availability of space in the program.

New:
Enrolment in the Program is limited. The admission requirements may change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enrol in backup programs.

Enrolment takes place in two stages:

Stage 1:
The minimum requirements to be considered for admission are:

1. Completion of 4.0 credits, including BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3

2. A CGPA of 2.75 or higher.

Students will typically apply to Stage 1 at the end of their first year of study. **When applying, note that the Subject POSt code for Stage 1 is SCSPE1072.** Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available "Stage 2" streams: the Cognitive Stream, the Cellular/Molecular Stream, or the Systems/Behavioural Stream. Students will typically apply to Stage 2 at the end of their second year of study.

The minimum requirements to be considered for stream admission are:

1. Completion of 10.0 credits including: all Stage 1 course requirements, [MATA29H3 or MATA30H3], and all *Neuroscience Foundations* courses: BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3

2. Completion of 1.0 credit in *Stream Foundations* courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

**Note: Students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams.*

3. A CGPA of 2.5 or higher.
Students who are not enrolled in the Stage 1 Neuroscience Specialist can still apply to the program at Stage 2. The minimum requirements to be considered for admission via this pathway are: completion of 10.0 credits, including all Stage 1 course requirements, [MATA29H3 or MATA30H3], all *Neuroscience Foundations* courses, and 1.0 credits from *Stream Foundations*. Students must also have achieved a CGPA of 2.5 or higher across all courses, and a CGPA of 2.75 or higher across the *Neuroscience Foundations* and *Stream Foundations* courses.

Application for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods.

Description of Proposed Changes:
1. Program Description: adding clarifying language to allow program combinations.
2. Enrolment Requirements: Updating enrolment requirements to clarify that spaces in the program are limited and additional changes as well as reformatting the structure in this area.
3. Requirement 6: NROC34H3 is renumbered to BIOC44H3

Rationale:
1. There is significant overlap between the Neuroscience Major and Biology Minor, so this particular program combinations is being disallowed.
2. Capacity in the neuroscience programs is limited by the number of available spaces in laboratory courses. Added a statement that enrollment requirements may vary year-to-year depending on available spaces and the pool of eligible applicants. The department hopes to continue to admit all students who meet the minimum enrolment thresholds, however, as the program becomes more popular, they need this safety net in place to ensure we do not to exceed our capacity. Also made some structural changes to formatting/phrasing in this section that do not change the requirements, but are meant to improve clarity and understanding for students.
3. The NROC34H3 course belongs to the Department of Biological Sciences, the course is being renumbered to BIOC44H3

Impact: None

Consultations:
Ongoing conversations over 2023/2024 took place between Biology and Psychology regarding allowed program combinations.
Dept. of Biological Sciences consultation: Sept 2024.
DCC Approval: Oct 10 and Oct 23, 2024

Resource Implications: None.

Proposal Status: Under Review

SCSPE1372: SPECIALIST PROGRAM IN NEUROSCIENCE - Systems/Behavioural Stream (SCIENCE)

Completion Requirements:

Previous:
Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 6.5 credits, specific to the Systems/Behavioural stream, for a total of 13.0 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
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 or CHMA12H3 Advanced General Chemistry]
[MATA29H3 Calculus I for the Life Sciences *or* MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology or STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

SYSTEMS/BEHAVIOURAL STREAM (6.5 credits)

3. Quantitative Logic and Reasoning (1.0 credit):
PSYC08H3 Advanced Data Analysis in Psychology
and one of the following:
CSCA20H3 Introduction to Programming
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]

4. Advanced Foundations (2.0 credits)
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
NROC61H3 Learning and Motivation
and two of the following:
NROC34H3 Neuroethology
NROC64H3 Sensorimotor Systems
NROC69H3 Synaptic Organization & Physiology of the Brain

5. Stream-specific electives (1.0 credit)
two of the following:
BIOC14H3 Genes, Environment and Behaviour
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
NROC36H3 Molecular Neuroscience
PSYC62H3 Drugs and the Brain

6. Breadth in Neuroscience (1.0 credit):
two of the following:
CHMB41H3* Organic Chemistry I
NROC36H3* Molecular Neuroscience
NROC69H3* Synaptic Organization & Physiology of the Brain
PSYB51H3 Introduction to Perception
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language
**only if not used to complete components 4 or 5 of the requirements*

