Workflow Path [?]	Faculty/AFIW Path(s) for Workflow [?]	Senate Workflow
Committee approvals	Faculty of Arts	--

Dependencies

Dependent Courses and Programs/Plans

There are no dependencies

MA in Political Science-Co-op
Master of Arts (MA) in Political Science - Co-operative
Program (direct entry)

Under Review | Fall 2025

Proposal Information

Status
Active

Workflow Status
In Progress

SGRC, Senate Graduate and Research Council   expand ▲
(SGRC)
Waiting for Approval | Approval Delegate(s)

> Mike Grivicic
> Tim Weber-Kraljevski
> Diana Goncalves
> Melanie Figueiredo
> Ashley Day

Changes
- Master's Research Paper Option: Milestone Requirements
- Thesis Option: Milestone Requirements
- Master's Research Paper Option: Course Requirements
- Thesis Option: Course Requirements
- Effective Term and Year

Effective Date and Career

Career
Graduate

Important!

Proposed
Effective Term and Year ❷
Fall 2025

Existing
Effective Term and Year ❷
Winter 2025

Proposal Details

Proposal Type ❷
Change

Academic Unit Approval
11/22/2024

Quality Assurance Designation ❷
Minor Modification

Is there an impact to existing students? ❷
Yes

Impact on Existing Students ❷
Changes will apply to new cohorts only (Fall 2025 and beyond).

Is the credential name changing?
No

Graduate Co-operative Requirements
No

Internship Requirements
Not Applicable

Rationale and Background for Change(s) ❷
Adding PSCI 601 as a required course; revising the MA milestone requirements accordingly by inactivating the Master's Seminar milestone: Consolidating the Master's Seminar milestone (Methods Workshop) with PhD Professional Development Seminars by activating PSCI 601 (PSCI 601 will deliver those milestones and other content).

Consultations (Departmental) ❷

Supporting Documentation

General Program/Plan Information

Faculty ❷
Faculty of Arts

Academic Unit ❷
Department of Political Science

Graduate Field of Study
Political Science

Faculty ❷
Faculty of Arts

Program/Plan Name ❷
Master of Arts (MA) in Political Science - Co-operative Program (direct entry)

Graduate Credential Type
Master's

Accelerated Program
Not applicable

Study Options (New)
Thesis / Master's Research Paper

Program Types
Co-operative

Admit Term(s)
Fall

Delivery Mode
On-campus

Delivery Mode Information

Length of Program
- 5 terms (20 months)

Registration Option(s)
Full-time

Registration Options Information

Graduate Research Fields

Graduate Specializations

Additional Program Information

Admissions

Admission Requirements: Minimum Requirements ❓
- An Honours Bachelor's degree (or equivalent) in Political Science with at least a 78% overall standing.
- Statement of Research.
- Students with an Honours BA in a related discipline will be considered for admission but may be required to complete further work in Political Science before proceeding. Students with a General Bachelor of Arts (BA) in Political Science may be admitted to a qualifying program, and then apply for admission to the Master of Arts (MA) program after completion of that program.
- Probationary students admitted to the program must achieve at least 75% in 2 predetermined courses in order to continue in the Winter term. Normally a student will not continue on probationary status for more than two terms.
- Transitional students admitted are normally required to complete additional predetermined undergraduate or graduate courses and achieve at least a 75% average.
- English language proficiency (ELP) (if applicable)

Admission Requirements: Application materials
- Résumé
- Supplementary information form
- Transcript(s)
- Writing sample

Admission Requirements: References
- Number of references: 3
- Type of references: normally from academic sources

Requirements Information

Graduate Degree Requirements ❷
- Students must complete the course and milestone requirements associated with their chosen study option in addition to the Graduate Academic Integrity Module (Graduate AIM).
- Note: At the time of application, students are asked to provide the Department with a general outline of their research interests, together with a suggested Thesis or Master's Research Paper project. There are many opportunities for students and faculty to discuss research interests and the two options in the program.
- The Department presumes that all students are in the Master's Research Paper option. Students who wish to write a thesis may apply to do so at the end of the Fall term. A committee composed of the Graduate Officer, the prospective supervisor and prospective reader assesses a thesis proposal.

Thesis Option: Course Requirements
No Rules

Proposed
Thesis Option: Course Requirements
- Students must complete the equivalent of 4 one-term graduate level Political Science courses (0.50 unit weight) including PSCI 600 Political Science Methods and PSCI 601 Research and Writing in Political Science.
- The overall average achieved in the 4 credit courses should be at least 70%.
- Reading courses may supplement regular offerings in the program, although it is understood that they will be approved at the discretion of the Department. Students will normally be permitted to take 1 reading course as part of their degree.

Existing
Thesis Option: Course Requirements
- Students must complete the equivalent of 4 one-term graduate level Political Science courses (0.50 unit weight) including PSCI 600 Theories and Methods of Political Analysis.
- The overall average achieved in the 4 credit courses should be at least 70%.
- Reading courses may supplement regular offerings in the program, although it is understood that they will be approved at the discretion of the Department. Students will normally be permitted to take 1 reading course as part of their degree.

Proposed
Thesis Option: Milestone Requirements

Graduate Studies Work Report

- Students must complete and submit a work term report within one month of the completion of the work term.

Master's Thesis

- Students must submit and defend a thesis embodying the results of original research.
- The thesis is the equivalent of 4 one-term courses (0.50 unit weight), and therefore should occupy roughly half of the student's allotted time.
- Students are allowed much latitude in the choice of research topic, it is expected that the thesis itself to be somewhat narrow in scope and analytically well-defined. Students sometimes do not appreciate how ambitious their initial proposals are. One elementary criterion of a suitable topic is that it can be completed within the time allotted.
- Students must apply to write a thesis at the end of the Fall term. The thesis proposal is assessed early in the Winter term by the Graduate Officer and the prospective supervisor and reader.

Existing
Thesis Option: Milestone Requirements

Master's Seminar

- Students are required to participate in a Master's Seminar (also referred to as a Methods Workshop) in the winter term: they will present their in-progress thesis/MRP work and provide feedback to fellow students.

Graduate Studies Work Report

- Students must complete and submit a work term report within one month of the completion of the work term.

Master's Thesis

- Students must submit and defend a thesis embodying the results of original research.
- The thesis is the equivalent of 4 one-term courses (0.50 unit weight), and therefore should occupy roughly half of the student's allotted time.
- Students are allowed much latitude in the choice of research topic, it is expected that the thesis itself to be somewhat narrow in scope and analytically well-defined. Students sometimes do not appreciate how ambitious their initial proposals are. One elementary criterion of a suitable topic is that it can be completed within the time allotted.
- Students must apply to write a thesis at the end of the Fall term. The thesis proposal is assessed early in the Winter term by the Graduate Officer and the prospective supervisor and reader.

Master's Research Paper Option: Course Requirements
No Rules

Proposed
Master's Research Paper Option: Course Requirements

- Students must complete the equivalent of 6 one-term graduate level Political Science courses (0.50 unit weight) including PSCI 600 Political Science Methods and PSCI 601 Research and Writing in Political Science.
- The overall average achieved in the 6 credit courses should be at least 70%.
- Reading courses may supplement regular offerings in the program, although it is understood that they will be approved at the discretion of the Department. Students will normally be permitted to take 1 reading course as part of their degree.

Existing
Master's Research Paper Option: Course Requirements

- Students must complete the equivalent of 6 one-term graduate level Political Science courses (0.50 unit weight) including PSCI 600 Theories and Methods of Political Analysis.
- The overall average achieved in the 6 credit courses should be at least 70%.
- Reading courses may supplement regular offerings in the program, although it is understood that they will be approved at the discretion of the Department. Students will normally be permitted to take 1 reading course as part of their degree.

Proposed
Master's Research Paper Option: Milestone Requirements

Graduate Studies Work Report

- Students must complete and submit a work term report within one month of the completion of the work term.

Master's Research Paper

- The Master's Research Paper is best thought of as a "mini thesis" and is the equivalent of 2 one-term courses (0.50 unit weight). The work is co-supervised by two faculty members who may ask for corrections and who jointly decide on the grade to be awarded upon completion.
- Students must achieve a grade of 75% or higher on their MRP in order to satisfy the degree requirements for the program.

Existing
Master's Research Paper Option: Milestone Requirements

Master's Seminar

- Students are required to participate in a Master's Seminar (also referred to as a Methods Workshop) in the winter term: they will present their in-progress thesis/MRP work and provide feedback to fellow students.

Graduate Studies Work Report

- Students must complete and submit a work term report within one month of the completion of the work term.

Master's Research Paper

- The Master's Research Paper is best thought of as a "mini thesis" and is the equivalent of 2 one-term courses (0.50 unit weight). The work is co-supervised by two faculty members who may ask for corrections and who jointly decide on the grade to be awarded upon completion.
- Students must achieve a grade of 75% or higher on their MRP in order to satisfy the degree requirements for the program.

Notes ❷

- Department of Political Science website

Workflow Information

Workflow Path ❷

Committee approvals

Faculty/AFIW Path(s) for Workflow ❷

Faculty of Arts

Senate Workflow

--

Dependencies

Dependent Courses and Programs/Plans

There are no dependencies

MA in Social & Legal Studies
Master of Arts (MA) in Social and Legal Studies
Under Review | Spring 2025

Proposal Information

Status
Active

Workflow Status
In Progress
SGRC, Senate Graduate and Research Council (SGRC)   expand ▲
Waiting for Approval | Approval Delegate(s)

> Mike Grivicic
> Tim Weber-Kraljevski
> Diana Goncalves
> Melanie Figueiredo
> Ashley Day

Changes
- Coursework Option: Course Requirements
- Effective Term and Year
- Admin Notes

Effective Date and Career

Career
Graduate

Important!

Proposed
Effective Term and Year ❷
Spring 2025

Existing
Effective Term and Year ❷
Spring 2024

Proposal Details

Proposal Type ❷
Change

Academic Unit Approval
11/28/2024

Quality Assurance Designation ❷
Minor Modification

Is there an impact to existing students? ❷

Yes

Impact on Existing Students ❷

Current MA students should not be affected by these changes. Most will have completed degree requirements under the plan that required SOC 712 as a requirement. Any current MA students that have not completed SOC 712 can use SOC 716 as a required course. Very few students are likely to be in this situation.

Is the credential name changing?

No

Graduate Co-operative Requirements ❷

Not Applicable

Internship Requirements

Not Applicable

Rationale and Background for Change(s) ❷

Updating the list of required courses to include SOC 716 instead of SOC 712: Methods training will be more balanced if we require both qualitative and quantitative courses as opposed to the current approach of requiring general methods and quantitative methods.

Consultations (Departmental) ❷

Supporting Documentation

General Program/Plan Information

Faculty ❷

Faculty of Arts

Academic Unit ❷

Department of Sociology and Legal Studies

Graduate Field of Study

Sociology and Legal Studies

Faculty ❷

Faculty of Arts

Program/Plan Name ❷

Master of Arts (MA) in Social and Legal Studies

Graduate Credential Type

Master's

Accelerated Program

Not applicable

Study Options (New)

Coursework

Program Types

Admit Term(s)
Fall
Winter
Spring

Delivery Mode
On-campus

Delivery Mode Information

Length of Program
- 3 terms (12 months)

Registration Option(s)
Full-time
Part-time

Registration Options Information

Graduate Research Fields

Graduate Specializations

Additional Program Information

Admissions

Admission Requirements: Minimum Requirements ❓
- Normally an Honours Bachelor's degree or its equivalent in Sociology with at least a 78% overall standing.
- A statement of academic interest (approximately a page, outlining areas of interest and reasons for choosing to study at the University of Waterloo).
- Results from the General Section of the Graduate Record Examination (GRE) (optional).
- English language proficiency (ELP) (if applicable)

Admission Requirements: Application materials
- Curriculum vitae
- Supplementary information form
- Transcript(s)
    - From all other post-secondary institutions.
- Writing sample

Admission Requirements: References
- Number of references: 3
- Type of references: academic

Requirements Information

Graduate Degree Requirements ❷

- Students must complete the course requirements listed below in addition to the Graduate Academic Integrity Module (Graduate AIM).
- Note: Coursework beyond these minima may be required at the discretion of the Associate Chair, Graduate Affairs. If additional coursework is required, the student will be notified in writing at the time of entry into the program. Additional coursework may be required by those who in the estimation of the Associate Chair, Graduate Affairs, do not possess the equivalent of an Honours Bachelor's degree in sociology from the University of Waterloo.

Coursework Option: Course Requirements

No Rules

Proposed

Coursework Option: Course Requirements

- Students must complete the following courses:
  - Theory: 1 of SOC 700 Sociological Theory or SOC 708 Contemporary Sociological Theory
  - Methods: SOC 716 Qualitative Methods
  - Statistics: SOC 710 Intermediate Social Statistics
  - SOC 726 Law and Society
  - At least 4 other graduate courses with a minimum 0.50 unit weight each. These courses must also require a substantial piece of research (project or essay).
  - Students may take a maximum of 1 reading course from University of Waterloo Sociology and Legal Studies Faculty or adjuncts.
- In order to complete a course satisfactorily, students must complete all course requirements as specified by the instructor and receive a minimum grade of 75%.
- The Coursework option only requires that all 8 courses are completed by the end of the third term (typically at the end of August).

Existing

Coursework Option: Course Requirements

- Students must complete the following courses:
  - Theory: 1 of SOC 700 Sociological Theory or SOC 708 Contemporary Sociological Theory
  - Methods: SOC 712 Elements of Social Research
  - Statistics: SOC 710 Intermediate Social Statistics
  - SOC 726 Law and Society
  - At least 4 other graduate courses with a minimum 0.50 unit weight each. These courses must also require a substantial piece of research (project or essay).
  - Students may take a maximum of 1 reading course from University of Waterloo Sociology and Legal Studies Faculty or adjuncts.
- In order to complete a course satisfactorily, students must complete all course requirements as specified by the instructor and receive a minimum grade of 75%.
- The Coursework option only requires that all 8 courses are completed by the end of the third term (typically at the end of August).

Coursework Option: Milestone Requirements

Notes ❷

- Department of Sociology and Legal Studies website
- Master of Arts (MA) in Social and Legal Studies future students program page

Workflow Information

Workflow Path ❓

Committee approvals

Faculty/AFIW Path(s) for Workflow ❓

Faculty of Arts

Senate Workflow

--

Dependencies

Dependent Courses and Programs/Plans

PREREQUISITES

⌄ SOC 712 - Elements of Social Research

View Courses ❯

MA in Social & Legal Studies-Co-op
Master of Arts (MA) in Social and Legal Studies - Co-operative Program (direct entry)

Under Review | Spring 2025

Proposal Information

Status
Active

Workflow Status
In Progress

SGRC, Senate Graduate and Research Council (SGRC)   expand ▲
Waiting for Approval | Approval Delegate(s)

> Mike Grivicic
> Tim Weber-Kraljevski
> Diana Goncalves
> Melanie Figueiredo
> Ashley Day

Changes
- Coursework Option: Course Requirements
- Effective Term and Year
- Admin Notes

Effective Date and Career

Career
Graduate

Important!

Proposed
Effective Term and Year ❷
Spring 2025

Existing
Effective Term and Year ❷
Spring 2024

Proposal Details

Proposal Type ❷
Change

Academic Unit Approval
11/28/2024

Quality Assurance Designation ❓
Minor Modification

Is there an impact to existing students? ❓
Yes

Impact on Existing Students ❓
Current MA students should not be affected by these changes. Most will have completed degree requirements under the plan that required SOC 712 as a requirement. Any current MA students that have not completed SOC 712 can use SOC 716 as a required course. Very few students are likely to be in this situation.

Is the credential name changing?
No

Graduate Co-operative Requirements
No

Internship Requirements
Not Applicable

Rationale and Background for Change(s) ❓
Updating the list of required courses to include SOC 716 instead of SOC 712: Methods training will be more balanced if we require both qualitative and quantitative courses as opposed to the current approach of requiring general methods and quantitative methods.

Consultations (Departmental) ❓

Supporting Documentation

General Program/Plan Information

Faculty ❓
Faculty of Arts

Academic Unit ❓
Department of Sociology and Legal Studies

Graduate Field of Study
Sociology and Legal Studies

Faculty ❓
Faculty of Arts

Program/Plan Name ❓
Master of Arts (MA) in Social and Legal Studies - Co-operative Program (direct entry)

Graduate Credential Type
Master's

Accelerated Program
Not applicable

Study Options (New)
Coursework

Program Types
Co-operative

Admit Term(s)
Fall
Winter
Spring

Delivery Mode
On-campus

Delivery Mode Information

Length of Program
- 5 terms (20 months)

Registration Option(s)
Full-time
Part-time

Registration Options Information

Graduate Research Fields

Graduate Specializations

Additional Program Information

Admissions

Admission Requirements: Minimum Requirements ❷
- Normally an Honours Bachelor's degree or its equivalent in Sociology with at least a 78% overall standing.
- A statement of academic interest (approximately a page, outlining areas of interest and reasons for choosing to study at the University of Waterloo).
- Results from the General Section of the Graduate Record Examination (GRE) (optional).
- English language proficiency (ELP) (if applicable)

Admission Requirements: Application materials
- Curriculum vitae
- Supplementary information form
- Transcript(s)
  - From all other post-secondary institutions.
- Writing sample

Admission Requirements: References
- Number of references: 3
- Type of references: academic

Requirements Information

Graduate Degree Requirements ❓
- Students must complete the course and milestone requirements listed below in addition to the Graduate Academic Integrity Module (Graduate AIM).
- Note: Coursework beyond these minima may be required at the discretion of the Associate Chair, Graduate Affairs. If additional coursework is required, the student will be notified in writing at the time of entry into the program. Additional coursework may be required by those who in the estimation of the Associate Chair, Graduate Affairs, do not possess the equivalent of an Honours Bachelor's degree in sociology from the University of Waterloo.

Coursework Option: Course Requirements
No Rules

Proposed
Coursework Option: Course Requirements
- Students must complete the following courses:
    - Theory: 1 of SOC 700 Sociological Theory or SOC 708 Contemporary Sociological Theory
    - Methods: SOC 716 Qualitative Methods
    - Statistics: SOC 710 Intermediate Social Statistics
    - SOC 726 Law and Society
    - At least 4 other graduate courses with a minimum 0.50 unit weight each. These courses must also require a substantial piece of research (project or essay).
    - Students may take a maximum of 1 reading course from University of Waterloo Sociology and Legal Studies Faculty or adjuncts.
- In order to complete a course satisfactorily, students must complete all course requirements as specified by the instructor and receive a minimum grade of 75%.
- The Coursework option only requires that all 8 courses are completed by the end of the third term (typically at the end of August).

Existing
Coursework Option: Course Requirements
- Students must complete the following courses:
    - Theory: 1 of SOC 700 Sociological Theory or SOC 708 Contemporary Sociological Theory
    - Methods: SOC 712 Elements of Social Research
    - Statistics: SOC 710 Intermediate Social Statistics
    - SOC 726 Law and Society
    - At least 4 other graduate courses with a minimum 0.50 unit weight each. These courses must also require a substantial piece of research (project or essay).
    - Students may take a maximum of 1 reading course from University of Waterloo Sociology and Legal Studies Faculty or adjuncts.
- In order to complete a course satisfactorily, students must complete all course requirements as specified by the instructor and receive a minimum grade of 75%.
- The Coursework option only requires that all 8 courses are completed by the end of the third term (typically at the end of August).

Coursework Option: Milestone Requirements

Graduate Studies Work Report

- Students are required to submit a work report upon completion of the work terms.

Notes ❓
- Department of Sociology and Legal Studies website
- Master of Arts (MA) in Social and Legal Studies - Co-operative Program future students program page

Workflow Information

Workflow Path ❓	Faculty/AFIW Path(s) for Workflow ❓	Senate Workflow
Committee approvals	Faculty of Arts	--

Dependencies

Dependent Courses and Programs/Plans

PREREQUISITES

❤ SOC 712 - Elements of Social Research   View Courses ❯

MA in Sociology
Master of Arts (MA) in Sociology

Revision | Under Review | Spring 2025

Proposal Information

Workflow Status

In Progress

SGRC, Senate Graduate and Research Council (SGRC)   expand ▲

Waiting for Approval | Approval Delegate(s)

> Mike Grivicic
>
> Tim Weber-Kraljevski
>
> Diana Goncalves
>
> Melanie Figueiredo
>
> Ashley Day

Changes

- Master's Research Paper Option: Course Requirements
- Master's Research Paper Option: Milestone Requirements
- Thesis Option: Course Requirements

Effective Date and Career

Career

Graduate

Important!