7. Laboratory Course (0.5 credit):
one of the following:
NROC60H3 Cellular Neuroscience Laboratory
NROC63H3 Behavioural Neuroscience Laboratory (recommended)
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience
PSYC74H3 Human Movement Laboratory

8. Capstone Courses (1.0 credit):
two of the following:
BIOD06H3 Advanced Topics in Neural Basis of Motor Control
BIOD07H3 Advanced Topics and Methods in Neural Circuit Analysis
BIOD19H3 Epigenetics in Health and Disease
BIOD45H3 Animal Communication
BIOD65H3 Pathologies of the Nervous System
NROD08H3/BIOD08H3 Theoretical Neuroscience
NROD60H3 Current Topics in Neuroscience
NROD61H3 Emotional Learning Circuits
NROD66H3 Drug Addiction
NROD67H3 Neuroscience of Aging
NROD98Y3 Thesis in Neuroscience*
PSYD66H3 Current Topics in Human Brain & Behaviour
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

New:
Program Requirements
This program requires students to complete 6.5 credits in core courses that are common to all streams. Students will complete a further 6.5 credits, specific to the Systems/Behavioural stream, for a total of 13.0 credits.

CORE (6.5 credits)

1. Scientific Foundations (3.5 credits):
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 *or* CHMA12H3 Advanced General Chemistry]

[MATA29H3 Calculus I for the Life Sciences *or* MATA30H3 Calculus I for Physical Sciences]
PSYA01H3 Introduction to Biological and Cognitive Psychology
PSYA02H3 Introduction to Clinical, Developmental, Personality and Social Psychology

2. Neuroscience Foundations (3.0 credits):
BIOB10H3 Cell Biology
NROB60H3 Neuroanatomy Laboratory
NROB61H3 Neurophysiology
PSYB55H3 Introduction to Cognitive Neuroscience
[PSYB07H3 Data Analysis in Psychology *or* STAB22H3 Statistics I]
PSYB70H3 Methods in Psychological Science

SYSTEMS/BEHAVIOURAL STREAM (6.5 credits)

3. Quantitative Logic and Reasoning (1.0 credit):
PSYC08H3 Advanced Data Analysis in Psychology
and one of the following:
CSCA20H3 Introduction to Programming
[PHYA10H3 Physics I for the Physical Sciences *or* PHYA11H3 Physics I for the Life Sciences]

4. Advanced Foundations (2.0 credits)
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
NROC61H3 Learning and Motivation
and two of the following:
BIOC44H3/(NROC34H3) Neuroethology
NROC64H3 Sensorimotor Systems
NROC69H3 Synaptic Organization & Physiology of the Brain

5. Stream-specific electives (1.0 credit)
two of the following:
BIOC14H3 Genes, Environment and Behaviour
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
NROC36H3 Molecular Neuroscience
PSYC62H3 Drugs and the Brain

6. Breadth in Neuroscience (1.0 credit):
two of the following:
CHMB41H3* Organic Chemistry I
NROC36H3* Molecular Neuroscience
NROC69H3* Synaptic Organization & Physiology of the Brain
PSYB51H3 Introduction to Perception
PSYC51H3 Cognitive Neuroscience of Vision
PSYC52H3 Cognitive Neuroscience of Attention
PSYC53H3 Cognitive Neuroscience of Memory
PSYC54H3 Auditory Cognitive Neuroscience
PSYC57H3 Cognitive Neuroscience of Decision Making
PSYC59H3 Cognitive Neuroscience of Language
**only if not used to complete components 4 or 5 of the requirements*

7. Laboratory Course (0.5 credit):
one of the following:
NROC60H3 Cellular Neuroscience Laboratory
NROC63H3 Behavioural Neuroscience Laboratory *(recommended)*
NROC90H3 Supervised Study in Neuroscience
NROC93H3 Supervised Study in Neuroscience
PSYC74H3 Human Movement Laboratory

8. Capstone Courses (1.0 credit):
two of the following:
BIOD06H3 Advanced Topics in Neural Basis of Motor Control
BIOD07H3 Advanced Topics and Methods in Neural Circuit Analysis
BIOD08H3/(NROD08H3) Theoretical Neuroscience
BIOD45H3 Animal Communication
BIOD65H3 Pathologies of the Nervous System
NROD60H3 Current Topics in Neuroscience
NROD61H3 Emotional Learning Circuits
NROD66H3 Drug Addiction
NROD67H3 Neuroscience of Aging
NROD98Y3 Thesis in Neuroscience*
PSYD66H3 Current Topics in Human Brain & Behaviour
**Note: only 0.5 credit of NROD98Y3 can be counted towards the Capstone course requirement*

Description:

Previous:

The Specialist program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience. The **Systems/Behavioural** stream examines the neural mechanisms underlying behaviour and how brain circuits work together to analyze external stimuli, internal biological states, and past experiences in order to coordinate appropriate responses, predominantly through the use of *in vivo* approaches in behaving subjects (e.g., optogenetics, chemogenetics).

New:
The Specialist program in Neuroscience is a research-intensive program designed to provide students with strong breadth in the major domains of neuroscience. The **Systems/Behavioural** stream examines the neural mechanisms underlying behaviour and how brain circuits work together to analyze external stimuli, internal biological states, and past experiences in order to coordinate appropriate responses, predominantly through the use of *in vivo* approaches in behaving subjects (e.g., optogenetics, chemogenetics).

Students may not combine a Neuroscience Specialist program with a Minor or Major program from the Department of Biological Sciences.

Enrolment Requirements:

Previous:
Enrolment in the Program is limited, and takes place in two stages.

Stage 1:
Students may apply to Stage 1 after successfully completing a minimum of 4.0 credits, including the following courses: BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3. Students must have a CGPA of 2.75 or higher to be admitted to the program. Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. When applying, note that the Subject POSt code for Stage 1 is **SCSPE1072**. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available streams. Students who have successfully met the enrolment requirements of their chosen stream will be admitted to the Specialist Neuroscience Stage 2 category. Applications for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods.

Before applying to their chosen stream, students must:

1. Complete a minimum of 10.0 credits including all Stage 1 course requirements, [MATA29H3 or MATA30H3], and the Neuroscience Foundations courses which include BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3;

2. Complete 1.0 credit in Stream Foundations courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

***Notes:**
(i) students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams;
(ii) the Cognitive stream does not include a component called "Stream-specific electives"; students interested in this stream should select from the following: MATA23H3, BIOB11H3, CHMB41H3, PSYB51H3, [PSYC08H3 or PSYC09H3].

3. Have achieved a CGPA of 2.5 or higher.
Students who do not meet the Stage 1 enrolment requirements can still apply to the Specialist program at Stage 2. This pathway requires students to complete a minimum of 10.0 credits, including all of the core courses of the program (Scientific Foundations, Neuroscience Foundations, and Stream Foundations). In addition to completing the course requirements, students must also have achieved a CGPA of 2.5 or higher across all courses, and a CGPA of 2.75 or higher across the Neuroscience Foundations and Stream Foundations courses. Application for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. Admission through this route is dependent upon the availability of space in the program.

New:
Enrolment in the Program is limited. The admission requirements may change each year depending on available spaces and the pool of eligible applicants, and students are cautioned that there is no guarantee of admission; as such, students are strongly advised to plan to enrol in backup programs.

Enrolment takes place in two stages:

Stage 1:
The minimum requirements to be considered for admission are:

1. Completion of 4.0 credits, including BIOA01H3, BIOA02H3, CHMA10H3, [CHMA11H3 or CHMA12H3], PSYA01H3, and PSYA02H3

2. A CGPA of 2.75 or higher.
Students will typically apply to Stage 1 at the end of their first year of study. **When applying, note that the Subject POSt code for Stage 1 is SCSPE1072.** Application for admission will be made to the Office of the Registrar through ACORN, during the Limited Program application periods. For more information on applying to limited enrolment programs, please visit the Office of the Registrar website.

Stage 2:
To complete the program, students must choose one of the three available "Stage 2" streams: the Cognitive Stream, the Cellular/Molecular Stream, or the Systems/Behavioural Stream. Students will typically apply to Stage 2 at the end of their second year of study.