Effective Term and Year ❷

Spring 2025

Proposal Details

Proposal Type ❷

Change

Academic Unit Approval

11/28/2024

Quality Assurance Designation ❷

Minor Modification

Is there an impact to existing students? ❷

Yes

Impact on Existing Students ❓

1) Current MA students should not be affected by these changes. Most will have completed degree requirements under the plan that required SOC 712 as a requirement. Any current MA students that have not completed SOC 712 can use SOC 716 as a required course. Very few students are likely to be in this situation.

2) Current MA MRP students can follow the new requirements since we are not adding to the degree requirements that were in place when students joined the program.

Is the credential name changing?
No

Graduate Co-operative Requirements
Not Applicable

Internship Requirements
Not Applicable

Rationale and Background for Change(s) ❓

1) Updating the list of required courses to include SOC 716 instead of SOC 712: Methods training will be more balanced if we require both qualitative and quantitative courses as opposed to the current approach of requiring general methods and quantitative methods.

2) Updating the Master's Research Paper (MRP) milestone description and removing the oral defence from the requirement: The MRP study option was recently converted to a 3 term program/option and as a result, changes were needed to facilitate completion within that time period. These changes should assist students in meeting program completion time limits.

Consultations (Departmental) ❓

Supporting Documentation

General Program/Plan Information

Faculty ❓
Faculty of Arts

Academic Unit ❓
Department of Sociology and Legal Studies

Graduate Field of Study
Sociology and Legal Studies

Faculty ❓
Faculty of Arts

Program/Plan Name ❓
Master of Arts (MA) in Sociology

Graduate Credential Type
Master's

Accelerated Program
Not applicable

Study Options (New)
Thesis / Master's Research Paper

Program Types

Admit Term(s)
Fall
Winter
Spring

Delivery Mode
On-campus

Delivery Mode Information

Length of Program
- Thesis option: 4 terms (16 months)
- Master's Research Paper option: 3 terms (12 months)

Registration Option(s)
Full-time
Part-time

Registration Options Information

Graduate Research Fields
- Crime, Law, and Security
- Knowledge, Education, and Digital Culture
- Migration, Borders, and Transnationalism
- Social Inequality and Public Policy

Graduate Specializations

Additional Program Information

Admissions

Admission Requirements: Minimum Requirements ❷
- Normally an Honours Bachelor's degree or its equivalent in Sociology with at least a 78% overall standing.
- A statement of academic interest (approximately a page, outlining areas of interest and reasons for choosing to study at the University of Waterloo).
- Results from the General Section of the Graduate Record Examination (GRE) (optional).
- English language proficiency (ELP) (if applicable)

Admission Requirements: Application materials
- Curriculum vitae
- Supplementary information form
- Transcript(s)
  - From all other post-secondary institutions.
- Writing sample

Admission Requirements: References
- Number of references: 3
- Type of references: academic

Requirements Information

Graduate Degree Requirements ❷
- Students must complete the course and milestone requirements associated with their chosen study option in addition to the Graduate Academic Integrity Module (Graduate AIM).
- Note: Students are admitted to a Master's study option (Thesis or Master's Research Paper). Thereafter, the approval of the Associate Chair, Graduate Affairs, is necessary in order to change an option. In the case of the Thesis or Master's Research Paper options, the Departmental Advisor will also assist the student in the identification of a potential supervisor. Students should keep in mind that it is strongly advised that they complete three courses in their first term.
- Note: Coursework beyond these minima may be required at the discretion of the Associate Chair, Graduate Affairs. If additional coursework is required, the student will be notified in writing at the time of entry into the program. Additional coursework may be required by those who in the estimation of the Associate Chair, Graduate Affairs, do not possess the equivalent of an Honours Bachelor's degree in sociology from the University of Waterloo.

Thesis Option: Course Requirements
No Rules

Proposed
Thesis Option: Course Requirements
- Students must complete the following courses:
    - Theory: 1 of SOC 700 Sociological Theory or SOC 708 Contemporary Sociological Theory
    - Methods: SOC 716 Qualitative Methods
    - Statistics: SOC 710 Intermediate Social Statistics
    - At least 1 other graduate course with a minimum 0.50 unit weight. These courses must also require a substantial piece of research (project or essay).
    - Students may take a maximum of 1 reading course from University of Waterloo Sociology and Legal Studies Faculty or adjuncts.
- In order to complete a course satisfactorily, students must complete all course requirements as specified by the instructor and receive a minimum grade of 75%.

Existing
Thesis Option: Course Requirements
- Students must complete the following courses:
    - Theory: 1 of SOC 700 Sociological Theory or SOC 708 Contemporary Sociological Theory
    - Methods: SOC 712 Elements of Social Research
    - Statistics: SOC 710 Intermediate Social Statistics
    - At least 1 other graduate course with a minimum 0.50 unit weight. These courses must also require a substantial piece of research (project or essay).
    - Students may take a maximum of 1 reading course from University of Waterloo Sociology and Legal Studies Faculty or adjuncts.
- In order to complete a course satisfactorily, students must complete all course requirements as specified by the instructor and receive a minimum grade of 75%.

Thesis Option: Milestone Requirements

Master's Thesis

- Students must write and orally defend a thesis proposal and a thesis.
- A thesis proposal, approved by a supervisor and two readers, must be completed by the end of the second term (typically the end of April). The thesis should be completed and defended by the end of the sixth term.
- A Master's thesis is considered to involve an amount of work equivalent to 4 one-term courses (2.00 units, approximately 100 to 150 pages in length).

Master's Research Paper Option: Course Requirements
No Rules

Proposed
Master's Research Paper Option: Course Requirements

- Students must complete the following courses:
  - Theory: 1 of SOC 700 Sociological Theory or SOC 708 Contemporary Sociological Theory
  - Methods: SOC 716 Qualitative Methods
  - Statistics: SOC 710 Intermediate Social Statistics
  - At least 3 other graduate courses with a minimum 0.50 unit weight each. These courses must also require a substantial piece of research (project or essay).
  - Students may take a maximum of 1 reading course from University of Waterloo Sociology and Legal Studies Faculty or adjuncts.
- In order to complete a course satisfactorily, students must complete all course requirements as specified by the instructor and receive a minimum grade of 75%.

Existing
Master's Research Paper Option: Course Requirements

- Students must complete the following courses:
  - Theory: 1 of SOC 700 Sociological Theory or SOC 708 Contemporary Sociological Theory
  - Methods: SOC 712 Elements of Social Research
  - Statistics: SOC 710 Intermediate Social Statistics
  - At least 3 other graduate courses with a minimum 0.50 unit weight each. These courses must also require a substantial piece of research (project or essay).
  - Students may take a maximum of 1 reading course from University of Waterloo Sociology and Legal Studies Faculty or adjuncts.
- In order to complete a course satisfactorily, students must complete all course requirements as specified by the instructor and receive a minimum grade of 75%.

Proposed
Master's Research Paper Option: Milestone Requirements

Master's Research Paper

- Students must prepare a research paper proposal and write a research paper.
- A research paper proposal (maximum of 5 pages) must be completed and approved by the student's supervisor by the end of term 2 (typically April 30).
- A research paper is considered to involve an amount of work equivalent to 2 one-term courses (1.00 unit, approximately 50 to 70 pages in length). As a guideline, the focus of a Master's Research Paper (MRP) can be on the research question, theory and methodology, and possibly some exploratory research on the state of the research but it is up to the supervisor, reader/examiner and student to set the direction for the MRP. The MRP must be approved by the student's supervisor (or co-supervisors) and one reader/examiner who is a regular faculty member (who is not a supervisor or co-supervisor).

Existing
Master's Research Paper Option: Milestone Requirements

Master's Research Paper

- Students must prepare a research paper proposal and write and orally defend a research paper.
- A research paper proposal must be completed and approved by a supervisor and one reader/examiner by the middle of the third term (typically the end of June). The research paper must be defended by the end of the fourth term (typically, the end of December).
- A research paper is considered to involve an amount of work equivalent to 2 one-term courses (1.00 unit, approximately 50 to 70 pages in length). As a guideline, the focus of a Master's Research Paper (MRP) can be on the research question, theory and methodology, and possibly some exploratory research on the state of the research but it is up to the supervisor, reader/examiner and student to set the direction for the MRP.

Notes ❷
- Department of Sociology and Legal Studies website
- Master of Arts (MA) in Sociology future students program page

Workflow Information

Workflow Path ❷	Faculty/AFIW Path(s) for Workflow ❷	Senate Workflow
Committee approvals	Faculty of Arts	--

Dependencies

Dependent Courses and Programs/Plans
PREREQUISITES
❯ SOC 712 - Elements of Social Research   View Courses ❯

MA in Sociology-Co-op
Master of Arts (MA) in Sociology - Co-operative Program (direct entry)

Revision | Under Review | Spring 2025

Proposal Information

Workflow Status

In Progress

SGRC, Senate Graduate and Research Council (SGRC)   expand ▲

Waiting for Approval | Approval Delegate(s)

> Mike Grivicic
>
> Tim Weber-Kraljevski
>
> Diana Goncalves
>
> Melanie Figueiredo
>
> Ashley Day

Changes

- Master's Research Paper Option: Course Requirements
- Master's Research Paper Option: Milestone Requirements
- Thesis Option: Course Requirements

Effective Date and Career

Career

Graduate

Important!

Effective Term and Year ❷

Spring 2025

Proposal Details

Proposal Type ❷

Change

Quality Assurance Designation ❷

Minor Modification

Is there an impact to existing students? ❷

Yes

Academic Unit Approval

11/28/2024

Impact on Existing Students ❷
1) Current MA students should not be affected by these changes. Most will have completed degree requirements under the plan that required SOC 712 as a requirement. Any current MA students that have not completed SOC 712 can use SOC 716 as a required course. Very few students are likely to be in this situation.
2) Current MA MRP students can follow the new requirements since we are not adding to the degree requirements that were in place when students joined the program.

Is the credential name changing?
No

Graduate Co-operative Requirements
No

Internship Requirements
Not Applicable

Rationale and Background for Change(s) ❷
1) Updating the list of required courses to include SOC 716 instead of SOC 712: Methods training will be more balanced if we require both qualitative and quantitative courses as opposed to the current approach of requiring general methods and quantitative methods.
2) Updating the Master's Research Paper (MRP) milestone description and removing the oral defence from the requirement: The MRP study option was recently converted to a 3 term program/option and as a result, changes were needed to facilitate completion within that time period. These changes should assist students in meeting program completion time limits.

Consultations (Departmental) ❷

Supporting Documentation

General Program/Plan Information

Faculty ❷
Faculty of Arts

Academic Unit ❷
Department of Sociology and Legal Studies

Graduate Field of Study
Sociology and Legal Studies

Faculty ❷
Faculty of Arts

Program/Plan Name ❷
Master of Arts (MA) in Sociology - Co-operative Program (direct entry)

Graduate Credential Type
Master's

Accelerated Program
Not applicable

Study Options (New)
Thesis / Master's Research Paper

Program Types
Co-operative

Admit Term(s)
Fall
Winter
Spring

Delivery Mode
On-campus

Delivery Mode Information

Length of Program
- Thesis option: 5 terms (20 months)
- Master's Research Paper option: 4 terms (16 months)

Registration Option(s)
Full-time
Part-time

Registration Options Information

Graduate Research Fields
- Crime, Law, and Security
- Knowledge, Education, and Digital Culture
- Migration, Borders, and Transnationalism
- Social Inequality and Public Policy

Graduate Specializations

Additional Program Information

Admissions

Admission Requirements: Minimum Requirements ❷
- Normally an Honours Bachelor's degree or its equivalent in Sociology with at least a 78% overall standing.
- A statement of academic interest (approximately a page, outlining areas of interest and reasons for choosing to study at the University of Waterloo).
- Results from the General Section of the Graduate Record Examination (GRE) (optional).
- English language proficiency (ELP) (if applicable)

Admission Requirements: Application materials
- Curriculum vitae
- Supplementary information form
- Transcript(s)
  - From all other post-secondary institutions.
- Writing sample

Admission Requirements: References
- Number of references: 3
- Type of references: academic

Requirements Information

Graduate Degree Requirements ❷
- Students must complete the course and milestone requirements associated with their chosen study option in addition to the Graduate Academic Integrity Module (Graduate AIM).
- Note: Students are admitted to a Master's study option (Thesis or Master's Research Paper). Thereafter, the approval of the Associate Chair, Graduate Affairs, is necessary in order to change an option. In the case of the Thesis or Master's Research Paper options, the Departmental Advisor will also assist the student in the identification of a potential supervisor. Students should keep in mind that it is strongly advised that they complete three courses in their first term.
- Note: Coursework beyond these minima may be required at the discretion of the Associate Chair, Graduate Affairs. If additional coursework is required, the student will be notified in writing at the time of entry into the program. Additional coursework may be required by those who in the estimation of the Associate Chair, Graduate Affairs, do not possess the equivalent of an Honours Bachelor's degree in sociology from the University of Waterloo.

Thesis Option: Course Requirements
No Rules

Proposed
Thesis Option: Course Requirements
- Students must complete the following courses:
  - Theory: 1 of SOC 700 Sociological Theory or SOC 708 Contemporary Sociological Theory
  - Methods: SOC 716 Qualitative Methods
  - Statistics: SOC 710 Intermediate Social Statistics
  - At least 1 other graduate course with a minimum 0.50 unit weight. These courses must also require a substantial piece of research (project or essay).
  - Students may take a maximum of 1 reading course from University of Waterloo Sociology and Legal Studies Faculty or adjuncts.
- In order to complete a course satisfactorily, students must complete all course requirements as specified by the instructor and receive a minimum grade of 75%.

Existing
Thesis Option: Course Requirements
- Students must complete the following courses:
  - Theory: 1 of SOC 700 Sociological Theory or SOC 708 Contemporary Sociological Theory
  - Methods: SOC 712 Elements of Social Research
  - Statistics: SOC 710 Intermediate Social Statistics
  - At least 1 other graduate course with a minimum 0.50 unit weight. These courses must also require a substantial piece of research (project or essay).
  - Students may take a maximum of 1 reading course from University of Waterloo Sociology and Legal Studies Faculty or adjuncts.
- In order to complete a course satisfactorily, students must complete all course requirements as specified by the instructor and receive a minimum grade of 75%.

Thesis Option: Milestone Requirements

Graduate Studies Work Report

- Students are required to submit a work report upon completion of the work terms.

Master's Thesis

- Students must write and orally defend a thesis proposal and a thesis.
- A thesis proposal, approved by a supervisor and two readers, must be completed by the end of the second term (typically the end of April). The thesis should be completed and defended by the end of the sixth term.
- A Master's thesis is considered to involve an amount of work equivalent to 4 one-term courses (2.00 units, approximately 100 to 150 pages in length).

Master's Research Paper Option: Course Requirements
No Rules

Proposed
Master's Research Paper Option: Course Requirements

- Students must complete the following courses:
  - Theory: 1 of SOC 700 Sociological Theory or SOC 708 Contemporary Sociological Theory
  - Methods: SOC 716 Qualitative Methods
  - Statistics: SOC 710 Intermediate Social Statistics
  - At least 3 other graduate courses with a minimum 0.50 unit weight each. These courses must also require a substantial piece of research (project or essay).
  - Students may take a maximum of 1 reading course from University of Waterloo Sociology and Legal Studies Faculty or adjuncts.
- In order to complete a course satisfactorily, students must complete all course requirements as specified by the instructor and receive a minimum grade of 75%.

Existing
Master's Research Paper Option: Course Requirements

- Students must complete the following courses:
  - Theory: 1 of SOC 700 Sociological Theory or SOC 708 Contemporary Sociological Theory
  - Methods: SOC 712 Elements of Social Research
  - Statistics: SOC 710 Intermediate Social Statistics
  - At least 3 other graduate courses with a minimum 0.50 unit weight each. These courses must also require a substantial piece of research (project or essay).
  - Students may take a maximum of 1 reading course from University of Waterloo Sociology and Legal Studies Faculty or adjuncts.
- In order to complete a course satisfactorily, students must complete all course requirements as specified by the instructor and receive a minimum grade of 75%.

Proposed
Master's Research Paper Option: Milestone Requirements

Graduate Studies Work Report

- Students are required to submit a work report upon completion of the work terms

Master's Research Paper

- Students must prepare a research paper proposal and write a research paper.
- A research paper proposal (maximum of 5 pages) must be completed and approved by the student's supervisor by the end of term 2 (typically April 30).
- A research paper is considered to involve an amount of work equivalent to 2 one-term courses (1.00 unit, approximately 50 to 70 pages in length). As a guideline, the focus of a Master's Research Paper (MRP) can be on the research question, theory and methodology, and possibly some exploratory research on the state of the research but it is up to the supervisor, reader/examiner and student to set the direction for the MRP. The MRP must be approved by the student's supervisor (or co-supervisors) and one reader/examiner who is a regular faculty member (who is not a supervisor or co-supervisor).

Existing
Master's Research Paper Option: Milestone Requirements

Graduate Studies Work Report

- Students are required to submit a work report upon completion of the work terms

Master's Research Paper

- Students must prepare a research paper proposal and write and orally defend a research paper.
- A research paper proposal must be completed and approved by a supervisor and one reader/examiner by the middle of the third term (typically the end of June). The research paper must be defended by the end of the fourth term (typically, the end of December).
- A research paper is considered to involve an amount of work equivalent to 2 one-term courses (1.00 unit, approximately 50 to 70 pages in length). As a guideline, the focus of a Master's Research Paper (MRP) can be on the research question, theory and methodology, and possibly some exploratory research on the state of the research but it is up to the supervisor, reader/examiner and student to set the direction for the MRP.

Notes ❓
- Department of Sociology and Legal Studies website
- Master of Arts (MA) in Sociology - Co-operative Program future students program page

Workflow Information

Workflow Path ❓	Faculty/AFIW Path(s) for Workflow ❓	Senate Workflow
Committee approvals	Faculty of Arts	--

Dependencies

Dependent Courses and Programs/Plans

PREREQUISITES

∨ SOC 712 - Elements of Social Research   View Courses ❯

SGRC April 7, 2025

Engineering curricular submissions

Graduate Studies
Program Revision Template

Prior to form submission, review the content revision instructions and information regarding major/minor modifications. For questions about the form submission, contact Trevor Clews, Graduate Studies and Postdoctoral Affairs (GSPA).

Faculty: Engineering

Program: Master of Engineering (MEng) in Civil Engineering - Nuclear Engineering

Program contact name(s): Adil Al-Mayah, Deepa Devaraj

Form completed by:

Description of proposed changes:
Note: changes to courses and milestones also require the completion/submission of the SGRC Graduate Studies Course/Milestone Form.

Updating the list of required/elective courses.
Note: content in the current GSAC column was approved by SGRC in January 2025 and also goes into effect in Spring 2025.

Is this a major modification to the program? No

Rationale for change(s):

The list of required/elective courses is being updated to be consistent with the University Network of Excellence in Nuclear Engineering (UNENE) and the institutions participating in the UNENE program.