The minimum requirements to be considered for stream admission are:

1. Completion of 10.0 credits including: all Stage 1 course requirements, [MATA29H3 or MATA30H3], and all *Neuroscience Foundations* courses: BIOB10H3, NROB60H3, NROB61H3, [PSYB07H3 or STAB22H3], PSYB55H3, PSYB70H3

2. Completion of 1.0 credit in *Stream Foundations* courses from the following list*:
BIOB11H3 Molecular Aspects of Cellular and Genetic Processes
CSCA20H3 Introduction to Programming
CHMB41H3 Organic Chemistry I
CHMB42H3 Organic Chemistry II
MATA23H3 Linear Algebra
[PHYA10H3 Physics I for the Physical Sciences or PHYA11H3 Physics I for the Life Sciences]
PSYB51H3 Introduction to Perception
PSYC08H3 Advanced Data Analysis in Psychology
PSYC09H3 Applied Multiple Regression in Psychology

**Note: Students are advised to exercise caution when selecting these courses since some can be applied to all three streams (BIOB11H3, CHMB41H3, PSYB51H3, PSYC08H3), but others can be applied to only one or two streams.*

3. A CGPA of 2.5 or higher.
Students who are not enrolled in the Stage 1 Neuroscience Specialist can still apply to the program at Stage 2. The minimum requirements to be considered for admission via this pathway are: completion of 10.0 credits, including all Stage 1 course requirements, [MATA29H3 or MATA30H3], all *Neuroscience Foundations* courses, and 1.0 credits from *Stream Foundations*. Students must also have achieved a CGPA of 2.5 or higher across all courses, and a CGPA of 2.75 or higher across the *Neuroscience Foundations* and *Stream Foundations* courses.

Application for admission to a Stage 2 stream will be made to the Office of the Registrar through ACORN, during the Limited Program application periods.

Description of Proposed Changes:
1. Description: adding clarifying language about allowed program combinations.
2. Enrolment Requirements: clarify that spaces in the program are limited, also some editorial and structural changes to the formatting/phrasing of this section.
3. Requirement 4: renumbering NROC34H3 to BIOC44H3
4. Requirement 8: Removing BIOD19H3 as an optional course and renumbering NROD08H3 to BIOD08H3.

Rationale:
1. There is significant overlap between the Neuroscience Major and Biology Minor, so this particular program combinations is being disallowed.
2. Capacity in the neuroscience programs is limited by the number of available spaces in laboratory courses. Added a statement that enrollment requirements may vary year-to-year depending on available spaces and the pool of eligible applicants. The department hopes to continue to admit all students who meet the minimum enrolment thresholds, however, as the program becomes more popular, they need this safety net in place to ensure we do not to exceed our capacity. The structural changes to the formatting/phrasing in this section do not change the requirements but are meant to improve clarity and better understanding to students.
3. The NROC34H3 course belongs to the Department of Biological Sciences and is renumbering this course to BIOC44H3
4. The Department of Biological Sciences is not able to accommodate Neuroscience students in BIOD19H3 and is therefore no longer offered as an optional course. Also, the Department of Biological Sciences will be removing the double-numbering of BIOD08H3/NROD08H3 and keeping only the BIOD08H3 course code.

Impact: None.

Consultations:
Ongoing conversations over 2023/2024 took place between Biology and Psychology regarding allowed program combinations.
Dept. of Biological Sciences consultation: Sept 2024.
DCC Approval: Oct 10 and Oct 23, 2024

Resource Implications: None.

Proposal Status: Under Review

1 New Course - No Committee

PSYB83H3: Psychology and Videogames

Description:

This course will use videogames as a framework for exploring key concepts and findings in psychology, drawing on both player experiences and research findings. We will survey topics from cognitive, clinical, social, personality, and developmental psychology including intersection points between disciplines. We will also explore cross-cutting issues related to research methods, ethics, diversity, and representation.

Prerequisites: PSYA01H3

Corequisites: PSYA02H3

Notes: Priority will be given to students in the "Psychology & Health Studies" admission category. Students in other admission categories will be admitted as space permits.