Proposed effective date: Term: Spring   Year: 2025

Current Graduate Studies Academic Calendar (GSAC) page (include the link to the web page where the changes are to be made):

https://uwaterloo.ca/academic-calendar/graduate-studies/catalog#/programs/HJlseJCRsn

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
Coursework option: Course requirements • Students must complete the following 10 one-term UNENE courses or 8 one-term UNENE courses and an industrial project: 　○ Required core courses: 　　▪ UN 502 Nuclear Power Plant Systems and Operations 　　▪ UN 802 Nuclear Reactor Physics 　　▪ UN 803 Nuclear Reactor Safety Design 　　▪ UN 804 Nuclear Reactor Heat Transport System Design	**Coursework option: Course requirements** • Students must complete the following 10 one-term UNENE courses or 8 one-term UNENE courses and an industrial project: 　○ Required core courses: 　　▪ UN 752 Nuclear Power Plant Systems and Operations 　　▪ UN 802 Nuclear Reactor Physics 　　▪ UN 803 Nuclear Reactor Safety Design 　　▪ UN 804 Nuclear Reactor Heat Transport System Design

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
o Choose 6 courses from the following list: ▪ UN ~~504~~ Nuclear Fuel Management ▪ UN 601 Control, Instrumentation and Electrical Systems ▪ UN 602 Nuclear Fuel Waste Management ▪ UN 603 Project Management for Nuclear Engineers ▪ UN 701 Engineering Risk and Reliability ▪ UN 805 Introduction to Operational Health Physics ▪ UN 806 Nuclear Fuel Engineering ▪ UN 807 Power Plant Thermodynamics ▪ UN 808 Reactor Chemistry and Corrosion ▪ UN 901 Nuclear Materials	o Choose 6 courses from the following list: ▪ UN <u>751</u> Nuclear Fuel Management ▪ UN 601 Control, Instrumentation and Electrical Systems ▪ UN 602 Nuclear Fuel Waste Management ▪ UN 603 Project Management for Nuclear Engineers ▪ UN 701 Engineering Risk and Reliability ▪ <u>UN 753 Nuclear Energy in Society: Regulations and Energy Future</u> ▪ <u>UN 754 Small Modular Reactors</u> ▪ UN 805 Introduction to Operational Health Physics ▪ UN 806 Nuclear Fuel Engineering ▪ UN 807 Power Plant Thermodynamics ▪ UN 808 Reactor Chemistry and Corrosion ▪ UN 901 Nuclear Materials

How will students currently registered in the program be impacted by these changes?

Adding these courses to our Graduate Calendar will provide students with a more straightforward and easier course enrollment process, allowing them to bypass the current OVGS process. This change will streamline their registration experience and make it more efficient.

Department/School approval date (mm/dd/yy):
Reviewed by GSPA (for GSPA use only) ☒ date (mm/dd/yy): 03/26/25
Faculty approval date (mm/dd/yy):
Senate Graduate & Research Council (SGRC) approval date (mm/dd/yy):
Senate approval date (mm/dd/yy) (if applicable):

Prior to form submission, review the instructions. For questions about the form submission, contact Trevor Clews, Graduate Studies and Postdoctoral Affairs (GSPA).

Faculty: Engineering

Effective date: Term: Spring   Year: 2025

Milestone
Note: milestone changes also require the completion/submission of the Graduate Studies Program Revision Template.

☐ New: Choose an item.

☐ Inactivate: Choose an item.

☐ Revise: from Choose an item. to Choose an item.

Course
Note: some course changes also require the completion/submission of the Graduate Studies Program Revision Template.

☒ New: Complete all course elements below

☐ Inactivate: Complete the following course elements:
                  Course subject code, Course number, Course title

☐ Revise: Complete all course elements below to reflect the proposed change(s) and identify the course
                  elements being revised (*e.g. Course description, Course title*):

Course elements (complete as indicated above. Review the glossary of terms for details on course elements)

Course subject code: UN

Course number: 751

Course title (max. 100 characters including spaces): Nuclear Fuel Management

Course short title (max. 30 characters including spaces): Nuclear Fuel Management

Grading basis: Numerical

Course credit weight: 0.50

Course consent required: Department

Course description: Topics covered include: Uranium mining and processing for use in nuclear reactors, uranium tails and mass of natural uranium required for enrichment to various levels, reactivity curve of fuel and its importance, the refuelling process in CANDU, design and capabilities of the fueling machine, significance of flux/power shape in reactor, how and why to flatten the flux distribution (adjuster rods, differential fueling), time-average, snapshot, and core-follow models for CANDU reactors, PWR fuel management. Significant hands-on projects for CANDU reactors, with full-core diffusion codes and models. Carrying out actual core-follow calculations in CANDU and selection of channels for refueling.

Course component(s): Lecture (LEC)   Choose an item.   Choose an item.   Choose an item.

Primary course component: Lecture (LEC)

Requisites (identify antirequisites, corequisites, or prerequisites if applicable to the course): N/A

Special topics course: Yes ☐   No ☒
Special topics course total completions allowed (max. 30):
Can students enrol in multiple sections of the same special topics course in the same term? Yes ☐   No ☐

Cross-listed course: Yes ☐   No ☒
If yes, list the course subject code(s) and number(s) that this course is/will be cross-listed with:
Note: cross-listed courses must share all course elements except the subject code(s), course number(s), and requisites, and require a separate Graduate Studies Course/Milestone form submission for each course.

Rationale for request:

This course is one of the graduate courses required for the MEng in Civil Engineering - Nuclear Engineering program. The original course was numbered as UN 501 based on UNENE list of courses which is considered as an undergraduate course at UW. Therefore, renumbering the course is needed to meet UW coding for graduate courses.

Form completed by:
Reviewed by GSPA (for GSPA use only) ☒   date (mm/dd/yy): 03/26/25
Department/School approval date (mm/dd/yy):
Graduate Faculty Sub-Committee approval date (mm/dd/yy):
Faculty Council approval date (mm/dd/yy):

Prior to form submission, review the instructions. For questions about the form submission, contact Trevor Clews, Graduate Studies and Postdoctoral Affairs (GSPA).

Faculty: Engineering

Effective date:　Term: Spring　　　Year: 2025

Milestone

Note: milestone changes also require the completion/submission of the Graduate Studies Program Revision Template.

☐ New: Choose an item.

☐ Inactivate: Choose an item.

☐ Revise: from Choose an item. to Choose an item.

Course

Note: some course changes also require the completion/submission of the Graduate Studies Program Revision Template.

☒ New:　　　　Complete all course elements below

☐ Inactivate:　Complete the following course elements:
　　　　　　　　Course subject code, Course number, Course title

☐ Revise:　　　Complete all course elements below to reflect the proposed change(s) and identify the course elements being revised (*e.g. Course description, Course title*):

Course elements (complete as indicated above. Review the glossary of terms for details on course elements)

Course subject code: UN

Course number: 752

Course title (max. 100 characters including spaces): Nuclear Power Plant Systems and Operations

Course short title (max. 30 characters including spaces): Nuclear Power Plant Sys & Op

Grading basis: Numerical

Course credit weight: 0.50

Course consent required: Department

Course description: System and overall unit operations relevant to nuclear power plants with emphasis on CANDU; includes all major reactor and process systems with nuclear plant simulator; self-study using interactive CD ROM. The course is organized into chapters and modules. Each chapter encompasses a major portion of a CANDU Nuclear Power Plant, and each module covers a system or a group of functionally related systems. Note, other technologies may be discussed throughout the course.

Course component(s): Lecture (LEC)　Choose an item.　Choose an item.　Choose an item.

Primary course component: Lecture (LEC)

Requisites (identify antirequisites, corequisites, or prerequisites if applicable to the course): N/A

Special topics course: Yes ☐   No ☒
Special topics course total completions allowed (max. 30):
Can students enrol in multiple sections of the same special topics course in the same term? Yes ☐   No ☐

Cross-listed course: Yes ☐   No ☒
If yes, list the course subject code(s) and number(s) that this course is/will be cross-listed with:
Note: cross-listed courses must share all course elements except the subject code(s), course number(s), and requisites, and require a separate Graduate Studies Course/Milestone form submission for each course.

Rationale for request:

This course is one of the graduate courses required for the MEng in Civil Engineering - Nuclear Engineering program. The original course was numbered as UN 502 based on UNENE list of courses which is considered as undergraduate course at UW. Therefore, renumbering the course is needed to meet UW coding for graduate courses.

Form completed by:
Reviewed by GSPA (for GSPA use only) ☒ date (mm/dd/yy): 03/26/25
Department/School approval date (mm/dd/yy):
Graduate Faculty Sub-Committee approval date (mm/dd/yy):
Faculty Council approval date (mm/dd/yy):

Prior to form submission, review the instructions. For questions about the form submission, contact Trevor Clews, Graduate Studies and Postdoctoral Affairs (GSPA).

Faculty: Engineering

Effective date: Term: Spring   Year: 2025

Milestone
Note: milestone changes also require the completion/submission of the Graduate Studies Program Revision Template.

☐ New: Choose an item.

☐ Inactivate: Choose an item.

☐ Revise: from Choose an item. to Choose an item.

Course
Note: some course changes also require the completion/submission of the Graduate Studies Program Revision Template.

☒ New: Complete all course elements below

☐ Inactivate: Complete the following course elements:
                        Course subject code, Course number, Course title

☐ Revise: Complete all course elements below to reflect the proposed change(s) and identify the course
                        elements being revised (*e.g. Course description, Course title*):

Course elements (complete as indicated above. Review the glossary of terms for details on course elements)

Course subject code: UN

Course number: 753

Course title (max. 100 characters including spaces): Nuclear Energy in Society: Regulations and Energy Future

Course short title (max. 30 characters including spaces): Nucl EN in Soc: Regs & EN Fut

Grading basis: Numerical

Course credit weight: 0.50

Course consent required: Department

Course description: This course covers the nuclear regulations in Canada and provides information on the international nuclear regulatory obligations. The course describes the content and process for obtaining construction and operating licences for nuclear installations. Also, the course describes the objective and content of the Licence Condition Handbook. The course describes the most important CNSC guide and regulatory documents and their implementation in the industry. Also, the course covers the compliance and regulatory reporting.

Course component(s): Lecture (LEC)   Choose an item.   Choose an item.   Choose an item.

Primary course component: Lecture (LEC)

Requisites (identify antirequisites, corequisites, or prerequisites if applicable to the course): N/A

Special topics course: Yes ☐   No ☒
Special topics course total completions allowed (max. 30):
Can students enrol in multiple sections of the same special topics course in the same term? Yes ☐   No ☐

Cross-listed course: Yes ☐   No ☒
If yes, list the course subject code(s) and number(s) that this course is/will be cross-listed with:
Note: cross-listed courses must share all course elements except the subject code(s), course number(s), and requisites, and require a separate Graduate Studies Course/Milestone form submission for each course.

Rationale for request:

This course is one of the graduate courses required for the MEng in Civil Engineering - Nuclear Engineering program. The original course was numbered as UN 503 based on UNENE list of courses which is considered as undergraduate course at UW. Therefore, renumbering the course is needed to meet UW coding for graduate courses.

Form completed by:
Reviewed by GSPA (for GSPA use only) ☒ date (mm/dd/yy): 03/26/25
Department/School approval date (mm/dd/yy):
Graduate Faculty Sub-Committee approval date (mm/dd/yy):
Faculty Council approval date (mm/dd/yy):

Prior to form submission, review the <u>instructions</u>. For questions about the form submission, contact <u>Trevor Clews</u>, Graduate Studies and Postdoctoral Affairs (GSPA).

Faculty: Engineering

Effective date: Term: Spring   Year: 2025

Milestone

Note: milestone changes also require the completion/submission of the <u>Graduate Studies Program Revision Template</u>.

☐ New: Choose an item.

☐ Inactivate: Choose an item.

☐ Revise: from Choose an item. to Choose an item.

Course

Note: some course changes also require the completion/submission of the <u>Graduate Studies Program Revision Template</u>.

☒ New: Complete all course elements below

☐ Inactivate: Complete the following course elements:
                 Course subject code, Course number, Course title

☐ Revise: Complete all course elements below to reflect the proposed change(s) and identify the course
                 elements being revised (*e.g. Course description, Course title*):

Course elements (complete as indicated above. Review the <u>glossary of terms</u> for details on course elements)

Course subject code: UN

Course number: 754

Course title (max. 100 characters including spaces): Small Modular Reactors

Course short title (max. 30 characters including spaces): Small Modular Reactors

Grading basis: Numerical

Course credit weight: 0.50

Course consent required: Department

Course description: The course describes the role of the Small Modular Reactors (SMRs) in electricity generation and for special applications in developed and developing countries. Selected types of SMRs that are relevant and considered for implementation in Canada are described in the course. The course covers the most important design features of selected SMR reactors in each group. The course summarizes the physics, thermal hydraulics, fuel and safety characteristics of the selected SMR designs. Comparison of safety improvements, inherent and passive safety features, and reactor safety margins for different SMR designs are included.

Course component(s): Lecture (LEC)   Choose an item.   Choose an item.   Choose an item.

Primary course component: Lecture (LEC)

Requisites (identify antirequisites, corequisites, or prerequisites if applicable to the course): N/A

Special topics course: Yes ☐   No ☒
Special topics course total completions allowed (max. 30):
Can students enrol in multiple sections of the same special topics course in the same term? Yes ☐   No ☐

Cross-listed course: Yes ☐   No ☒
If yes, list the course subject code(s) and number(s) that this course is/will be cross-listed with:
Note: cross-listed courses must share all course elements except the subject code(s), course number(s), and requisites, and require a separate Graduate Studies Course/Milestone form submission for each course.

Rationale for request:

This course is one of the graduate courses required for the MEng in Civil Engineering - Nuclear Engineering program. The original course was numbered as UN 504 based on UNENE list of courses which is considered as undergraduate course at UW. Therefore, renumbering the course is needed to meet UW coding for graduate courses.

Form completed by:
Reviewed by GSPA (for GSPA use only) ☒ date (mm/dd/yy): 03/26/25
Department/School approval date (mm/dd/yy):
Graduate Faculty Sub-Committee approval date (mm/dd/yy):
Faculty Council approval date (mm/dd/yy):

Grad Motions for SGRC – Apr 7, 2025

Motion/Package	total # program/course change forms	Unit	Target Effective Date
Inactivate and remove HLTH 654	2	SPHS	Spring 2025
Remove HLTH 632	1	SPHS	Spring 2025
Inactivate SWK 650	1	SSW	Spring 2025
Revise SWK 651 to remove instructor consent	1	SSW	Spring 2025

1) Inactivate and remove HLTH 654 (2)

The Professor, Craig Janes, who developed this course has retired. We have other courses that will allow us to meet program requirements for the fields in question.

2) Remove HLTH 632

An error was made in a prior update to this field such that HLTH 632 is currently listed as both a required course and a 'select 1 from the following list'. In discussion with faculty that teach in Global Health, it was determined that HLTH 632 should be removed as a required course.

3) Inactivate SWK 650

This course is being inactivated as it was part of the multi university Interprofessional Psychosocial Oncology Distance Education (IPODE) offerings, and the IPODE program has been discontinued.

4) Revise SWK 651 to remove instructor consent

Instructor consent is being removed since the course already has a SWK Master's Students Only requisite attached to it. MSW students can openly enrol in the course, but other students will need to submit a course drop/add form to enrol. This revision will make the consent/requisite set up for this course consistent with the other SWK courses.

Prior to form submission, review the content revision instructions. For questions about the form submission, contact Trevor Clews, Graduate Studies and Postdoctoral Affairs (GSPA).

Faculty: Health

Effective date: Term: Spring   Year: 2025

Milestone

Note: milestone changes also require the completion/submission of the Graduate Studies Program Revision Template.

☐ New: Choose an item.

☐ Inactivate: Choose an item.

☐ Revise: from Choose an item. to Choose an item.

Course

Note: some course changes also require the completion/submission of the Graduate Studies Program Revision Template.

☐ New: Complete all course elements below

☒ Inactivate: Complete the following course elements:
Course subject code, Course number, Course ID, Course title

☐ Revise: Complete all course elements below to reflect the proposed change(s) and identify the course elements being revised (*e.g. Course description, Course title*):

Course elements (complete as indicated above. Review the glossary of terms for details on course elements)

Course subject code: HLTH

Course number: 654

Course ID: 015075

Course title (max. 100 characters including spaces): Systems Thinking and Analysis in Health Program Planning and Evaluation

Course short title (max. 30 characters including spaces):

Grading basis: Choose an item.

Course credit weight: Choose an item.

Course consent required: Choose an item.

Course description:

Meet type(s): Choose an item.   Choose an item.   Choose an item.   Choose an item.

Primary meet type: Choose an item.

Delivery mode: Choose an item.

Requisites:

Special topics course: Yes ☐ No ☐

Cross-listed course: Yes ☐ No ☐

Course subject code(s) and number(s) to be cross-listed with and approval status:

Sections combined/held with:

Rationale for request:

The Professor, Craig Janes, who developed this course has retired. We have other courses that will allow us to meet program requirements for the fields in question.

Form completed by:
Department/School approval date (11/22/24):
Reviewed by GSPA (for GSPA use only) ☒ date (mm/dd/yy): 10/03/24
Faculty approval date (mm/dd/yy): 03/21/25
Senate Graduate & Research Council (SGRC) approval date (mm/dd/yy):

Graduate Studies
Program Revision Template

Prior to form submission, review the content revision instructions and information regarding major/minor modifications. For questions about the form submission, contact Trevor Clews, Graduate Studies and Postdoctoral Affairs (GSPA).

Faculty: Health

Program: Doctor of Philosophy (PhD) in Public Health Sciences

Program contact name(s): Samantha Meyer, Jaiden Cote

Form completed by:

Description of proposed changes:
Note: changes to courses and milestones also require the completion/submission of the SGRC Graduate Studies Course/Milestone Form.

Removing HLTH 654 from the list of courses associated with the Graduate Research Fields in Global Health, Health Evaluation, and Work and Health.

Is this a major modification to the program? No

Rationale for change(s):

The Professor, Craig Janes, who developed this course has retired. We have other courses that will allow us to meet program requirements for the fields in question.

Proposed effective date: Term: Spring   Year: 2025

Current Graduate Studies Academic Calendar (GSAC) page (include the link to the web page where the changes are to be made):

https://uwaterloo.ca/academic-calendar/graduate-studies/catalog#/programs/ryQ6lyRCs3

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:

Course requirements
• 9 one-term graduate courses beyond the Bachelor's degree, including at least 4 courses (2 required and 2 electives) beyond the Master's degree, is the normal minimum requirement.
• Required courses (2):
   ○ HTLH 701 Interdisciplinary Seminar in Public Health and Health Systems
   ○ 1 of the following required methods courses:
      ▪ HLTH 704 Advanced Qualitative Methods for Health Research
	Course requirements
	• 9 one-term graduate courses beyond the Bachelor's degree, including at least 4 courses (2 required and 2 electives) beyond the Master's degree, is the normal minimum requirement.
	• Required courses (2):
	   ○ HTLH 701 Interdisciplinary Seminar in Public Health and Health Systems
	   ○ 1 of the following required methods courses:
	      ▪ HLTH 704 Advanced Qualitative Methods for Health Research

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
■ HLTH 705 Advanced Statistical Methods for Analyzing Public Health and Health Systems Data ■ HLTH 706 Advanced Epidemiological Methods ■ HLTH 719 Advanced Research Methods in Health Data Science - Elective courses (2): ○ 1 methods elective course at the 600-or 700-level, selected in consultation with the supervisor (may include courses outside the SPHS), or courses offered by SPHS, including additional courses from the required course list. ○ 1 additional elective, selected in consultation with the supervisor. Students without a background in public health and health systems, and focusing in research areas other than Health Informatics, should take HLTH 601 Lifespan Determinants of Health and Disease. Students focusing in Health Informatics may choose to take HLTH 611 The Health Care System or an equivalent course approved by the SPHS Graduate Officer. - Plus other free electives as may be required ○ It is important to keep in mind that these are minimum requirements. Many students complete at least three courses within their area of research interest, which may require the addition of one or more extra courses to the minimum coursework requirement. - At a minimum, students must obtain an average of 75% or higher in aggregate on the courses presented in fulfilment of the degree requirements. Grades on all courses presented to fulfill the degree requirements must be 70% or higher. A grade below 70% in any course or failing to maintain an average of 75% will necessitate a review of the student's status by the School and may result in a student being required to complete additional coursework or being required to withdraw from the program. The School reserves the right to stipulate additional coursework if it is necessary for the student's preparation. - Students in the PhD in Public Health Sciences program may also wish to pursue one of the following Graduate Research Fields: 1. Aging and Health	■ HLTH 705 Advanced Statistical Methods for Analyzing Public Health and Health Systems Data ■ HLTH 706 Advanced Epidemiological Methods ■ HLTH 719 Advanced Research Methods in Health Data Science - Elective courses (2): ○ 1 methods elective course at the 600-or 700-level, selected in consultation with the supervisor (may include courses outside the SPHS), or courses offered by SPHS, including additional courses from the required course list. ○ 1 additional elective, selected in consultation with the supervisor. Students without a background in public health and health systems, and focusing in research areas other than Health Informatics, should take HLTH 601 Lifespan Determinants of Health and Disease. Students focusing in Health Informatics may choose to take HLTH 611 The Health Care System or an equivalent course approved by the SPHS Graduate Officer. - Plus other free electives as may be required ○ It is important to keep in mind that these are minimum requirements. Many students complete at least three courses within their area of research interest, which may require the addition of one or more extra courses to the minimum coursework requirement. - At a minimum, students must obtain an average of 75% or higher in aggregate on the courses presented in fulfilment of the degree requirements. Grades on all courses presented to fulfill the degree requirements must be 70% or higher. A grade below 70% in any course or failing to maintain an average of 75% will necessitate a review of the student's status by the School and may result in a student being required to complete additional coursework or being required to withdraw from the program. The School reserves the right to stipulate additional coursework if it is necessary for the student's preparation. - Students in the PhD in Public Health Sciences program may also wish to pursue one of the following Graduate Research Fields: 1. Aging and Health

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
2. Epidemiology and Biostatistics 3. Global Health 4. Health and Environment 5. Health Evaluation 6. Health Informatics 7. Work and Health • A Graduate Research Field is a University credential that is recognized on the student's transcript and is intended to reflect that a student has successfully completed research and a set of courses that together provide an in-depth study in the area of the Graduate Research Field. A student will only obtain the Graduate Research Field on their transcript if they have completed the requirements associated with the PhD degree and the requirements associated with the Graduate Research Field. • All PhD Graduate Research Fields in the SPHS consist of a Comprehensive Examination, a PhD Thesis that is confirmed by the SPHS to be in the chosen Graduate Research Field, and a set of 4 graduate (0.50 weight) level courses. This set of courses is comprised of a mix of required and elective courses. Required courses are those that are prescribed as part of the Graduate Research Field. Elective courses are those that are on a list of courses designated as electives for a given Graduate Research Field. • Students who have completed the MSc in Public Health Sciences and obtained a Graduate Research Field can obtain the same or another Field or (by taking the applicable required/elective courses) as part of their PhD program. • For any of the Graduate Research Fields below, a directed studies course (HLTH 620 or HLTH 720) focused on the Graduate Research Field or an appropriate alternate course may replace a required or elective course, with the approval of the Associate Director, Graduate Programs, School of Public Health Sciences. • The course requirements for the Graduate Research Fields are described below.	2. Epidemiology and Biostatistics 3. Global Health 4. Health and Environment 5. Health Evaluation 6. Health Informatics 7. Work and Health • A Graduate Research Field is a University credential that is recognized on the student's transcript and is intended to reflect that a student has successfully completed research and a set of courses that together provide an in-depth study in the area of the Graduate Research Field. A student will only obtain the Graduate Research Field on their transcript if they have completed the requirements associated with the PhD degree and the requirements associated with the Graduate Research Field. • All PhD Graduate Research Fields in the SPHS consist of a Comprehensive Examination, a PhD Thesis that is confirmed by the SPHS to be in the chosen Graduate Research Field, and a set of 4 graduate (0.50 weight) level courses. This set of courses is comprised of a mix of required and elective courses. Required courses are those that are prescribed as part of the Graduate Research Field. Elective courses are those that are on a list of courses designated as electives for a given Graduate Research Field. • Students who have completed the MSc in Public Health Sciences and obtained a Graduate Research Field can obtain the same or another Field or (by taking the applicable required/elective courses) as part of their PhD program. • For any of the Graduate Research Fields below, a directed studies course (HLTH 620 or HLTH 720) focused on the Graduate Research Field or an appropriate alternate course may replace a required or elective course, with the approval of the Associate Director, Graduate Programs, School of Public Health Sciences. • The course requirements for the Graduate Research Fields are described below.
3. Graduate Research Field in Global Health • Students must successfully complete 2 required courses and 2 elective courses. An assessment of whether or not the student's thesis warrants the Global Health Graduate Research Field designation will be completed by the SPHS.	3. Graduate Research Field in Global Health • Students must successfully complete 2 required courses and 2 elective courses. An assessment of whether or not the student's thesis warrants the Global Health Graduate Research Field designation will be completed by the SPHS.

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
- o Required courses: ▪ HLTH 662 Global Health (or equivalent) ▪ HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems - o Elective courses: ▪ Select 1 from the following list: ▪ HLTH 704 Advanced Qualitative Methods for Health Research ▪ HLTH 705 Advanced Statistical Methods for Analyzing Public Health and Health Systems Data ▪ HLTH 706 Advanced Epidemiological Methods ▪ HLTH 719 Advanced Research Methods in Health Data Science ▪ ~~Select 1 from the following list (these courses are global-health focused in all examples and assignments):~~ ▪ ~~HLTH 632 Health Economics and Public Health~~ ▪ ~~HLTH 654 Systems Thinking and Analysis in Health Program Planning and Evaluation~~	- o Required courses: ▪ HLTH 662 Global Health (or equivalent) ▪ HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems - o Elective courses: ▪ Select 1 from the following list: ▪ <u>HLTH 632 Health Economics and Public Health</u> ▪ HLTH 704 Advanced Qualitative Methods for Health Research ▪ HLTH 705 Advanced Statistical Methods for Analyzing Public Health and Health Systems Data ▪ HLTH 706 Advanced Epidemiological Methods ▪ HLTH 719 Advanced Research Methods in Health Data Science

Current column continued:

5. Graduate Research Field in Health Evaluation
- Students must successfully complete 1 required course and 3 elective courses. An assessment of whether or not the student's thesis warrants the Health Evaluation Graduate Research Field designation will be completed by the SPHS.
  - o Required course:
    - ▪ HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems
  - o Elective courses:
    - ▪ Select 1 from the following list:
      - ▪ HLTH 655 Health Measurement and Survey Methods
      - ▪ HLTH 704 Advanced Qualitative Methods for Health Research

Proposed column continued:

5. Graduate Research Field in Health Evaluation
- Students must successfully complete 1 required course and 3 elective courses. An assessment of whether or not the student's thesis warrants the Health Evaluation Graduate Research Field designation will be completed by the SPHS.
  - o Required course:
    - ▪ HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems
  - o Elective courses:
    - ▪ Select 1 from the following list:
      - ▪ HLTH 655 Health Measurement and Survey Methods
      - ▪ HLTH 704 Advanced Qualitative Methods for Health Research
      - ▪ HLTH 705 Advanced Statistical Methods for Analyzing Public Health and Health Systems Data
    - ▪ Select 1 or 2 from the following list:

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
- HLTH 705 Advanced Statistical Methods for Analyzing Public Health and Health Systems Data - Select 1 or 2 from the following list: - HLTH 614 Foundations of Program Evaluation - HLTH 651 Theory and Applications in Program Evaluation - HLTH 653 Evaluation Practice and Management - HLTH 654 Systems Thinking and Analysis in Health Program Planning and Evaluation - Select 1 from the following list if only 1 course was selected above: - HLTH 603 Health Systems and Policy - HLTH 626 Analysis and Management of Health Information in Aging Populations - HLTH 639 Experiential Learning in Evaluation 7. Graduate Research Field in Work and Health - Students must successfully complete 2 required courses and 2 elective courses. An assessment of whether or not the student's thesis warrants the Work and Health Graduate Research Field designation will be completed by the SPHS. - Required courses: - HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems - HLTH 728 What is Fair? International Perspectives On Equity In Work and Health - Elective courses: - Select 1 from the following list: - HLTH 704 Advanced Qualitative Methods for Health Research - HLTH 705 Advanced Statistical Methods for Analyzing Public Health	- HLTH 614 Foundations of Program Evaluation - HLTH 651 Theory and Applications in Program Evaluation - HLTH 653 Evaluation Practice and Management - Select 1 from the following list if only 1 course was selected above: - HLTH 603 Health Systems and Policy - HLTH 626 Analysis and Management of Health Information in Aging Populations - HLTH 639 Experiential Learning in Evaluation 7. Graduate Research Field in Work and Health - Students must successfully complete 2 required courses and 2 elective courses. An assessment of whether or not the student's thesis warrants the Work and Health Graduate Research Field designation will be completed by the SPHS. - Required courses: - HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems - HLTH 728 What is Fair? International Perspectives On Equity In Work and Health - Elective courses: - Select 1 from the following list: - HLTH 704 Advanced Qualitative Methods for Health Research - HLTH 705 Advanced Statistical Methods for Analyzing Public Health and Health Systems Data - HLTH 706 Advanced Epidemiological Methods - HLTH 719 Advanced Research Methods in Health Data Science - Select 1 from the following list: - HLTH 614 Foundations of Program Evaluation

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
- and Health Systems Data - HLTH 706 Advanced Epidemiological Methods - HLTH 719 Advanced Research Methods in Health Data Science - Select 1 from the following list: - HLTH 614 Foundations of Program Evaluation - HLTH 623 Risk and Exposure Assessment in Public Health - HLTH 639 Experiential Learning in Evaluation ~~HLTH 654 Systems Thinking and Analysis In Health Program Planning and Evaluation~~ - HLTH 731 Approaches to Research in Work and Health	- HLTH 623 Risk and Exposure Assessment in Public Health - HLTH 639 Experiential Learning in Evaluation - HLTH 731 Approaches to Research in Work and Health

How will students currently registered in the program be impacted by these changes?

Students currently involved in the program will not be affected. This course has not been offered for many years. We have found substitutions for students wanting to fulfill the field requirements in the absence of this course.

Department/School approval date (11/22/24):
Reviewed by GSPA (for GSPA use only) ☒ date (mm/dd/yy): 10/25/24
Faculty approval date (mm/dd/yy): 03/21/25
Senate Graduate & Research Council (SGRC) approval date (mm/dd/yy):
Senate approval date (mm/dd/yy) (if applicable):

Prior to form submission, review the content revision instructions and information regarding major/minor modifications. For questions about the form submission, contact Trevor Clews, Graduate Studies and Postdoctoral Affairs (GSPA).

Faculty: Health

Program: Master of Science (MSc) in Public Health Sciences

Program contact name(s): Samantha Meyer, Jaiden Cote

Form completed by:

Description of proposed changes:
Note: changes to courses and milestones also require the completion/submission of the SGRC Graduate Studies Course/Milestone Form.

1) *Removing HLTH 632 from the list of required courses associated with the Graduate Research Field in Global Health.*

Is this a major modification to the program? No

Rationale for change(s):

1) *We made an error in a prior update to this field such that HLTH 632 is currently listed as both a required course and a 'select 1 from the following list'. In discussion with faculty that teach in Global Health, it was determined that HLTH 632 should be removed as a required course.*

Proposed effective date: Term: Spring   Year: 2025

Current Graduate Studies Academic Calendar (GSAC) page (include the link to the web page where the changes are to be made):

https://uwaterloo.ca/academic-calendar/graduate-studies/catalog#/programs/BJZagJRCsh

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:

Course requirements
• The normal minimum requirement will be 5 one-term (0.50 unit weight) graduate courses (3 required and 2 free electives or approved equivalents):
   o Required courses:
     ▪ HLTH 601 Lifespan Determinants of Health and Disease
   o 2 of the following:
     ▪ HLTH 605A Regression Models (or equivalent) or HLTH 705 Advanced Statistical Methods
	Course requirements
	• The normal minimum requirement will be 5 one-term (0.50 unit weight) graduate courses (3 required and 2 free electives or approved equivalents):
	   o Required courses:
	     ▪ HLTH 601 Lifespan Determinants of Health and Disease
	   o 2 of the following:
	     ▪ HLTH 605A Regression Models (or equivalent) or HLTH 705 Advanced Statistical Methods

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
for Analyzing Public Health and Health Systems Data* - HLTH 606A Epidemiological Methods (or equivalent) or HLTH 706 Advanced Epidemiological Methods* - HLTH 619 Fundamental Research Methods in Health Informatics (or equivalent) or HLTH 719 Advanced Research Methods in Health Data Science* - HLTH 625 Foundations of Qualitative Research Methodologies (or equivalent) or HLTH 704 Advanced Qualitative Methods for Health Research* o Elective courses: 2 free elective courses, selected in consultation with the supervisor (may include courses outside of the School of Public Health Sciences (SPHS), or any courses offered by the SPHS, including additional courses from the required list, online courses, etc.) *It is highly recommended that MSc students with a strong background or previous training in one of these areas take the 700-level equivalent in place of the 600-level course requirement (e.g., those with a strong statistical background may opt to take HLTH 705). Such decisions should be made in collaboration with the supervisor. • At a minimum, students must obtain an average of 75% or higher in aggregate on the courses presented in fulfilment of the degree requirements. Grades on all courses presented to fulfill the degree requirements must be 70% or higher. A grade below 70% in any course or failing to maintain an average of 75% will necessitate a review of the student's status by the School and may result in a student being required to complete additional coursework or being required to withdraw from the program. The School reserves the right to stipulate additional coursework if it is necessary for the student's preparation. • Students in the MSc in Public Health Sciences program may also wish to pursue one of the	for Analyzing Public Health and Health Systems Data* - HLTH 606A Epidemiological Methods (or equivalent) or HLTH 706 Advanced Epidemiological Methods* - HLTH 619 Fundamental Research Methods in Health Informatics (or equivalent) or HLTH 719 Advanced Research Methods in Health Data Science* - HLTH 625 Foundations of Qualitative Research Methodologies (or equivalent) or HLTH 704 Advanced Qualitative Methods for Health Research* o Elective courses: 2 free elective courses, selected in consultation with the supervisor (may include courses outside of the School of Public Health Sciences (SPHS), or any courses offered by the SPHS, including additional courses from the required list, online courses, etc.) *It is highly recommended that MSc students with a strong background or previous training in one of these areas take the 700-level equivalent in place of the 600-level course requirement (e.g., those with a strong statistical background may opt to take HLTH 705). Such decisions should be made in collaboration with the supervisor. • At a minimum, students must obtain an average of 75% or higher in aggregate on the courses presented in fulfilment of the degree requirements. Grades on all courses presented to fulfill the degree requirements must be 70% or higher. A grade below 70% in any course or failing to maintain an average of 75% will necessitate a review of the student's status by the School and may result in a student being required to complete additional coursework or being required to withdraw from the program. The School reserves the right to stipulate additional coursework if it is necessary for the student's preparation. • Students in the MSc in Public Health Sciences program may also wish to pursue one of the

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
following Graduate Research Fields: 1. Aging and Health 2. Epidemiology and Biostatistics 3. Global Health 4. Health and Environment 5. Health Evaluation 6. Health Informatics 7. Work and Health • A Graduate Research Field is a University credential that is recognized on the student's transcript and is intended to reflect that a student has successfully completed research and a set of courses that together provide an in-depth study in the area of the Graduate Research Field. A student will only obtain the Graduate Research Field on their transcript if they have completed the requirements associated with the MSc degree and the requirements associated with the Graduate Research Field. • All MSc Graduate Research Fields in the SPHS consist of Graduate Studies Seminars I and II, a Master's Thesis that is confirmed by the SPHS to be in the chosen Graduate Research Field, and a set of 5 graduate (0.50 weight) level courses. This set of courses is comprised of a mix of required and elective courses. Required courses are those that are prescribed as part of the Graduate Research Field. Elective courses are those that are on a list of courses designated as electives for a given Graduate Research Field. • For any of the Graduate Research Fields below, a directed studies course (HLTH 620 or HLTH 720) focused on the Graduate Research Field or an appropriate alternate course may replace a required or elective course, with the approval of the Associate Director, Graduate Programs, School of Public Health Sciences. • The course requirements for each of the Graduate Research Fields are described below.	following Graduate Research Fields: 1. Aging and Health 2. Epidemiology and Biostatistics 3. Global Health 4. Health and Environment 5. Health Evaluation 6. Health Informatics 7. Work and Health • A Graduate Research Field is a University credential that is recognized on the student's transcript and is intended to reflect that a student has successfully completed research and a set of courses that together provide an in-depth study in the area of the Graduate Research Field. A student will only obtain the Graduate Research Field on their transcript if they have completed the requirements associated with the MSc degree and the requirements associated with the Graduate Research Field. • All MSc Graduate Research Fields in the SPHS consist of Graduate Studies Seminars I and II, a Master's Thesis that is confirmed by the SPHS to be in the chosen Graduate Research Field, and a set of 5 graduate (0.50 weight) level courses. This set of courses is comprised of a mix of required and elective courses. Required courses are those that are prescribed as part of the Graduate Research Field. Elective courses are those that are on a list of courses designated as electives for a given Graduate Research Field. • For any of the Graduate Research Fields below, a directed studies course (HLTH 620 or HLTH 720) focused on the Graduate Research Field or an appropriate alternate course may replace a required or elective course, with the approval of the Associate Director, Graduate Programs, School of Public Health Sciences. • The course requirements for each of the Graduate Research Fields are described below.

3. Graduate Research Field in Global Health
• Students must successfully complete 3 required courses and 2 elective courses. An assessment of whether or not the student's thesis warrants the Global Health Graduate Research Field designation will be completed by the SPHS.
  o Required courses:
    ▪ HLTH 601 Lifespan Determinants of Health and Disease
	3. Graduate Research Field in Global Health
	• Students must successfully complete 2 required courses and 3 elective courses. An assessment of whether or not the student's thesis warrants the Global Health Graduate Research Field designation will be completed by the SPHS.
	  o Required courses:
	    ▪ HLTH 601 Lifespan Determinants of Health and Disease
	    ▪ HLTH 662 Global Health

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
<s>HLTH 632 Health Economics and Public Health</s> - HLTH 662 Global Health - Elective courses: - Select 2 from the following list: - HLTH 605A Regression Models - HLTH 606A Epidemiological Methods - HLTH 619 Fundamental Research Methods in Health Informatics - HLTH 625 Foundations of Qualitative Research Methodologies or HLTH 652 Qualitative Methods and Analysis - Select 1 from the following list (these courses are global-health focused in all examples and assignments): - HLTH 611 The Health Care System - HLTH 632 Health Economics and Public Health	- Elective courses: - Select 2 from the following list: - HLTH 605A Regression Models - HLTH 606A Epidemiological Methods - HLTH 619 Fundamental Research Methods in Health Informatics - HLTH 625 Foundations of Qualitative Research Methodologies or HLTH 652 Qualitative Methods and Analysis - Select 1 from the following list (these courses are global-health focused in all examples and assignments): - HLTH 611 The Health Care System - HLTH 632 Health Economics and Public Health

Current column (continued):

Milestone requirements

Graduate Studies Seminar I
- The Fall term segment of the seminar will provide a weekly opportunity for MSc students in their first term of study to attend research seminars led by SPHS faculty members and senior graduate students. In addition, opportunities will be arranged for students to participate in workshops relating to research methods, presentation skills, grantsmanship, or to attend guest lectures delivered by scholars from outside SPHS.

Graduate Studies Seminar II
- The Winter term segment of the seminar will provide a weekly opportunity for MSc students in their second term of study to participate in a journal club led by members of their cohort. Each student will be responsible for selecting one article, providing an electronic copy to the instructors to allow for placement on the course website, and then leading discussion around the article's purpose, content, strengths, and limitations. In addition, students will be expected to read through the articles

Proposed column (continued):

Milestone requirements

Graduate Studies Seminar I
- The Fall term segment of the seminar will provide a weekly opportunity for MSc students in their first term of study to attend research seminars led by SPHS faculty members and senior graduate students. In addition, opportunities will be arranged for students to participate in workshops relating to research methods, presentation skills, grantsmanship, or to attend guest lectures delivered by scholars from outside SPHS.