Delivery Method: In Person

Methods of Assessment:

Term test (in-person) [34%, LOs #1,2,3,4]:
- multiple choice or similar

Final exam (in-person) [45%, LOs #1,2,3,4]:
- multiple choice or similar + written component if feasible; comprehensive but weighted toward second half of course

Short writing assignment(s) via Peer Scholar [6% total, LOs #1,2,3,5]:
- involves identifying an example from video game(s) that is relevant to a foundational psychological concept and explaining the connection with a link to research on that topic; initial draft + peer review + revised final submission

Post-class comprehension check-ins [8% total, LOs ##1,2,3,4]:
- multiple choice or similar format quizzes administered via Quercus to evaluate understanding of key concepts & promote active engagement with class; administered most weeks after enrolment closes

Short experiential research assignment [5%, LOs #2,3,4]:
- Students to play a videogame and draw connections between that game and topics covered in class supplemented by findings from the academic research literature

Early Semester / Late Semester Reflection [2%, LOs #4,5]:
- short survey with open ended questions related to course progress and growth

Breadth Requirements:

Social & Behavioural Sciences

University of Toronto Scarborough

CNC Allowed:

Y

Credit Value:

fixed: 0.5

Learning Outcomes:

By the end of this course, students will be able to:
1. Define a variety of concepts, theories, and research findings from cognitive, clinical, social, personality, and developmental psychology
2. Explain psychological theories and principles in lay terms, using video games as literal or analogical examples
3. Summarize relevant theories and findings from videogame-focused research in psychology
4. Think critically about topics related to research and popular understanding of videogame-related research
5. Provide feedback to peers on scholarly writing and integrate feedback from peers on their own work

Topics Covered:

CROSS-CUTTING & CONTEXTUAL TOPICS
- Evidence quality / bias in research literature
- Data aggregation methods (meta-analysis)
- Identity/representation in games
- “X area in the brain”

COGNITIVE / LEARNING MODULE
- Learning & rewards [schedules / game mechanics; engagement vs. skill development]
- Decision-making [Loss aversion, Proximal vs. Distal rewards; Emotional reasoning]
- “Gamification” [“learning games” vs game concepts applied to other tasks; Evaluating evidence from literature]
- Implicit learning [Unintended learning (retro/anterograde; map memory); Influence of prior experience; Getting “stuck”, insight/eureka moments]
- Contextual Learning [Strategy / “meta-gaming”; Cheating]

DEVELOPMENTAL MODULE
- Games and growing kids: harmful? helpful? [Anger/violence / desensitization; Exploring controversy; As a targeted support for learning (e.g., remedying early life eye injury); As social experience]
- Morality/ethics [In-game morality (moral choice systems, heroic avatars); Morality games / complex moral questions; Meta-game morality (cheating, exploits, scams); “gaming” the academic publishing system]
- Nostalgia

SOCIAL/PERSONALITY MODULE
- Personality and game preferences [Stability over time? (Ludonarrative dissonance, Empowerment experiences)]
- Playing with others [Games and community / online relationships; Conformity and rules]
- Morality redux [Toxicity, trolling, harassment]

CLINICAL / MENTAL HEALTH MODULE
- Representation of mental health in games
- Engagement (rewards) vs. “addiction” [controversy – video game addiction; Addictive/obsessive game behaviours (hoarding, XP grinding) and game mechanics (loot boxes, battle passes)]
- Games as avoidance/coping strategy
- Positive psychology and mental health (e.g., cozy games)
- Clinical applications: therapy themes, pain management, VR therapy, community support

Rationale: This course aligns with Strategic Priority 1 from the 2023-2028 Departmental Plan in Psychology: Innovative, High-Quality Undergraduate and Graduate Experience and Success. It supports recent efforts to develop a suite of broadly appealing psychology courses, particularly those designed to “create high-enrollment courses for non-program and program students without adding pressure to existing courses.”
Videogames are highly popular, especially among post-secondary students, and often a topic of public discussion. PSYB81H3 would join the newly developed 80-series courses, designed to expose students to cross-cutting themes in psychological science without focusing on a specific research area (e.g., personality psychology). The course will be accessible to students outside of the department's core programs (PSY, MHS, NRO), who may be interested in psychology but

are limited by prerequisites, enrollment priorities, or course availability.
Although the course will attract students from within our programs, it is not designed as a steppingstone for students to transition into these programs. PSYB81H3 will also appeal to our own students for reasons beyond its focus on videogames.

Consultation:
Preliminary consultation w/ Chairs: July 2024
Consultation w/ AC Undergrad & Undergrad Course Coordinator: August 2024
DCC approved Oct 10, 2024
RO Approval by Amber Lantsman Oct 21, 2024

Resources: The course will be taught by regular faculty. The course will require TA support of 1 hour per student (i.e. estimating 500 hours total). The department will accommodate any additional TA needs within their own budget allocation, unless there is an enrolment increase. The Dean's Office will assess TA needs based on the department's overall enrolment for the year (agreed upon: December 4, 2024)

Overlap with Existing Courses:
No courses at UTSC, UTM, or St. George's Psychology departments focus on videogames. This course's thematic emphasis on videogames for student engagement and learning is unique. The new B-level English course and the existing C-level videogame course differ in their focus on narrative analysis, as they are offered through the Department of English. Similarly, videogame-related courses at other campuses have distinct disciplines, learning goals, and target audiences.