Graduate Studies Seminar II
- The Winter term segment of the seminar will provide a weekly opportunity for MSc students in their second term of study to participate in a journal club led by members of their cohort. Each student will be responsible for selecting one article, providing an electronic copy to the instructors to allow for placement on the course website, and then leading discussion around the article's purpose, content, strengths, and limitations. In addition, students will be expected to read through the articles chosen by their colleagues, and actively participate in the discussion held each week.

Master's Thesis Proposal

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
chosen by their colleagues, and actively participate in the discussion held each week. **Master's Thesis Proposal** • Students must identify an approved topic for their Master's thesis, write a thesis proposal describing the topic, and defend the proposal in an oral examination normally held at the midpoint of the degree. Students are expected to identify a Master's thesis committee in advance of their thesis proposal examination. The thesis committee will consist of a minimum of three people, including a supervisor and at least one other faculty member who are both appointed in the School of Public Health Sciences. One committee member may be from outside the School (from within the University or from another university). **Master's Thesis** • For the Master's thesis, the research described in the thesis proposal will be undertaken and defended in an oral examination.	• Students must identify an approved topic for their Master's thesis, write a thesis proposal describing the topic, and defend the proposal in an oral examination normally held at the midpoint of the degree. Students are expected to identify a Master's thesis committee in advance of their thesis proposal examination. The thesis committee will consist of a minimum of three people, including a supervisor and at least one other faculty member who are both appointed in the School of Public Health Sciences. One committee member may be from outside the School (from within the University or from another university). **Master's Thesis** • For the Master's thesis, the research described in the thesis proposal will be undertaken and defended in an oral examination.

How will students currently registered in the program be impacted by these changes?

Current students will not be impacted.

Department/School approval date (11/22/24):
Reviewed by GSPA (for GSPA use only) ☒ date (mm/dd/yy): 10/25/24
Faculty approval date (mm/dd/yy): 03/21/25
Senate Graduate & Research Council (SGRC) approval date (mm/dd/yy):
Senate approval date (mm/dd/yy) (if applicable):

Prior to form submission, review the content revision instructions. For questions about the form submission, contact Trevor Clews, Graduate Studies and Postdoctoral Affairs (GSPA).

Faculty: Health

Effective date: Term: Spring   Year: 2025

Milestone
Note: milestone changes also require the completion/submission of the Graduate Studies Program Revision Template.

☐ New: Choose an item.

☐ Inactivate: Choose an item.

☐ Revise: from Choose an item. to Choose an item.

Course
Note: some course changes also require the completion/submission of the Graduate Studies Program Revision Template.

☐ New: Complete all course elements below

☒ Inactivate: Complete the following course elements:
                 Course subject code, Course number, Course ID, Course title

☐ Revise: Complete all course elements below to reflect the proposed change(s) and identify the course
                 elements being revised (*e.g. Course description, Course title*):

Course elements (complete as indicated above. Review the glossary of terms for details on course elements)

Course subject code: SWK

Course number: 650R

Course ID: 014653

Course title (max. 100 characters including spaces): Interprofessional Psychosocial Oncology: Introduction to Theory and Practice

Course short title (max. 30 characters including spaces):

Grading basis: Choose an item.

Course credit weight: Choose an item.

Course consent required: Choose an item.

Course description:

Meet type(s): Choose an item.   Choose an item.   Choose an item.   Choose an item.

Primary meet type: Choose an item.

Delivery mode: Choose an item.

Requisites:

Special topics course: Yes ☐   No ☐

Cross-listed course: Yes ☐   No ☐

Course subject code(s) and number(s) to be cross-listed with and approval status:

Sections combined/held with:

Rationale for request:

This course is being inactivated as it was part of the multi university Interprofessional Psychosocial Oncology Distance Education (IPODE) offerings, and the IPODE program has been discontinued.

Form completed by:
Department/School approval date: 10/23/2024; Renison Curriculum Approval date: 11/11/2024 Renison University College Academic Council approval date: 12/06/24
Reviewed by GSPA (for GSPA use only) ☒ date (mm/dd/yy): 09/16/24
Faculty approval date (mm/dd/yy): 03/21/25
Senate Graduate & Research Council (SGRC) approval date (mm/dd/yy):

Prior to form submission, review the content revision instructions. For questions about the form submission, contact Trevor Clews, Graduate Studies and Postdoctoral Affairs (GSPA).

Faculty: Health

Effective date: Term: Spring Year: 2025

Milestone

Note: milestone changes also require the completion/submission of the Graduate Studies Program Revision Template.

☐ New: Choose an item.

☐ Inactivate: Choose an item.

☐ Revise: from Choose an item. to Choose an item.

Course

Note: some course changes also require the completion/submission of the Graduate Studies Program Revision Template.

☐ New: Complete all course elements below

☐ Inactivate: Complete the following course elements:
                Course subject code, Course number, Course ID, Course title

☒ Revise: Complete all course elements below to reflect the proposed change(s) and identify the course
                elements being revised (*e.g. Course description, Course title*):

                Removing the instructor consent from the course.

Course elements (complete as indicated above. Review the glossary of terms for details on course elements)

Course subject code: SWK

Course number: 651

Course ID: 014654

Course title (max. 100 characters including spaces): Relational Practice with Families

Course short title (max. 30 characters including spaces): Relational Practice w/ Families

Grading basis: Numerical

Course credit weight: 0.50

Course consent required: Not required

Course description: Using case based learning in small interprofessional groups, students will explore a variety of key learning themes relevant to the interprofessional care of families. Themes that will be addressed include: family theory, models of family & couple counseling (particularly from a systemic and strengths based perspective), family assessment, therapeutic conversations and interventions. Case examples will be drawn from

the experience of families across the cancer illness trajectory, from diagnosis through to death and dying, bereavement and long term survivorship. Small group work will allow student to develop a rich understanding of the cancer experience from the perspective of families, as well as competency in family assessment, intervention, interprofessional collaboration, and cultural safety. Attention to diversity will be integrated throughout the course.

Meet type(s): Lecture   Seminar   Tutorial   Choose an item.

Primary meet type: Lecture

Delivery mode: Choose an item.

Requisites: SWK Master's Students Only

Special topics course: Yes   ☐   No   ☒

Cross-listed course: Yes   ☐   No   ☒

Course subject code(s) and number(s) to be cross-listed with and approval status:

Sections combined/held with:

Rationale for request:

Instructor consent is being removed since the course already has a SWK Master's Students Only requisite attached to it. MSW students can openly enrol in the course, but other students will need to submit a course drop/add form to enrol. This revision will make the consent/requisite set up for this course consistent with the other SWK courses.

Form completed by:
Department/School approval date (mm/dd/yy): 10/20/24. Renison Curriculum Committee approval 11/11/24
Renison University College Academic Council approval date: 12/06/24
Reviewed by GSPA (for GSPA use only) ☒ date (mm/dd/yy): 09/16/24
Faculty approval date (mm/dd/yy): 03/21/25
Senate Graduate & Research Council (SGRC) approval date (mm/dd/yy):

Faculty of Science

SGRC submission

MEMORANDUM

To: Tim Weber-Kraljevski and Ashley Day

From: Martin Ross, Associate Dean Graduate Studies – Faculty of Science

Date: March 17, 2025

Re: Science Graduate and Research Council Agenda

I would ask that the motion below be placed on the agenda of the **April 7th, 2025, SGRC meeting**. The motions were approved by the Science Faculty Council (March 5th, 2025).

Motions from Chemistry

1. Updating the wording in the GSAC to accurately identify the requirements for students entering the PhD program directly from a Bachelor of Science program

2. To update the course requirements to specify the number of Chemistry courses MSc students are required to take.

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Martin Ross, PhD

Associate Dean Graduate Studies - Science

Graduate Studies Program Revision Template

UNIVERSITY OF WATERLOO

Prior to form submission, review the <u>content revision instructions</u> and information regarding <u>major/minor modifications</u>. For questions about the form submission, contact <u>Trevor Clews</u>, Graduate Studies and Postdoctoral Affairs (GSPA).

Faculty: Science

Programs: 1)   Doctor of Philosophy (PhD) in Chemistry

2)   Doctor of Philosophy (PhD) in Chemistry – Co-operative Program

Program contact name(s): Thorsten Dieckmann, Madeleine Blauel, Kim Rawson

Form completed by: Kim Rawson

Description of proposed changes:
Note: changes to courses and milestones also require the completion/submission of the <u>SGRC Graduate Studies Course/Milestone Form</u>.

Updating the wording in the GSAC to accurately identify the requirements for students entering the PhD program directly from a Bachelor of Science program.

Is this a <u>major modification</u> to the program? No

Rationale for change(s):

These changes were to be implemented in Fall 2020 when CHEM 784 was approved as a required course, but the changes were overlooked.

Proposed effective date: Term: Spring   Year: 2025

Current <u>Graduate Studies Academic Calendar (GSAC)</u> page (include the link to the web page where the changes are to be made):

https://uwaterloo.ca/academic-calendar/graduate-studies/catalog#/programs/r1SeW1A0j3

https://uwaterloo.ca/academic-calendar/graduate-studies/catalog#/programs/HklxWyRCo2

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
Doctor of Philosophy (PhD) in Chemistry **Course requirements** - Students must successfully complete 2 one-term courses (0.50 unit weight) beyond the 4 courses that are required for the Master's degree. Half of the graduate courses must be taken within the Department of Chemistry. 1 of the 2 graduate courses may be taken through other departments within their registered University or students may request a transfer	**Doctor of Philosophy (PhD) in Chemistry** **Course requirements** - Students must successfully complete 2 one-term courses (0.50 unit weight) beyond the 4 courses that are required for the Master's degree. Half of the graduate courses must be taken within the Department of Chemistry. 1 of the 2 graduate courses may be taken through other departments within their registered University or students may request a transfer

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
credit for a course taken from another University to meet the course requirements. Students are advised to consult with their supervisor in the selection of courses. • An average of at least 70% must be obtained in the required courses. A minimum grade of 65% is required for a pass in each course. If a student does not meet these minimum grade requirements, or receives a failing grade in any course, the student may be required to withdraw from the program. **Other requirements** • Direct admission from a BSc: students who are admitted directly to the PhD from a BSc are required to complete 4 regular graduate courses, a Master's Seminar and research proposal (in the second term), a PhD Seminar and (oral) Comprehensive Examination (in the fifth term), and a PhD Thesis to complete their degree requirements. **Doctor of Philosophy (PhD) in Chemistry – Co-operative Program** **Course requirements** • Students must successfully complete 2 one-term courses (0.50 unit weight) beyond the 4 courses that are required for the Master's degree. • 4 of the 6 required one-term courses, including the CHEM 794 Master's Seminar, must be completed within the first two academic terms in residence. Half of the graduate courses must be taken within the Department of Chemistry. 1 of the 2 graduate courses may be taken through other departments within their registered University or students may request a transfer credit for a course taken from another University to meet the course requirements. Students are advised to consult with their supervisor in the selection of courses. • An average of at least 70% must be obtained in the required courses. A minimum grade of 65% is required for a pass in each course. If a student does not meet these minimum grade requirements, or receives a failing grade in any course, the student may be required to withdraw from the program.	credit for a course taken from another University to meet the course requirements. Students are advised to consult with their supervisor in the selection of courses. • An average of at least 70% must be obtained in the required courses. A minimum grade of 65% is required for a pass in each course. If a student does not meet these minimum grade requirements, or receives a failing grade in any course, the student may be required to withdraw from the program. **Other requirements** • Direct admission from a Bachelor of Science (BSc): students who are admitted directly to the PhD from a BSc are required to complete 3 regular graduate courses, CHEM 784 Foundations of Literature Review (preferably in the first term), CHEM 794 Master's Seminar (in the second term), (oral) Comprehensive Examination (in the fifth term), a PhD Seminar (by the 7th term) and a PhD Thesis to complete their degree requirements. **Doctor of Philosophy (PhD) in Chemistry – Co-operative Program** **Course requirements** • Students must successfully complete 2 one-term courses (0.50 unit weight) beyond the 4 courses that are required for the Master's degree. Half of the graduate courses must be taken within the Department of Chemistry. 1 of the 2 graduate courses may be taken through other departments within their registered University or students may request a transfer credit for a course taken from another University to meet the course requirements. Students are advised to consult with their supervisor in the selection of courses. • An average of at least 70% must be obtained in the required courses. A minimum grade of 65% is required for a pass in each course. If a student does not meet these minimum grade requirements, or receives a failing grade in any course, the student may be required to withdraw from the program. **Other requirements** • Direct admission from a Bachelor of Science (BSc): students who are admitted directly to

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
Other requirements • Direct admission from a BSc: students who are admitted directly to the PhD from a BSc are required to complete ~~4~~ regular graduate courses, a Master's Seminar ~~and research proposal~~ (in the second term), ~~a PhD Seminar and~~ (oral) Comprehensive Examination (in the fifth term), and a PhD Thesis to complete their degree requirements.	the PhD from a BSc are required to complete <u>3</u> regular graduate courses, <u>CHEM 784 Foundations of Literature Review (preferably in the first term)</u>, CHEM 794 Master's Seminar (in the second term), (oral) Comprehensive Examination (in the fifth term), <u>a PhD Seminar (by the 7th term)</u> and a PhD Thesis to complete their degree requirements.

How will students currently registered in the program be impacted by these changes?

This should not affect any students currently in the program as they started Fall 2020 and were informed of what the new requirements may be.

Department/School approval date (mm/dd/yy):

Reviewed by GSPA (for GSPA use only) ☒ date (mm/dd/yy): 01/24/25
Faculty approval date (mm/dd/yy): 03/05/25
Senate Graduate & Research Council (SGRC) approval date (mm/dd/yy):
Senate approval date (mm/dd/yy) (if applicable):

Graduate Studies
Program Revision Template

UNIVERSITY OF WATERLOO

Prior to form submission, review the <u>instructions</u> and information regarding <u>major/minor modifications</u>. For questions about the form submission, contact <u>Trevor Clews</u>, Graduate Studies and Postdoctoral Affairs (GSPA).

Faculty: Science

Programs: 1) Master of Science (MSc) in Chemistry

        2) Master of Science (MSc) in Chemistry - Co-operative Program

Program contact name(s): Thorsten Dieckmann, Madeleine Blauel, Kim Rawson

Form completed by:

Description of proposed changes:
Note: changes to courses and milestones also require the completion/submission of the <u>SGRC Graduate Studies Course/Milestone Form</u>.

Updating the course requirements to specify the number of Chemistry courses students are required to take.

Is this a <u>major modification</u> to the program? No

Rationale for change(s):

These changes were to be implemented in Fall 2020 when CHEM 784 was approved as a required course, but the changes were overlooked.

Proposed effective date: Term: Spring   Year: 2025

Current <u>Graduate Studies Academic Calendar (GSAC)</u> page (include the link to the web page where the changes are to be made):

https://uwaterloo.ca/academic-calendar/graduate-studies/catalog#/programs/HyglZ1RRi3

https://uwaterloo.ca/academic-calendar/graduate-studies/catalog#/programs/HJbl-yRCs3

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
Master of Science (MSc) in Chemistry **Thesis option: Course requirements** • Students must successfully complete at least 4 one-term graduate courses (0.50 unit weight), which must include CHEM 784 Foundations of Literature Review and CHEM 794 Master's Seminar. ~~2 graduate~~ courses may be taken through other departments within their registered University or students may request transfer credit for courses taken from another University to meet the course requirements. Students are advised to consult with their supervisor in the selection of courses.	**Master of Science (MSc) in Chemistry** **Thesis option: Course requirements** • Students must successfully complete at least 4 one-term graduate courses (0.50 unit weight), which must include CHEM 784 Foundations of Literature Review (preferably in the first term) and CHEM 794 Master's Seminar (in the second term). <u>1 of the remaining courses must be taken within the Department of Chemistry, the other course</u> may be taken through other departments within their registered University or students may request transfer credit for courses taken from another University to meet

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
• An average of at least 70% must be obtained in the required courses. A minimum grade of 65% is required for a pass in each course. If a student does not meet these minimum grade requirements, or receives a failing grade in any course, the student may be required to withdraw from the program. **Master's Research Paper option: Course requirements** • Students must successfully complete 7 one-term graduate courses (0.50 unit weight), which must include CHEM 784 Foundations of Literature Review and CHEM 794 Master's Seminar. • Within the GWC2 (Guelph-Waterloo Centre for Graduate Work in Chemistry and Biochemistry) program, part-time students can only take courses through the University of Guelph or the University of Waterloo, but 3 of the 5 graduate courses may be taken through other departments within their registered University. It is advisable that students take courses that are relevant to their area of specialization in chemistry, as this may be of help when students eventually seek a research advisor for their Master's Research Paper. • An average of at least 70% must be obtained in the required courses. A minimum grade of 65% is required for a pass in each course. If a student does not meet these minimum grade requirements, or receives a failing grade in any course, the student may be required to withdraw from the program. **Master of Science (MSc) in Chemistry – Co-operative Program** **Thesis option: Course requirements** • Students must successfully complete at least 4 one-term graduate courses (0.50 unit weight), which must include CHEM 784 Foundations of Literature Review and CHEM 794 Master's Seminar. 2 graduate courses may be taken through other departments within their registered University or students may request transfer credit for courses taken from another University to meet the course requirements. Students are advised to consult with their supervisor in the selection of courses. • At least 2 of the required 4 one-term courses including the CHEM 794 Master's Seminar must be completed during the first two terms in residence.	the course requirements. Students are advised to consult with their supervisor in the selection of courses. • An average of at least 70% must be obtained in the required courses. A minimum grade of 65% is required for a pass in each course. If a student does not meet these minimum grade requirements, or receives a failing grade in any course, the student may be required to withdraw from the program. **Master's Research Paper option: Course requirements** • Students must successfully complete 7 one-term graduate courses (0.50 unit weight), which must include CHEM 784 Foundations of Literature Review (preferably in the first term) and CHEM 794 Master's Seminar (in the second term). • Within the GWC2 (Guelph-Waterloo Centre for Graduate Work in Chemistry and Biochemistry) program, part-time students can only take courses through the University of Guelph or the University of Waterloo, but 2 of the 5 graduate courses may be taken through other departments within their registered University. It is advisable that students take courses that are relevant to their area of specialization in chemistry, as this may be of help when students eventually seek a research advisor for their Master's Research Paper. • An average of at least 70% must be obtained in the required courses. A minimum grade of 65% is required for a pass in each course. If a student does not meet these minimum grade requirements, or receives a failing grade in any course, the student may be required to withdraw from the program. **Master of Science (MSc) in Chemistry – Co-operative Program** **Thesis option: Course requirements** • Students must successfully complete at least 4 one-term graduate courses (0.50 unit weight), which must include CHEM 784 Foundations of Literature Review (preferably in the first term) and CHEM 794 Master's Seminar (in the second term). 1 of the remaining courses must be taken within the Department of Chemistry, the other course may be taken through other departments within their registered University or students may request transfer credit for courses taken from another University to meet

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
• An average of at least 70% must be obtained in the required courses. A minimum grade of 65% is required for a pass in each course. If a student does not meet these minimum grade requirements, or receives a failing grade in any course, the student may be required to withdraw from the program.	the course requirements. Students are advised to consult with their supervisor in the selection of courses. • An average of at least 70% must be obtained in the required courses. A minimum grade of 65% is required for a pass in each course. If a student does not meet these minimum grade requirements, or receives a failing grade in any course, the student may be required to withdraw from the program.

How will students currently registered in the program be impacted by these changes?

This should not affect any students currently in the program as they were informed of the requirements when they entered the program.

Reviewed by GSPA (for GSPA use only) ☒ date (mm/dd/yy): 01/24/25
Department/School approval date (mm/dd/yy):
Graduate Faculty Sub-Committee approval date (mm/dd/yy): N/A
Faculty Council approval date (mm/dd/yy): 03/05/25
Senate Graduate & Research Council (SGRC) approval date (mm/dd/yy):

SGRC Item 8

Item Title:	Reports from the Task Force on Principles for Institutional Partnerships and the Task Force on Social Responsibility in Investing
Presenter Name(s) & Title(s):	Ian Milligan, Associate Vice-President, Research Oversight and Analysis Sarah Hadley, Chief Financial Officer Charmaine Dean, Vice-President, Research & International Jacinda Reitsma, Vice-President, Administration & Finance
Presentation Date:	April 7, 2025

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1. OUTCOME
Discussion of the reports and next steps.

2. OBJECTIVE
To provide an overview of these reports, key recommendations, and next steps.

3. SUMMARY/CORE CONTEXT
The Task Force on Principles for Institutional Partnership and the Task Force on Social Responsibility in Investing (the Task Forces) were established in June 2024, growing out of conversations across the institution about whether University investment and partnership decisions reflect institutional values. Following announcement of the memberships, the Task Forces met regularly and conducted research which involved institutional and sectoral scans, community consultations, and education sessions with legal experts.

The original deadline to deliver reports to the President was the end of 2024. Due to the complexity of the work, this deadline was extended to the beginning of February. The final reports of the Task Forces were released campus-wide on 27 February 2025.

4. PROPOSED RECOMMENDATION
The Task Forces share common beginnings, and the direction of the recommendations are similar at a high level; however, the frameworks for institutional partnerships and investments differ widely, so there are differences in the details, particularly, around implementation.

At a high level, the Task Force on Principles for Institutional Partnerships recommends:
- **nine principles to guide decisions regarding institutional partnerships**: These principles include a firm commitment to academic freedom and institutional autonomy, adherence to international human rights standards, and support for environmental responsibility, among others; and
- **five recommendations**, including recommendations that the University and units managing partnerships adopt consistent policies and processes around forming, reviewing and managing partnerships, which incorporate and reflect the principles and provide for transparency and accountability; and
- in particular, recommendation #4 notes that a "work plan and accountable senior leaders are necessary to oversee the implementation and accountability of these principles and recommendations."

Ian Milligan, in collaboration with relevant stakeholders, will lead the implementation of the recommendations related to Institutional Partnerships.

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Similarly, at a high level, the Task Force on Social Responsibility in Investing includes recommendations in the following areas:

- **investment disclosure practices**: Disclose all investment holdings annually including the percentage of each holding of the endowment's or pension's total market value and provide context about the investment approach and fiduciary responsibilities.
- **priority social factors**: update the Responsible Investment Policy to include as priority social factors international human rights including anti-oppression and anti-racism, Indigenous reconciliation, equity and diversity, and adherence to the UN's convention on certain conventional weapons and for other relevant updates; and
- **feedback process**: proactively collect and review stakeholder feedback related to endowment investments every three years, including a feedback loop with stakeholders.

Sarah Hadley and the Finance team will work with the relevant Board subcommittees and other stakeholders on the implementation of the recommendations on Social Responsibility in Investing.

5. ADMINISTRATIVE COMMITTEE(S) CONSULTED

These reports were delivered in confidence to the executive sponsors, and then by the executive sponsors to the President in January/February 2025. They are published and an implementation plan is under development.

6. PROPOSED NEXT STEPS

The website will be updated by April 7th with implementation information, including a high-level list of tasks and those accountable. This will take the form of a table highlighting each specific recommendation.

In addition, the Task Force on Social Responsibility in Investing report is being highlighted at the March 2025 meetings of the Pension Investment Committee and Finance & Investment Committee, with more detailed discussions taking place with these Board subcommittees in their May 2025 meetings.

Following this round of updates on the reports and consultation on the implementation plan next steps, detailed work plans will be developed through May/June 2025, with updates provided to relevant bodies as the work progresses.

7. SUPPORTING MATERIALS (APPENDIX)

 Please see the Reports from the Task Forces links below;

Report of the Task Force on Principles for Institutional Partnerships:
https://uwaterloo.ca/research/sites/default/files/uploads/documents/tfpip-final-report-feb2025-final.pdf

Report of the Task Force on Social Responsibility in Investing:
https://uwaterloo.ca/finance/sites/default/files/uploads/documents/tfsrii-final-report-feb2025-final.pdf

Questions to be considered by SGRC members as they review the Centre/Institute renewal report:

- How successful has the Centre/Institute been in achieving its objectives during the period since its last approval?

- What value has the_ Centre/Institute added to the University community that wouldn't have existed otherwise? What novel research activities, initiatives and outputs has it fostered?

- How effectively has the Centre/Institute contributed to the educational mission of the institution through collaboration with Departments/Schools?

- To what extent have Graduate Students been involved in and benefitted from the activities and initiatives of the Centre/Institute?

- Has the Centre/Institute been successful in engaging external partners (e.g. industry, community, government)?

- Does the Centre/Institute have a robust governance structure?

- How strong is the 5-year plan, including future research directions and development strategies?

- What is the state of the Centre/Institute finances? How realistic is the projected budget for the next five years in terms of secured resources and the activities to be supported?

- How satisfied is leadership (e.g. Dept Chairs, Faculty Deans) and the membership of the Centre/Institute in terms of its current operations. How supportive are they for a further 5-year term?

A report on the Centre for Theoretical Neuroscience at the University of Waterloo

prepared by Britt Anderson, Director

Feb 2025

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1 Executive Summary

In Nov 2023 the University of Waterloo's internationally recognized Centre for Theoretical Neuroscience (CTN) was scheduled for its five year review. Given the university wide re-assessment of all centres the CTN received a one year extension with instructions to resubmit. This package updates that prior application to include activity from the last twelve months.

The members of the University of Waterloo's CTN receive hundreds of thousands of dollars annually in research funding to support the CTN's mission to develop robust explanatory theories of mind and brain through education and research.

The CTN (founded in 2006) has 21 members (an increase of ten since last renewal). The CTN is an administrative unit of the Faculty of Arts. The CTN was the first Canadian research institute dedicated to theoretical neuroscience and the first to offer a graduate diploma for Theoretical Neuroscience. Hundreds of University of Waterloo students with diverse educational backgrounds have benefited from the interdisciplinary educational opportunities the CTN provides, a colloquium series, an annual Brain Day, an annual Research Day, and graduate supervision. CTN faculty also teach the formal courses, under the aegis of their academic units, that are required for the Graduate Diploma in Theoretical Neuroscience. These courses are also available to the general undergraduate and graduate student body and give the entire university's students access to courses on topics related to theoretical neuroscience.

Core (8; increase of 2 since last renewal) and Affiliate CTN faculty (13; increase of 8 since last renewal) have achieved a vigorous interdisciplinary program that represents five of the university's six faculties.

The faculty of the CTN in the aggregate consistently receive between half a million to a million dollars a year in direct research funds, and are growing new programs. The recent establishment of a new NRC initiative on campus is a direct result of the activities and research of current and former Centre members, post-docs and students. In the last year alone CTN members have received new research awards (Mercedes Benz research grant 500K CAD), published new work in premier journals (e.g. Psychological Review), and received best paper awards (ICANN24; European Neural Network Society)

While the university has a number of programs and institutes devoted to applications, the University of Waterloo's CTN is a world class Centre, and one of only a few such Centres in the world, devoted to developing and testing new theories of brain and general intelligence at a fundamental level using mathematical models. Such advances are the pre-requisites for the next generation of practical advances.

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2 Membership

2.1 Notable Member Achievements (summary)

CTN faculty include

- 2 Members of the Royal Society.

- 2 Fellows of the Cognitive Science Society

- 1 Winner Killam Prize for the Humanities

- 1 Winner of the John C. Polyani award

- 2 Tier II Canada Research Chairs

- 1 Tier 1 Canada Research Chair

- President of the Canadian Applied and Industrial Mathematics Society

CTN faculty have trained 100s of graduate students, occupy leading editorial roles, direct workshops, organize international courses, publish widely and in prestigious outlets, and in the last year the six core faculty alone received over 800,000 CAD in research funding. Funding sources include: National Science and Engineering Research Council of Canada, National Research Council Canada, American Institute of Mathematics, Office of Naval Research (US), Canada Foundation for Innovation, Air Force Office of Scientific Research (US), Mitacs, Microsoft-AI Institute, Canadian Statistical Sciences Institute, Intel, and the Centre for Effective Altruism

2.2 Types of Membership

The CTN has two categories of members: core (8) and affiliate (13). This reflects a growth of 50% since 2018. New members are largely self-referred. Current members are listed in Table 1.

2.2.1 Core Members

Core faculty are actively engaged in theoretical neuroscience research or teaching. Core members attend and participate in the yearly research day, the colloquium series, and Brain Day activities. Core members supervise graduate students working in the area of theoretical neuroscience, and teach the principal courses required for the Graduate Diploma in Theoretical Neuroscience. Nomination of new core members comes via invitation or self-nomination. Election requires the unanimous approval of the Centre's Governing Body (see 2.3).

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2.2.2 Affiliate Members

Affiliate members are typically scientists with an empirical research program that provides data for theoretical neuroscientific investigation *or* faculty with a computational or theoretical research program that informs empirical or theoretical neuroscience. Affiliates' membership is voted on by the current core members. Affiliates are expected to foster ties that support the academic and research work of the Centre. Collaboration, cooperation, communication, and community building are the purposes served by affiliation. Affiliates are expected to play a role in the academic life of the Centre by attending some of the seminars, Brain Day, and encouraging their students to do the same. Nomination of new affiliate members can be by invitation or self-nomination. Election to affiliate member status requires majority support of the Centre's current Governing Body.

Name	Dept	Faculty	CTN Role
Britt Anderson	Psychology	Arts	Core (Director)
Micheal Barnett-Cowan	Kinesiology	Health	Affiliate
Sue Ann Campbell	Applied Mathematics	Mathematics	Core
James Danckert	Psychology	Arts	Affiliate
Kaylena Ehgoetz Martens	Kinesiology	Health	Affiliate
Chris Eliasmith	Philosophy/SYDE	Arts/Engineering	Core
P. Michael Furlong	NRC/Adjunct SYDE	NRC/Engineering	Affiliate
Jonathan Fugelsang	Psychology	Arts	Affiliate
Randall Harris	English	Arts	Affiliate
Jesse Hoey	Computer Science	Mathematics	Affiliate
Brian Ingalls	Applied Mathematics	Mathematics	Affiliate
Roxane Itier	Psychology	Arts	Affiliate
Nachiket Kapre	ECE	Engineering	Affiliate
Paul Marriott	Statistics	Mathematics	Core
Chrystopher L. Nehaniv	SYDE	Engineering	Affiliate
Jeff Orchard	Computer Science	Mathematics	Core
Reza Ramezan	Statistics	Mathematics	Core
David Spafford	Biology	Science	Affiliate
Terry Stewart	NRC / Adjunct Psych.	NRC/Arts	Core
Paul Thagard	Philosophy (emeritus)	Arts	Affiliate
Bryan Tripp	SYDE	Engineering	Core

Table 1: CTN Membership List (alphabetical)

2.3 Governance

The CTN was established in the early 2000s and reports to the Dean of Arts. In compliance with Policy 44 the Dean of Arts (or designee) serves as the Chair of the Centre's governing body. Currently, the Associate Dean of Arts Research

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(Ana Ferrer, Professor Economics) fills this role. The Centre's Director is the Board Secretary and responsible for the organizational tasks (agenda preparation, minutes, etc) associated with Board meetings. The core members of the CTN make up the remaining members of the Governing Board.

The responsibilities of the Board are consonant with policy. The Board prepares nominations for Director, and evaluates candidates for Centre membership consistent with its policies. The Board advises and approves budgets. The Board advises and ultimately approves any CTN related matters such as the organization of scheduling of its educational activities (colloquia, Brain Day, Nengo Summer School, GDip requirements), space allotments, and fund raising activities.

The Board meets the first month of each term (three times per calendar year).
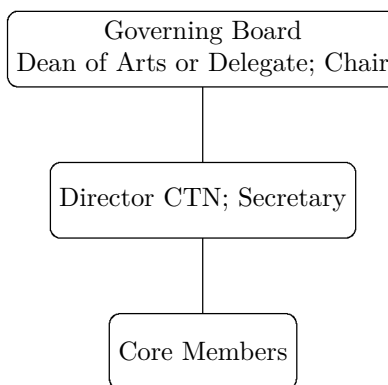

Figure 1: CTN Governance. The Governing Board is chaired by the Dean of Arts or their delegate. The CTN Director provides the administrative and practical support necessary for Board meetings. The Core members form the remainder of the Board membership, which sets CTN policy and evaluate membership.

3   Research Accomplishments

3.1   CTN's Exceptional Publication Record

Members of the Centre have excellent individual research records, having published hundreds of articles across the relevant disciplines in top journals. A selection of the 95 books and papers published in the last 6 years by the core faculty of the CTN are shown in Appendix 7.2.

The entire output of CTN faculty can be provided at the committee's request. Note the journals with CTN publications includes: *Science, Journal of Neuroscience, Neuron, Current Opinion in Neurobiology, Journal of Neurophysiology, Cerebral Cortex, Neurology, Brain, Vision Research, Journal of*

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Cognitive Neuroscience, Psychological Review, Psychological Science, Neuropsychology, Neural Computation, and *Journal of Computational Neuroscience.*

3.2 The CTN Fosters Interdisciplinary Research Collaborations

An example of the CTN as a catalyst for interdisciplinarity is the collaboration of CTN Affiliate Member Roxane Itier and CTN Core Member Jeff Orchard. A member of the Department of Psychology studying the neurophysiological responses to human faces, Prof. Itier was unlikely to have met Prof. Orchard, a CS department member interested in neural networks and predictive coding, if had not been for the CTN and its programs. Now the two scientists have a joint inter-faculty research project that jointly supervised a Computational Math graduate student to investigate predictive coding accounts of different brain wave evoked response latencies.

There are numerous other interdisciplinary successes that demonstrate the collaborative opportunities due to the CTN. Many span faculties / departments and the core and affiliate memberships of the CTN. Almost all also involve graduate students. A condensed list includes: Spafford (Science/Biology) & Campbell (Math/Applied Math); Orchard (Math / CS) & Eliasmith (Arts | Engineering / Philosophy | SYDE); Hoey (Math / CS) & Stewart (NRC | Arts / Psychology); Ehgoetz Martens (Health / Kinesiology) & Anderson (Arts / Psychology) & Danckert (Arts / Psychology); Marriott (Math / Statistics) & Danckert (Arts / Psychology); Marriott (Math / Statistics) & Moffat (graduate student Science / Biology); and Tripp (Engineering / SYDE) & Ehgoetz Martens (Health / Kinesiology).

Many of these collaborations arose from the provision of shared space to the CTN by the Faculties of Arts and Engineering. Unfortunately, that space was lost in June 2024 due to local needs, but both faculties have remained committed to working with the CTN to provide space for collaboration. The Dept. of Psychology (ARTS) has loaned the CTN, for a minimum period of three years, space in the PAS building, and the Dept of SYDE (ENG) is providing space in EC4 to co-locate graduate students from different faculties as well as allow communal lab meetings and presentations.

In addition to the intramural collaborations within the University of Waterloo, CTN faculty have established a wide variety of collaborations with international companies (BMW, SWRI, Google DeepMind, Intel, Magna, Brain Corporation), Canadian companies (Applied Brain Research, Open Text, DossierView, Kindred, Smile Digital Health), and academic partners both in Canada and internationally (NRL, Dresden University, Groningen University, NRC, Leiden University, Cardiff University, Carleton University, KIT, Raboud University, KTH Stockholm, University of Maryland, MIT, Yale, Stanford, and the Allen Institute for Brain Science).

The CTN features highly in salient Google searches. Searching "theoretical neuroscience Canada" on google.ca returns University of Waterloo's CTN as the

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first result [1].

3.3   Developing Tools for Theoretical Neuroscience

A particularly important CTN success has been the development of what is now one of the most used neural simulation packages in the world: Nengo (`https://nengo.ai`) The Nengo github repository has been "starred" over 800 times. Also available as a python package at PyPI the Nengo package is downloaded on average 100 times a week. This software is in use around the world in top institutes including Yale, Stanford, EPFL, Cambridge, MIT, Johns Hopkins, UCL, and UCSD, among many others. It is has also generated a CTN spin-off company, Applied Brain Research, but remains free for research and personal use. Nengo has also served as the foundation for student led projects to grow and develop the tools for theoretical neuroscience. NengoBio is a recent extension to Nengo that adds to Nengo a number of features to permit modelers to create neural models within the Nengo framework, but enforcing common biological constraints. The major impetus behind this add-on was a graduate student in the lab of a CTN member.

4   Educational Programs and Achievements

4.1   Graduate Students

The CTN provides education, mentorship, and networking opportunities for large numbers of graduate students. While many of these students do not pursue formal recognition via the diploma, they do attend the colloquium meetings, Brain Day, and lab meetings, often held in conjunction with the labs of other CTN affiliated faculty.

4.1.1   Details of the Educational Program

The educational opportunities of the CTN are diverse, and extend beyond the formal program organized around the graduate diploma. Many more students participate in, and benefit from, the educational activities of the CTN than formally pursue the graduate diploma in Theoretical Neuroscience.

The educational opportunities include the courses on Theoretical Neuroscience offered by CTN members through their home departments, the colloquium series featuring visiting scholars, the annual Brain Day, as well as the informal consultations that take place in joint lab meetings and at the nearest whiteboard.

An overview of the educational plan for the graduate diploma can be found here and the larger collection of Theoretical Neuroscience courses provided by CTN faculty through their home departments can be found here. Additional details on the colloquium series and Brain Day are below.

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[1](search conducted: 2024-12-19)

Currently (see Table 2) there are five graduate students actively working towards the graduate diploma in Theoretical Neuroscience[2]. In the last year alone three students have elected to purse the GDip.

Term	Year	Number
Winter	2018	2
Winter	2019	1
Spring	2022	1
Winter	2023	2
Fall	2024	1
ACTIVE	On-going	5

Table 2: Graduate Diplomas in Theoretical Neuroscience awarded by term.

4.1.2 Recent Graduate Students And Where They End Up

Graduate students working in the area of Theoretical Neuroscience with CTN faculty have gone on to successful academic and non-academic careers. A sampling of recent CTN students is:

1. **Liang Chen** (PhD, 2024) worked with Sue Ann Campbell, now a post-doctoral scholar at UC San Diego in the Aljadeff lab.

2. **Peter Diberardino** (MA Winter 2023 with Graduate Diploma in Theoretical Neuroscience) worked with Director Britt Anderson. He is currently a Data Scientist at Tangam Systems and a lecturer in the Dept. of Accounting and Finance.

3. **Sixuan Chen** (MA 2022 with Graduate Diploma in Theoretical Neuroscience) worked with Director Britt Anderson. After a year as a research associate at New York University in the lab of Wei Jei Ma she started a PhD program in Cognitive Science at Brown University.

4. **Alex van de Kleut**, (MMath 2021), studied with core member Jeff Orchard and is now a Software Engineer at ApplyBoard.

5. **Ivana Kajic**, (PhD 2020) studied with founding director Chris Eliasmith and is currently at Google DeepMind.

6. **Nolan Dey** (MASc 2020) studied with core member Bryan Tripp and is currently a Machine Learning Research Scientist at Cerebrus Systems, a prominent developer of AI accelerator hardware.

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[2]A Tier II Graduate Diploma is a diploma that is awarded in addition to a traditional graduate degree; it is not a primary degree. Thus, students completing the diploma receive their Masters or PhD in, for example, Psychology or Engineering *with a diploma in Theoretical Neuroscience.*

7. **Aaron Voelker**, (PhD 2019) who also studied with Chris Eliasmith has his own local start-up: Voelker Block Consulting.

8. **Syaheed Jabar** (PhD 2018 with Graduate Diploma in Theoretical Neuroscience) studied with Britt Anderson. He went on to pursue post-doctoral work at NYU Abu Dhabi in the laboratory of Daryl Fougnie. Currently Syaheed works as a Data Scientist at Nanyang Technological University Singapore.

9. **Sugandha Sharma**, (MASc 2018) worked with Chris Eliasmith and is now pursuing a PhD at MIT and spoke of her experiences at the University of Waterloo's CTN on the podcast Generally Intelligent.

10. **Ahmed Khan**, (MMath 2018), studied with core member Jeff Orchard and is now pursuing a PhD in Neuroinformatics and Personalized Medicine at McGill University.