Proposal Status: Under Review

4 Course Modifications - No Committee

PSYB03H3: Introduction to Computers in Psychological Research

Description:

Previous:

The course will provide introductory knowledge and hands-on training in computer-based implementations of experimental design, data processing and result interpretation in psychology. The course covers implementations of experimental testing paradigms, computational explorations of empirical data structure and result visualization with the aid of specific programming tools (e.g., Matlab).

New:

The course will provide introductory knowledge and hands-on training in computer-based implementations of experimental design, data processing and result interpretation in psychology. The course covers implementations of experimental testing paradigms, computational explorations of empirical data structure and result visualization with the aid of specific programming tools (e.g., Python).

Notes:

Previous: Priority will be given to students in the Specialist/Specialist Co-op programs in Psychology, Mental Health Studies, and Neuroscience (Cognitive stream). Students in the Major/Major Co-op programs in Psychology and Mental Health Studies will be admitted as space permits.

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

Methods of Assessment:

New: Assignments (28%) – Learning outcomes 1-4
Activities are small exercises that are assigned multiple times throughout the term as a way for you to demonstrate your knowledge of course content. They may require you to write code or provide short answers to questions.

Midterm exam (36%) – Learning outcomes 1-5
The Midterm Examination will cover materials from weeks 1-6 (see course schedule on the last page of this syllabus).

Final exam (36%) – Learning outcomes 1-5
The exam will cover material from all lectures, labs, and activities.

Learning Outcomes:

New: The goals of the course target a broad set of skills related to: understanding and demonstrating procedural abstraction when writing / evaluating computer code (identify and define a problem, design an algorithmic approach to address the problem, critically evaluate the success of a solution); using variables/values/types, assignment, and control flow (conditionals / loops / error handling) as well as recognizing the importance of memory considerations and file management in a programming environment; demonstrating good commenting and documentation practices when writing computer code; generating graphical data and exporting this for use in reports, presentations; recognizing and articulating the wide scope of computer use in psychology and neuroscience. The course will set the ground for developing the mastery of programming methods and techniques relevant to empirical and computational research. More generally, the course will be instrumental in developing critical and creative thinking skills as involved in the implementation and the evaluation of alternative solutions to a range of problems relevant for psychological research. Last, the course aims to sharpen quantitative reasoning skills related to the implementation of specific algorithms / computations as well as to improve on graphical communication skills as involved in the plotting of data sets.

Rationale:
1. The course description has been updated to reflect a change from using Matlab to Python. Editorial updates made to the course note section.
2. Updated missing fields in the LO, TC, and MOA that were not required when the course was originally proposed. While the theoretical content and structure of the course remain largely the same, Matlab will be replaced with Python for programming purposes. This change is timely in that, recently, Python has displaced Matlab from most packages for data collection, analysis, visualization etc. in psychology and neuroscience. Hence, this change will provide students with access to the most relevant and up-to-date computational tools for study and research in these fields. Also, it is unclear at this time whether a UofT-wide license, able to cover the substantial cost of Matlab and additional packages for students and faculty, will continue to be available after the next academic year.

Consultation:
Psychology DCC approved Sept 12, 2024.

Computer Science and Linguistics departments notified: Oct 23, 2024.

Resources: None.

Overlap with Existing Courses:
CSCA08H3, CSCA20H3 and LINB19H3 introduce/rely on Python as a programming language. While some similarity with these courses is expected given the reliance on the same language, PSYB03H3 is significantly different in that it emphasizes the applicability and the use of programming in psychology/neuroscience research. Thus, there is not sufficient overlap to warrant an exclusion.

Proposal Status: Under Review

PSYC03H3: Computers in Psychological Research: Advanced Topics

Description:

Previous: The course will provide advanced knowledge and hands-on training in computer-based implementations of experimental design, data processing and result interpretation in psychology. The course covers implementations of experimental testing paradigms, computational explorations of empirical data structure, and result visualization with the aid of specific programming tools (e.g., Matlab).