11. **Alex Filipowicz** (PhD 2016 with Graduate Diploma in Theoretical Neuroscience) also studied with Britt Anderson, and went on to post-doctoral work at the University of Pennsylvania in the laboratories of Joshua Gold and Joe Kable. Currently, Alex is a research scientist at Toyota Research Los Altos, California, USA.

12. **Wilton Nicola**, (PhD 2016) studied with core member Sue Ann Campbell and is currently holds a Canada Research Chair at the Hotchkiss Brain Institute in Calgary.

4.2 Colloquium Series

The Colloquium series of the CTN is a series of presentations by, mostly, external speakers that occurs 4 times in each of the Fall and Winter terms. Invited speakers visit the campus and, in addition to a formal presentation, lunch with the graduate students, attend a dinner with a subset of CTN faculty, and meet with individual graduate students and faculty during the day of their visit.

The presenters since our last report are in table 3.

4.3 Brain Day

Brain Day is an annual event that has been a flagship program for the CTN since its inception[3]. The general structure is that four eminent scholars of international renown are invited to the University of Waterloo campus for a day of talks and informal interactions with students (graduate *and* undergraduate). We invite one scholar from each of the four main topics: philosophy of mind, empirical neuroscience, cognitive neuroscience/psychology, and computational neuroscience. Each speaker presents a 75 minute presentation followed by questions. Graduate students meet the faculty at scheduled informal coffees, as well

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[3]Annually except for the gap due to pandemic cancellation of in-person visits.

Term	Year	Speaker
Fall	2024	Jiannis Taxidis (UofT)
Fall	2024	Travis Craddock (UWaterloo)
Spring	2024	Babak Shahbaba (UC Irvine)
Spring	2024	Masami Tatsuno (U Lethbridge)
Winter	2024	Milad Lankarany (Krembil)
Winter	2024	Memming Park (Champalimaud)
Winter	2024	Megan Peters (UC Irvine)
Fall	2023	Jonathan Cannon (McMaster)
Fall	2023	Stephanie Palmer (U Chicago)
Fall	2023	Matt van der Meer (Dartmouth)
Winter	2023	Sara Solla (Northwestern)
Winter	2023	Eric Shea-Brown (Washington)
Winter	2023	Maurizio de Pitta (UofT)
Winter	2023	Jeff Orchard (UWloo)
Fall	2022	Adrien Peyrache (McGill)
Fall	2022	Yalda Mohsenzadeh (Western)
Fall	2022	Leyla Isik (Johns Hopkins)
Winter	2022	Richard Naud (UOttawa)
Winter	2022	Mayank Mehta (UCLA)
Winter	2022	Karim Jerbi (UdeM)
Fall	2021	Kohitij Kar (MIT/York)
Fall	2021	Lyle Muller (Western)
Fall	2021	Andreas Burkhalter (Wash U. St. Louis)
Winter	2020	Randy McIntosh (Univ of Toronto)
Winter	2019	Joel Zylberberg (York)
Winter	2019	Javier Medina (Baylor)
Fall	2019	Mayzar Fallah (York)
Fall	2019	Wilten Nicola (Calgargy)
Fall	2019	Xaq Pitkow (Baylor)
Fall	2019	Morris Moscovitch (UofT)
Fall	2018	Subutai Ahmad (Numenta Inc.)
Fall	2018	Doug Crawford (York)
Fall	2018	Roland Memisevic (Twenty Billion Neurons)
Fall	2018	Stefan Mihalas (Allen Institute)
Fall	2018	Yan Wu (Deep Mind)

Table 3: Colloquium Speakers Since 2018

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as a more formal dinner. A reception is held for the speakers at which they can again interact with undergraduate and graduate students from across the campus. The event is open to community members as well as students and faculty from other nearby universities. Attendance is generally excellent, and the talks are recorded and made available on the CTN's youtube channel. Recent speakers can be found in Table 4 as well as a list of all speakers since the event's inception[4]. Our list of past speakers includes the two 2024 Nobel Laureates in Physics (Hinton and Hopfield).

Year	Speaker
2024	Kalanit Grill-Spector (Stanford)
2024	Maithilee Kunda (Vanderbilt)
2024	Michael Anderson (Western)
2024	Katalin Gothard (Arizona)
2023	Rafal Bogacz (Oxford)
2023	Dora Angelaki (NYU)
2023	Nartascha Rajah (McGill)
2023	Serife Tekin (UT San Antonio)
2022	Lila Davachi (Columbia)
2022	Viktor Jirsa (Aix-Marseille Université)
2022	Jacqueline Gottlieb (Columbia)
2022	Frances Egan (Rutgers)
2019	John Maunsell (U Chicago)
2019	Paul Thagard (UWloo)
2019	Vinod Menon (Stanford)
2019	Michael Arbib (USC)
2018	Brian Knutson (Stanford)
2018	Carrie Figor (U Iowa)
2018	Olaf Sporns (Indiana U. Bloomington)
2018	Adrienne Fairhall (U Washington)

Table 4: Brain Day Speakers Since 2018

4.4 Nengo Summer School

Annually, the CTN hosts a two week program in the summer for researchers from around the world to learn how to use Nengo for neural modeling and theoretical neuroscience research. A full time program, the course draws attendees

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[4](2017) William Seager, Marisa Carrasco, Konrad Kording, James DiCarlo; (2016) Berit Brogaard, Stephen Read, Sabine Kastner, Larry Abbott; (2015) Tom Griffiths, Valerie Hardcastle, Thilo Womelsdorf, Ken Miller; (2014) Daniel Dennett, Elizabeth Phelps, Barry Richmond, Randall O'Reilly; (2013) Paul Glimcher, Wolfgang Maas, Daniel Schacter, Owen Flanagan; (2012) Gyorgy Buzaki, Michael Hasselmo, Michael Tarr, Ian Gold; (2011) Jonathan Cohen, Peter Strick, Sebastien Seung, Ned Block; (2010) Mel Goodale, Jack Gallant, Ken Miller, Carl Craver; (2009) Larry Barsalou, John Hopfield, Jesse Prinz, David Sheinberg; (2008) Patricia Churchland, Keith Holyoak, David van Essen, Terry Sejnowski; (2007) James McClelland, William Bechtel, Geoffrey Hinton, Tony Movshon

from industry and academia, with the majority being early to mid-stage graduate students and early stage faculty. The school is typically over-subscribed with fewer than half of the applicants being admitted to the summer school. Enrollment is typically 25-30 students, who hail largely from Europe and North America, with one to two participants from South America or Asia per year. Although the in-person school was canceled due to COVID in 2020-2022, the CTN posted videos for the 2020 school, which have received over 11,000 views to date. The summer school was restarted in June 2023.

5   Financial and Other Support

The CTN was founded with 75,000 CAD of support from the Provost's office in 2006. Further grants of 25,000 CAD were made by the Provost's office for the three years 2011, 2012, and 2013. In addition, the Dean of Arts made an annual contribution of 2,000 CAD yearly until 2014. In 2022 15,000 CAD was awarded for CTN's Brain Day activities via the acting Associate VP Research for Interdisciplinary Programs. In 2025 CTN has received financial support from the Faculty of Arts and the Dept of Statistics and Actuarial Sciences for Brain Day, which are sufficient to meet the Centre's need.

Regular contributions come from members, primarily a commitment of 10000 CAD annually from Founding Director Chris Eliasmith's CRC. This CRC extends beyond five years and so Prof. Eliasmith's pledged support will run beyond the time of the next renewal.

In addition, the Centre believes itself well positioned to compete for funds from the Global Futures Network (GFN) call when that is announced (anticipated Spring 2025). The interdisciplinary education and outreach of the CTN would seem to nicely complement the vision of the GFN and the funding that will be requested is modest. A review of expenditures in unit 4 for the time since the last CTN review shows Brain Days cost on average 8000-8500 CAD with a maximum in this interval of 10400 CAD. Colloquium speakers (who are less frequently international) average 500 - 1000 CAD for a visit (inclusive of lodging, transportation, and meals). With 6 - 8 colloquia per year the total expenses of the CTN are projected to be between 16000 and 20000 CAD for provision of all the interdisciplinary outreach and educational activities. The Nengo Summer School is essentially self-funding through participant registration fees.

In addition to the received funding the CTN is supported by the provision of space for its students and interdisciplinary activities by the Faculty of Arts, and since 2019 by the Faculty of Engineering. Initially purpose built space was provided in the new PAS extension and funded with CFI and university funds. Subsequently, this space was traded for equivalent space in the University's recently constructed E7 building with the space costs shared by the Faculty of Arts and the Department of Systems Design Engineering (SYDE). Departmental growth required SYDE to reorganize its space and currently SYDE (ENG) is providing space in EC4 and the Dept of Psychology (ARTS) is loaning space to the CTN for a period of three years (Mar 2025 - Feb 2028).

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Table 5: Five Year Projections of Expenses and Income

Year	Expense [5]	Income [6]	Net	Net (assuming 5000/yr from GFN Fund for 2026 onward)
			11462	
2025	17140[7]	13000	7322	7322
2026	17825	10000	(503)	4497
2027	18182	13000	(5685)	4315
2028	18545	10000	(14230)	770
2029	18916	13000	(20146)	(146)

Table 6: Detailed Breakdown of One Year's Expenses

Major Category	Category	Amount	Totals
Brain Day (total 4 speakers)	Airport Transit	340	
	Hotel	2400	
	Meals Speakers	1600	
	Airfare	4000	
	Brain Day Dinner	900	
	Catering/Reception	1000	
Sub-total		10240	
			10240
Colloquium (6 per year)	Airport Transit	300	
	Hotel	1200	
	Meals Speakers	1600	
	Airfare	3600	
	Catering/Reception	400	
Sub-total		6900	
Total			17140

6 Future Directions

The CTN is an international leader in the area of theoretical neuroscience. Over the next five years, the CTN will continue to develop and preserve both its international reputation, and local collaborations. Locally, the CTN will continue to take a prominent role in neuroscience research at the university, and work in

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[5]Assumes 4% inflation in first year and 2% year thereafter.

[6]Arts and additional Centre members have pledged an every other year contribution that accounts for the alternating $3000.

[7]These aggregated expense values come from our expenses recorded in our Unit4 reports for 2023-2024

support of related applied initiatives (e.g. waterloo.ai). The CTN will expand its support of the research community by adding additional activities targeting earlier career researchers. A Research Day in the Fall (begun in Fall 2022) is an example of the outreach model to inform undergraduate and graduate students across campus of the breadth of educational and research opportunities in Theoretical Neuroscience. Continuing the seminars and Brain Day allows the CTN to expose the University of Waterloo community first hand to cutting edge theoretical neuroscience research while also sharing the collaborative opportunities at University of Waterloo with outside scholars (e.g. Brain Day speakers can become collaborators). The Nengo Summer School will continue development as an internationally attractive host for research and education on methods of theoretical neuroscience. The Centre will continue to support a full suite of neural simulation software, demos, tutorials, and classroom materials to aid teaching of central theoretical neuroscience and neuromorphic computing concepts at all levels. The continuing goal of enhancing collaboration will be aided by the recently allotted space for CTN educational, outreach, and collaboration activities. The CTN strives to be the paradigmatic example of how a truly interdisciplinary Centre can be "bottom-up"; developed not by administrative decree, but by researchers with common interests coming together to share the excitement and potential of their field through research, education and outreach.

7 Supporting Documentation

7.1 Potential Reviewers

- Jack Gallant `https://vcresearch.berkeley.edu/faculty/jack-l-gallant`

- Serge Thill `https://www.ru.nl/en/people/thill-s`

- Doug Tweed `https://physiology.utoronto.ca/faculty/douglas-tweed`

- Randy McIntosh `https://www.armcintosh.com/`

- John Tsotsos `http://www.cse.yorku.ca/~tsotsos/Tsotsos/Home.html`

- Konrad Kording `http://koerding.com/`

- Rafal Bogacz `https://www.mrcbndu.ox.ac.uk/people/prof-rafal-bogacz`

- Mac Shine `https://macshine.github.io/`

- Karl Friston (UCL - London - UK) `https://www.fil.ion.ucl.ac.uk/~karl/`

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- Karim Jerbi (UdeM - Montreal) `http://www.karimjerbi.com/`

- Yoshua Bengio (UdeM - Montreal) `https://yoshuabengio.org/`

- Nick Swindale (UBC) `https://neuroscience.ubc.ca/swindale-nicholas/`

- Andre Longtin (University of Ottawa) `https://mysite.science.uottawa.ca/alongtin/`

- Rob Kass (CMU Statistics) `https://stat.cmu.edu/~kass/`

- Babak Shahbaba (UCI Statistics) `https://www.stat.uci.edu/faculty/babak-shahbaba/`

- Jörn Diedrichsen `https://www.csd.uwo.ca/people/faculty/bios/diedrichsen.html`

- David Noelle `https://www.ucmerced.edu/content/david-c-noelle`

- Niels Taatgen `https://www.ai.rug.nl/~niels/`

- Guido Zarrella `https://www.linkedin.com/in/guidoz/`

- Lisa Feldman Barrett `https://www.affective-science.org/lisa-feldman-barrett.shtml`

7.2 CTN Recent Publications

Al-Darbsah, I., & Campbell, S. A. (2021). M-current induced bogdanovtakens bifurcation and switching of neuron excitability class. *The Journal of Mathematical Neuroscience*, *11*(1), 126.

Al-Darbsah, I., Campbell, S. A., & Rahman, B. (2024). Distributed delay and desynchronization in a neural mass model. *Siam Journal on Applied Dynamical Systems*, *23*(4), 30133051. `https://doi.org/10.1137/23m1618028`

Al-Darbsah, I., Chen, L., Nicola, W., & Campbell, S. A. (2021). The impact of small time delays on the onset of oscillations and synchrony in brain networks. *Frontiers in Systems Neuroscience*, *15*, 688517.

Antonova, E., Holding, M., Suen, H. C., Sumich, A., Maex, R., & Nehaniv, C. (2022). EEG microstates: Functional significance and short-term test-retest reliability. *Neuroimage: Reports*, *2*(2), 100089. `https://doi.org/10.1016/j.ynirp.2022.100089`

Araiza Iturria, C. A., Hardy, M., & Marriott, P. (2022). A discrimination-free premium under a causal framework. *Ssrn Electronic Journal*. `https://doi.org/10.2139/ssrn.4079068`

Basharat, A., Mehrabi, S., Muñoz, J. E., Middleton, L. E., Cao, S., Boger, J., & Barnett-Cowan, M. (2023). Virtual reality as a tool to explore multisensory processing before and after engagement in physical activity. *Frontiers in Aging Neuroscience*, *15*. `https://doi.org/10.3389/fnagi.2023.1207651`

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Blouw, P., & Eliasmith, C. (2018). Using neural networks to generate inferential roles for natural language. *Frontiers in Psychology*, *8*. `https://doi.org/10.3389/fpsyg.2017.02335`

Borst, J. P., Aubin, S., & Stewart, T. C. (2023). A whole-task brain model of associative recognition that accounts for human behavior and neuroimaging data. *Plos Computational Biology*, *19*(9), e1011427. `https://doi.org/10.1371/journal.pcbi.1011427`

Carson, L., Filipowicz, A., Anderson, B., & Danckert, J. (2019). Representational drawing following brain injury. *Neuropsychologia*, *133*, 107154. `https://doi.org/https://doi.org/10.1016/j.neuropsychologia.2019.107154`

Carson, L., Siva, P., & Danckert, J. (2021). Drawing portraits and still lifes from 2D and 3D sources. *Psychology of Aesthetics, Creativity, and the Arts*, *15*(4), 746757. `https://doi.org/10.1037/aca0000345`

Chen, L., & Campbell, S. A. (2022). Exact mean-field models for spiking neural networks with adaptation. *Journal of Computational Neuroscience*, *50*(4), 445469.

Chen, L., & Campbell, S. A. (2024). Population dynamics in networks of izhikevich neurons with global delayed coupling. *Siam Journal on Applied Dynamical Systems*, *23*(3), 22932322. `https://doi.org/10.1137/24m1631146`

Cody, R. A., Tolson, B. A., & Orchard, J. (2020). Detecting leaks in water distribution pipes using a deep autoencoder and hydroacoustic spectrograms. *Journal of Computing in Civil Engineering*, *34*(2), 04020001. `https://doi.org/10.1061/(ASCE)CP.1943-5487.0000881`

Craig, B. T., Morrill, A., Anderson, B., Danckert, J., & Striemer, C. L. (2021). Cerebellar lesions disrupt spatial and temporal visual attention. *Cortex*, *139*, 2742. `https://doi.org/10.1016/j.cortex.2021.02.019`

Dammann, O., Poston, T. L., & Thagard, P. (2019). How do medical researchers make causal inferences? *What Is Scientific Knowledge?*

Danckert, J., & Elpidorou, A. (2023). In search of boredom: beyond a functional account. *Trends in Cognitive Sciences*, *27*(5), 494507. `https://doi.org/10.1016/j.tics.2023.02.002`

Davari, S., DCosta, N., Ramezan, R., & Mielke, J. (2023). Chronic early-life social isolation enhances spatial memory in male and female rats. *Behavioural Brain Research*.

Davari, S., DCosta, Nicole, Ramezan, R., & Mielke, J. G. (2023). Chronic early-life social isolation enhances spatial memory in male and female rats. *Behavioural Brain Research*, *447*, 114433. `https://doi.org/10.1016/j.bbr.2023.114433`

de Jong, J., Voelker, A. R., Stewart, T. C., Akyürek, E. G., Eliasmith, C., & van Rijn, H. (2025). A unified neurocomputational model of prospective and retrospective timing. *Psychological Review*. `https://doi.org/10.1037/rev0000519`

DeWolf, T., Jaworski, P., & Eliasmith, C. (2020). Nengo and low-power AI hardware for robust, embedded neurorobotics. *Frontiers in Neurorobotics*, *14*. `https://doi.org/10.3389/fnbot.2020.568359`

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DiBerardino, P. A. V., Filipowicz, A. L. S., Danckert, J., & Anderson, B. (2024). Plinko: Eliciting beliefs to build better models of statistical learning and mental model updating. *British Journal of Psychology*, *115*(4), 759786. `https://doi.org/10.1111/bjop.12724`

Duggins, P., & Eliasmith, C. (2022). Constructing functional models from biophysically-detailed neurons. *PLoS Computational Biology*, *18*(9), e1010461. `https://doi.org/10.1371/journal.pcbi.1010461`

Duggins, P., & Eliasmith, C. (2024). A spiking neural model of decision making and the speedaccuracy trade-off. *Psychological Review*. `https://doi.org/10.1037/rev0000520`

Dumont, N. S.-Y., Stöckel, A., Furlong, P. M., Bartlett, M., Eliasmith, C., & Stewart, T. C. (2023a). Biologically-based computation: How neural details and dynamics are suited for implementing a variety of algorithms. *Brain Sciences*, *13*(2), 245. `https://doi.org/10.3390/brainsci13020245`

Dumont, N. S.-Y., Stöckel, A., Furlong, P. M., Bartlett, M., Eliasmith, C., & Stewart, T. C. (2023b). Biologically-based computation: How neural details and dynamics are suited for implementing a variety of algorithms. *Brain Sciences*, *13*(2), 245. `https://doi.org/10.3390/brainsci13020245`

Durston, A. J., & Itier, R. J. (2021). The early processing of fearful and happy facial expressions is independent of task demands - support from mass univariate analyses. *Brain Research*, *1765*, 147505. `https://doi.org/10.1016/j.brainres.2021.147505`

Filipowicz, A., Valadao, D., Anderson, B., & Danckert, J. (2018). Rejecting outliers: Surprising changes do not always improve belief updating. *Decision*, *5*(3), 165176. `https://doi.org/10.1037/dec0000073`

Gaurav, R., Stewart, T. C., & Yi, Y. (2023). Reservoir based spiking models for univariate time series classification. *Frontiers in Computational Neuroscience*, *17*. `https://doi.org/10.3389/fncom.2023.1148284`

Gosmann, J., & Eliasmith, C. (2019). Vector-derived transformation binding: an improved binding operation for deep symbol-like processing in neural networks. *Neural Computation*, *31*(5), 849869. `https://doi.org/10.1162/neco_a_01179`

Gosmann, J., & Eliasmith, C. (2021). Cue: a unified spiking neuron model of short-term and long-term memory. *Psychological Review*, *128*(1), 104124. `https://doi.org/10.1037/rev0000250`

Harris, R. A. (2023). Rules are rules: Rhetorical figures and algorithms. In *Logic and algorithms in computational linguistics 2021 (lacompling2021)* (pp. 217259). Springer International Publishing. `https://doi.org/10.1007/978-3-031-21780-7_10`

Hudson, A., Durston, A. J., McCrackin, S. D., & Itier, R. J. (2021). Emotion, gender and gaze discrimination tasks do not differentially impact the neural processing of angry or happy facial expressions-a mass univariate ERP analysis. *Brain Topography*, *34*(6), 813833. `https://doi.org/10.1007/s10548-021-00873-x`

Itier, R. J., & Durston, A. J. (2023). Mass-univariate analysis of scalp erps reveals large effects of gaze fixation location during face processing that only

weakly interact with face emotional expression. *Scientific Reports*, *13*(1). `https://doi.org/10.1038/s41598-023-44355-5`

Kaji, I., Schröder, T., Stewart, T. C., & Thagard, P. (2019). The semantic pointer theory of emotion: Integrating physiology, appraisal, and construction. *Cognitive Systems Research*, *58*, 3553. `https://doi.org/10.1016/j.cogsys.2019.04.007`

Kara-Yakoubian, M., Walker, A. C., Sharpinskyi, K., Assadourian, G., Fugelsang, J. A., & Harris, R. A. (2022). Beauty and truth, truth and beauty: Chiastic structure increases the subjective accuracy of statements. *Canadian Journal of Experimental Psychology / Revue Canadienne de Psychologie Expérimentale*, *76*(2), 144155. `https://doi.org/10.1037/cep0000277`

Khan, S., Wong, A., & Tripp, B. (2023). Modeling the role of contour integration in visual inference. *Neural Computation*, *36*(1), 3374. `https://doi.org/10.1162/neco_a_01625`

Leopold, H. A., Orchard, J., Zelek, J. S., & Lakshminarayanan, V. (2019). PixelBNN: Augmenting the PixelCNN with batch normalization and the presentation of a fast architecture for retinal vessel segmentation. *Journal of Imaging*, *5*(2). `https://doi.org/10.3390/jimaging5020026`

Liu, Y., Milton, J., & Campbell, S. A. (2019). Outgrowing seizures in childhood absence epilepsy: Time delays and bistability. *Journal of Computational Neuroscience*, *46*, 197209.