New: The course will provide advanced knowledge and hands-on training in computer-based implementations of experimental design, data processing and result interpretation in psychology. The course covers implementations of experimental testing paradigms, computational explorations of empirical data structure, and result visualization with the aid of specific programming tools (e.g., Python).

Notes:

Previous: Priority will be given to students in the Specialist/Specialist Co-op program in Neuroscience (Cognitive stream). Students in the Specialist/Specialist Co-op and Major/Major Co-op programs in Psychology and Mental Health Studies will be admitted as space permits.

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

Methods of Assessment:

New:
Assignments (28%) – Learning Outcomes 1-7
Assignments are small exercises that are assigned multiple times throughout the term as a way for you to demonstrate your knowledge of course content. They may require you to write code or provide short answers to questions.

Midterm exam (36%) – Learning Outcomes 2,4,5-7
The Midterm Examination will cover materials from weeks 1-6.

Final exam (36%) – Learning Outcomes 2,4,5-7
The final exam will cover materials from all weeks.

Learning Outcomes:

New: The goals of the course target a broad set of skills related to: (1) implementing behavioral testing paradigms, including stimulus construction, manipulation and display as well as experimental data recording; (2) exploring data structure via statistical tests and basic computational models; (3) visualizing and interpreting results using suitable graphical representations of data structure; (4) evaluating if and how specific research issues can benefit when approached from a computational implementation-driven perspective. More generally, this course will: (5) be instrumental in developing critical and creative thinking skills as involved in the implementation and the evaluation of alternative solutions to complex problems in psychological research; (6) deepen and expand the students' mastery of programming methods and techniques relevant to empirical and computational research in psychology; (7) sharpen quantitative reasoning skills related to the implementation of specific algorithms / computations as well as to improve on graphical communication skills as involved in the plotting of complex data sets.

Rationale:
1. Course description has been updated to reflect a change from using Matlab to Python. Updated the Note to indicate current enrollment priority sequence.
2. Filled in missing fields in the LO, TC, and MOA that were not required when the course was originally proposed. While the theoretical content and structure of the course remain largely the same, Matlab will be replaced with Python for programming purposes. This change is timely in that, recently, Python has displaced Matlab from most packages for data collection, analysis, visualization etc. in psychology and neuroscience. Hence, this change will provide students with access to the most relevant and up-to-date computational tools for study and research in these fields. Also, it is unclear at this time whether a UofT-wide license, able to cover the substantial cost of Matlab and additional packages for students and faculty, will continue to be available after the next academic year.

Consultation:
Psychology DCC approved Sept 12, 2024.
Computer Science and Linguistics departments notified: Oct 23, 2024.

Resources: None

Proposal Status: Under Review

PSYC90H3: Supervised Study in Psychology

Description:

Previous: An intensive research project intended to provide laboratory/field experience in data collection and analysis. The project must be completed over 2 consecutive terms.
These courses provide an opportunity to engage in research in an area after completing basic coverage in regularly scheduled courses. The student must demonstrate a background adequate for the project proposed and should present a clear rationale to prospective supervisors. Regular consultation with the supervisor is necessary, and extensive data collection and analysis will be required. Such a project will culminate in a written research report.
Students must first find a supervisor before the start of the academic term in which the project will be initiated. They must then obtain a permission form from the Department of Psychology's website that is to be completed and signed by the intended supervisor, and returned to the Psychology Office.
Students seeking supervision off campus are further advised to check the appropriateness of the proposed advisor with the Program Supervisor. If the proposed

supervisor is not appointed to the Psychology faculty at UTSC then a secondary advisor, that is appointed at UTSC, will be required.

New: An intensive research project intended to provide laboratory/field experience in data collection and analysis. The project must be completed over 2 consecutive terms.
These courses provide an opportunity to engage in research in an area after completing basic coverage in regularly scheduled courses. The student must demonstrate a background adequate for the project proposed and should present a clear rationale to prospective supervisors. Regular consultation with the supervisor is necessary, and extensive data collection/processing and analysis will ordinarily be required. Such a project will culminate in a written research report.
Students must first find a supervisor before the start of the academic term in which the project will be initiated. They must then obtain a permission form from the Department of Psychology's website that is to be completed and signed by the intended supervisor, and returned to the Psychology Office.
Students seeking supervision off campus are further advised to check the appropriateness of the proposed advisor with the Program Supervisor. If the proposed supervisor is not appointed to the Psychology faculty at UTSC then a secondary advisor, that is appointed at UTSC, will be required.

Prerequisites:

Previous: [PSYB07H3 or STAB22H3 or STAB23H3] and PSYB70H3 and [2.0 additional PSY credits] and permission of the proposed supervisor. Normally students need a cumulative GPA of at least 2.7 for permission to be granted.

New: [PSYB07H3 or STAB22H3 or STAB23H3] and PSYB70H3 and [2.0 additional PSY credits] and [enrolment in the Specialist/Specialist Co-op, or Major/Major Co-op Program in Psychology, Mental Health Studies, Neuroscience, or Psycholinguistics] and [a CGPA of 3.0 or higher] and permission of the proposed supervisor.

Rationale:
1. The course description has been updated to clarify the expectations of the research project.
2. The prerequisites have been updated as follows:
- CGPA requirement increased to 3.0 to bring requirement in line with the PSYB90H3 research course; this higher GPA requirement will help to ensure that students joining this course have the appropriate level of competency for success.
- Included the list of eligible programs in the prerequisites. This has already been enforced in practice, via enrollment controls.

Consultation:
DCC approved Sept. 12, 2024

Resources: None.

Proposal Status: Under Review

PSYC93H3: Supervised Study in Psychology

Description:

Previous: An intensive research project intended to provide laboratory/field experience in data collection and analysis. The project must be completed over 2 consecutive terms.
These courses provide an opportunity to engage in research in an area after completing basic coverage in regularly scheduled courses. The student must demonstrate a background adequate for the project proposed and should present a clear rationale to prospective supervisors. Regular consultation with the supervisor is necessary, and extensive data collection and analysis will be required. Such a project will culminate in a written research report.
Students must first find a supervisor before the start of the academic term in which the project will be initiated. They must then obtain a permission form from the Department of Psychology's website that is to be completed and signed by the intended supervisor, and returned to the Psychology Office.
Students seeking supervision off campus are further advised to check the appropriateness of the proposed advisor with the Program Supervisor. If the proposed supervisor is not appointed to the Psychology faculty at UTSC then a secondary advisor, that is appointed at UTSC, will be required.

New: An intensive research project intended to provide laboratory/field experience in data collection and analysis. The project must be completed over 2 consecutive terms.
These courses provide an opportunity to engage in research in an area after completing basic coverage in regularly scheduled courses. The student must demonstrate a background adequate for the project proposed and should present a clear rationale to prospective supervisors. Regular consultation with the supervisor is necessary, and extensive data collection/processing and analysis will ordinarily be required. Such a project will culminate in a written research report.
Students must first find a supervisor before the start of the academic term in which the project will be initiated. They must then obtain a permission form from the Department of Psychology's website that is to be completed and signed by the intended supervisor, and returned to the Psychology Office.
Students seeking supervision off campus are further advised to check the appropriateness of the proposed advisor with the Program Supervisor. If the proposed supervisor is not appointed to the Psychology faculty at UTSC then a secondary advisor, that is appointed at UTSC, will be required.

Prerequisites:

Previous: [PSYB07H3 or STAB22H3 or STAB23H3] and PSYB70H3 and [2.0 additional PSY credits] and permission of the proposed supervisor. Normally students need a cumulative GPA of at least 2.7 for permission to be granted.

New: [PSYB07H3 or STAB22H3 or STAB23H3] and PSYB70H3 and [2.0 additional PSY credits] and [enrolment in the Specialist/Specialist Co-op or Major/Major Co-op Program in Psychology, Mental Health Studies, Neuroscience, or Psycholinguistics] and [a CGPA of 3.0 or higher] and permission of the proposed supervisor.

Rationale:
1. The course description has been updated to clarify the expectations of the research project.
2. The prerequisites have been updated as follows:
- CGPA requirement increased to 3.0 to bring requirement in line with the PSYB90 research course; This higher GPA requirement will help to ensure that students joining this course have the appropriate level of competency for success.
- Included the list of eligible programs in the prerequisites. This has already been enforced in practice, via enrollment controls.

Consultation: DCC approved Sept. 12, 2024
Resources: None.
Proposal Status: Under Review