MacKinnon, N. J., & Hoey, J. (2021). Operationalizing the relation between affect and cognition with the somatic transform. *Emotion Review*, *13*(3), 245256. `https://doi.org/10.1177/17540739211014946`

Malhotra, A., Stewart, T. C., & Hoey, J. (2020). A biologically-inspired neural implementation of affect control theory. *International Conference on Cognitive Modelling, Toronto*.

Marriott, P. (2022). Geometry and applied statistics. *Information Geometry*, *7*(S1), 211227. `https://doi.org/10.1007/s41884-022-00086-6`

McCrackin, S. D., & Itier, R. J. (2021a). Feeling through anothers eyes: Perceived gaze direction impacts ERP and behavioural measures of positive and negative affective empathy. *Neuroimage*, *226*, 117605. `https://doi.org/10.1016/j.neuroimage.2020.117605`

McCrackin, S. D., & Itier, R. J. (2021b). I can see it in your eyes: Perceived gaze direction impacts ERP and behavioural measures of affective theory of mind. *Cortex*, *143*, 205222. `https://doi.org/10.1016/j.cortex.2021.05.024`

Munoz John E, Ali, F., Basharat, A., Mehrabi, S., Barnett-Cowan, M., Cao, S., Middleton, L. E., & Boger, J. (2024). Development of classifiers to determine factors associated with older adults cognitive functions and game user experience in vr using head kinematics. *Ieee Transactions on Games*, 19. `https://doi.org/10.1109/tg.2023.3317825`

Neckar, A., Fok, S., Benjamin, B. V., Stewart, T. C., Oza, N. N., Voelker, A. R., Eliasmith, C., Manohar, R., & Boahen, K. (2019). Braindrop: a mixed-signal neuromorphic architecture with a dynamical systems-based programming model. *Proceedings of the IEEE*, *107*(1), 144164. `https://doi.org/10.1109/jproc.2018.2881432`

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Nicola, W., & Campbell, S. A. (2021). Normalized connectomes show increased synchronizability with age through their second largest eigenvalue. *Siam Journal on Applied Dynamical Systems*, *20*(2), 11581176.

Orchard, J., Furlong, P. M., & Simone, K. (2024). Efficient hyperdimensional computing with spiking phasors. *Neural Computation*, *36*(9), 18861911. `https://doi.org/10.1162/neco_a_01693`

Pedersen, J. E., Abreu, S., Jobst, M., Lenz, G., Fra, V., Bauer, F. C., Muir, D. R., Zhou, P., Vogginger, B., Heckel, K., Urgese, G., Shankar, S., Stewart, T. C., Sheik, S., & Eshraghian, J. K. (2024). Neuromorphic intermediate representation: A unified instruction set for interoperable brain-inspired computing. *Nature Communications*, *15*(1). `https://doi.org/10.1038/s41467-024-52259-9`

Rafetseder, E., Schuster, S., Hawelka, S., Doherty, M., Anderson, B., Danckert, J., & Stöttinger, E. (2019). Children struggle beyond preschool-age in a continuous version of the ambiguous figures task. *Psychological Research*. `https://doi.org/10.1007/s00426-019-01278-z`

Ramezan, R., Chen, M., Lysy, M., & Marriott, P. (2022). A multivariate point process model for simultaneously recorded neural spike trains. *Corr*. `http://arxiv.org/abs/2206.09903v1`

Robles, C. M., Anderson, B., Dukelow, S. P., & Striemer, C. L. (2023). Assessment and recovery of visually guided reaching deficits following cerebellar stroke. *Neuropsychologia*, *188*, 108662. `https://doi.org/10.1016/j.neuropsychologia.2023.108662`

Sakib, M. N., Ramezan, R., Thompson, M. E., Best, J. R., & Hall, P. A. (2022). Cognitive function is associated with multiple indices of adiposity in the canadian longitudinal study on aging: A cross-sectional analysis. *Psychosomatic Medicine*, *84*(7), 773784. `https://doi.org/10.1097/psy.0000000000001099`

Senft, V., Stewart, T. C., Bekolay, T., Eliasmith, C., & Kröger, B. J. (2018). Inhibiting basal ganglia regions reduces syllable sequencing errors in parkinsons disease: a computer simulation study. *Frontiers in Computational Neuroscience*, *12*. `https://doi.org/10.3389/fncom.2018.00041`

Sewell, I., Danckert, J., & Anderson, B. (2023). A local bias in mental model updating. *Attention, Perception and Psychophysics*.

Sewell, I. J., Danckert, J., & Anderson, B. (2023). The relative importance of local contingencies and global biases for statistical learning. *Attention, Perception, &Amp; Psychophysics*, *85*(4), 961967. `https://doi.org/10.3758/s13414-023-02692-7`

Shaqiri, A., Burnett, L., Danckert, J., & Anderson, B. (2018). Statistical learning impairments as a consequence of stroke. *Frontiers of Human Neuroscience*, *12*, 339. `https://doi.org/10.3389/fnhum.2018.00339`

Shaw, N. P., Jackson, T., & Orchard, J. (2020). Biological batch normalisation: How intrinsic plasticity improves learning in deep neural networks. *PLoS ONE*, *15*(9), e0238454. `https://doi.org/10.1371/journal.pone.0238454`

19

Shi, J., Tripp, B., Shea-Brown, E., Mihalas, S., & Buice, M. A. (2022). Mousenet: a biologically constrained convolutional neural network model for the mouse visual cortex. *PLoS Computational Biology*, *18*(9), e1010427. `https://doi.org/10.1371/journal.pcbi.1010427`

Siklos-Whillans, J., & Itier, R. J. (2024). Effects of inversion and fixation location on the processing of face and house stimuli a mass univariate analysis. *Brain Topography*, *37*(6), 972992. `https://doi.org/10.1007/s10548-024-01068-w`

Stöckel, A., & Eliasmith, C. (2021). Passive nonlinear dendritic interactions as a computational resource in spiking neural networks. *Neural Computation*, *33*(1), 96128. `https://doi.org/10.1162/neco_a_01338`

Stöckel, A., & Eliasmith, C. (2022). Computational properties of multi-compartment LIF neurons with passive dendrites. *Neuromorphic Computing and Engineering*, *2*(2), 024011. `https://doi.org/10.1088/2634-4386/ac724c`

Stöckel, A., Stewart, T. C., & Eliasmith, C. (2021). Connecting biological detail with neural computation: Application to the cerebellar granule-golgi microcircuit. *Topics in Cognitive Science*, *13*(3), 515533. `https://doi.org/10.1111/tops.12536`

Stöttinger, E., Aichhorn, M., Anderson, B., & Danckert, J. (2018). The neural systems for perceptual updating. *Neuropsychologia*, *112*, 8694. `https://doi.org/10.1016/j.neuropsychologia.2018.03.017`

Stöttinger, E., Guay, C., Danckert, J., & Anderson, B. (2018). Updating impairments and the failure to explore new hypotheses following right brain damage. *Experimental Brain Research*, *236*, 17491765. `http://dx.doi.org/10.1007/s00221-018-5259-6`

Sun, W., & Orchard, J. (2020). A predictive-coding network that is both discriminative and generative. *Neural Computation*, *32*(10), 18361862. `https://doi.org/10.1162/neco_a_01311`

Thagard, P. (2018a). Computational models in science and philosophy. *Springer Undergraduate Texts in Philosophy*, 457467. `https://doi.org/10.1007/978-3-319-77434-3_24`

Thagard, P. (2018b). Mind, consciousness, and free will. *Frontiers of Philosophy in China*, *13*, 377393.

Thagard, P. (2018c). Social equality: Cognitive modeling based on emotional coherence explains attitude change. *Policy Insights from the Behavioral and Brain Sciences*, *5*(2), 247256. `https://doi.org/10.1177/2372732218782995`

Thagard, P. (2018d). *Conceptual revolutions*. `https://doi.org/10.2307/j.ctv36zq4g`

Thagard, P. (2019a). *Brain-mind*. `https://doi.org/10.1093/oso/9780190678715.001.0001`

Thagard, P. (2019b). *Mind-society*. `https://doi.org/10.1093/oso/9780190678722.001.0001`

Thagard, P. (2019c). *Natural philosophy*. `https://doi.org/10.1093/oso/9780190678739.001.0001`

20

Thagard, P. (2020a). How rationality is bounded by the brain. In *Routledge handbook of bounded rationality* (pp. 398408). Routledge.

Thagard, P. (2020b). Is meaning nonphysical? *Evolutionary Studies in Imaginative Culture*, *4*(1), 5558. `https://doi.org/10.26613/esic.4.1.168`

Thagard, P. (2021a). *Bots and beasts.* `https://doi.org/10.7551/mitpress/14102.001.0001`

Thagard, P. (2021b). The cognitive science of covid-19: Acceptance, denial, and belief change. *Methods*, *195*, 92102. `https://doi.org/https://doi.org/10.1016/j.ymeth.2021.03.009`

Thagard, P. (2021c). Naturalizing logic: How knowledge of mechanisms enhances inductive inference. *Philosophies*, *6*(2), 52. `https://doi.org/10.3390/philosophies6020052`

Thagard, P. (2022a). Energy requirements undermine substrate independence and mind-body functionalism. *Philosophy of Science*, *89*(1), 7088. `https://doi.org/10.1017/psa.2021.15`

Thagard, P. (2022b). The relevance of neuroscience to meaning in life. In *The oxford handbook of meaning in life* (pp. 127-C7.P156). Oxford University Press. `https://doi.org/10.1093/oxfordhb/9780190063504.013.9`

Thagard, P. (2022c). *Balance.* `https://doi.org/10.7312/thag20558`

Thagard, P. (2023). Cognitive Science. In E. N. Zalta & U. Nodelman (Eds.), *The Stanford encyclopedia of philosophy* (Winter 2023). `https://plato.stanford.edu/archives/win2023/entries/cognitive-science/`

Thagard, P., & Larocque, L. (2018). Mental health assessment: Inference, explanation, and coherence. *Journal of Evaluation in Clinical Practice*, *24*(3), 649654. `https://doi.org/https://doi.org/10.1111/jep.12885`

Thagard, P., Larocque, L., & Kaji, I. (2023). Emotional change: Neural mechanisms based on semantic pointers. *Emotion*, *23*(1), 182193. `https://doi.org/10.1037/emo0000981`

Tripp, B. (2019). Approximating the architecture of visual cortex in a convolutional network. *Neural Computation*, *31*(8), 15511591. `https://doi.org/10.1162/neco_a_01211`

Verbitsky, R., Anderson, B., Danckert, J., Dukelow, S., & Striemer, C. L. (2023). Left cerebellar lesions are associated with an increase in spatial neglect-like symptoms. *Cerebellum.* `https://psyarxiv.com/78hj3`

Voelker, A. R., Blouw, P., Choo, X., Dumont, N. S.-Y., Stewart, T. C., & Eliasmith, C. (2021). Simulating and predicting dynamical systems with spatial semantic pointers. *Neural Computation*, *33*(8), 20332067. `https://doi.org/10.1162/neco_a_01410`

Voelker, A. R., & Eliasmith, C. (2018). Improving spiking dynamical networks: Accurate delays, higher-order synapses, and time cells. *Neural Computation*, *30*(3), 569609. `https://doi.org/10.1162/neco_a_01046`

Wainstein, G., Whyte, C., Martens, K. E., Müller, E., Munn, B., Medel, V., Anderson, B., Stöttinger, E., Danckert, J., & Shine, J. (n.d.). Noradrenergic modulation of whole brain dynamics mediates perceptual switches. *In Submision.*

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Wainstein, G., Whyte, C., Martens, K. E., Müller, E., Munn, B., Medel, V., Anderson, B., Stöttinger, E., Danckert, J., & Shine, J. (2022). Noradrenergic modulation of whole brain dynamics mediates perceptual switches. *Elife*. `https://doi.org/10.21203/rs.3.rs-2356429/v1`

Wang, L., Zheng, J., & Orchard, J. (2020). Evolving generalized modulatory learning: Unifying neuromodulation and synaptic plasticity. *IEEE Transactions on Cognitive and Developmental Systems*, *12*(4), 797808. `https://doi.org/10.1109/tcds.2019.2960766`

Winward, S. B., Siklos-Whillans, J., & Itier, R. J. (2022). Impact of face outline, parafoveal feature number and feature type on early face perception in a gaze-contingent paradigm: a mass-univariate re-analysis of ERP data. *Neuroimage: Reports*, *2*(4), 100148. `https://doi.org/10.1016/j.ynirp.2022.100148`

Xu, D., Clappison, A., Seth, C., & Orchard, J. (2018). Symmetric predictive estimator for biologically plausible neural learning. *IEEE Transactions on Neural Networks and Learning Systems*, *29*(9), 41404151. `https://doi.org/10.1109/TNNLS.2017.2756859`

Yan, Y., Stewart, T. C., Choo, X., Vogginger, B., Partzsch, J., Höppner, S., Kelber, F., Eliasmith, C., Furber, S., & Mayr, C. (2021). Comparing Loihi with a SpiNNaker 2 prototype on low-latency keyword spotting and adaptive robotic control. *Neuromorphic Computing and Engineering*, *1*(1), 014002. `https://doi.org/10.1088/2634-4386/abf150`

Yao, X., Chen, Y., & Tripp, B. (2024). Improved generalization of probabilistic movement primitives for manipulation trajectories. *Ieee Robotics and Automation Letters*, *9*(1), 287294. `https://doi.org/10.1109/lra.2023.3333741`

Yeung, R. C., Danckert, J., van Tilburg, W. A. P., & Fernandes, M. A. (2024). Disentangling boredom from depression using the phenomenology and content of involuntary autobiographical memories. *Scientific Reports*, *14*(1). `https://doi.org/10.1038/s41598-024-52495-5`

7.3   Member Comments (alphabetical)

7.3.1   Sue Ann Campbell

- I believe being a member of the CTN has helped me attract better students, specifically students interested in neuroscience.

- The course offerings associated with the CTN diploma are very beneficial for my students, enabling them to gain knowledge and connect with students outside their discipline.

7.3.2   James Danckert

- The colloquia/seminars are extremely valuable bringing in speakers or broad relevance to CTN members.

- The Centre promotes collaboration across disciplines (and ultimately that means across campus).

- My students and I have benefited enormously from these interdisciplinary links.

- Brain Day is the flagship event the Center holds and is ubiquitously excellent. It has become a prestigious event for invitees and attendees alike.

7.3.3 Kaylena Ehgoetz-Martens

- The CTN provides a conduit for my students and myself to come in contact with multidisciplinary research in neuroscience, which has sparked new ideas, broadened their course selection, and encourages cross-silo communication, collaboration and inquiry.

7.3.4 Chris Eliasmith

- Brain Day is great community outreach. I also had several students say they took my class because of the CTN Research Day.

- The CTN provides international recognition to my core area of research, and has drawn top collaborators and students from around the world to work on research with my group.

- Having a strong representation in this specific area is extremely attractive to those in the discipline.

- The CTN signals to funders the commitment of the University to the research areas I work in.

7.3.5 Jesse Hoey

- The CTN is really a center for interdisciplinary work I think - it provides my students a different perspective on artificial intelligence and machine learning, one that brings in elements of neuroscience and cognitive science.

- This is really important for computer science students who can get "stuck" in the silo of CS-based machine learning research

7.3.6 Roxane Itier

- Brain Day is a fantastic venue with talks spanning diverse areas linked to the CTN.

- I also appreciate very much the diversity of the regular CTN talks offered throughout the year.

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7.3.7   Jeff Orchard

- Brain Day has been an excellent way to meet some of the central figures in computational and theoretical neuroscience.

7.3.8   Paul Thagard

- Although Im retired, I still benefit greatly from CTN activities, especially the speaker series which helps keep me keep up to date on cutting edge research in theoretical neuroscience.

- Waterloo Brain Day is a wonderful institution for bringing together researchers from neuroscience, computer modeling, psychology, and philosophy.

7.3.9   Reza Ramezan

- I particularly like the hub CTN provides to both meet students, and researchers in the field but from other departments (UW faculty and those from other institutions)

- My graduate students have also benefited from interacting with both PIs and other students from departments other than Statistics and Actuarial Science.

7.3.10   Bryan Tripp

- The CTN provides an environment to quickly exchange ideas with people who have diverse perspectives on intelligence.

8   Appendix

8.1   Letters of Support

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December 10, 2024

Re: Renewal Centre for Theoretical Neuroscience (CTN)

Dear Members of Senate Research Council,

I am delighted to provide this letter of support from the Faculty of Arts for a renewal of the Centre for Theoretical Neuroscience (CTN). The CTN has achieved an impressive international reputation as an interdisciplinary center bringing together scholars interested in studying the complexities of the nervous system. The Centre engages faculty members from Applied Mathematics, Biology, Psychology, Engineering, Philosophy, Statistics, Computer Science (and their students) in an on-going academic colloquium series and hosts the annual public Waterloo Brain Day lectures. It also offers a (first of its kind) graduate diploma in theoretical neuroscience.

CTN is a world-class Centre, and one of few devoted to developing new theories of the brain and general intelligence at a fundamental level using mathematical models. Its members are leading experts in the field of theoretical brain models with exceptional publication records that attract significant external funding towards the Centre activities. Members of the Centre from the Faculty of Arts consider that it provides invaluable resources both academic and in terms of networking and collaborating opportunities to their students. It is worth highlighting the annual Brain Day event, an important outreach initiative that seeks to bridge the gap between undergraduate and graduate education.

In short, the Centre is a golden exponent of the innovative scholarship that is possible at the University of Waterloo, and the Faculty of Arts enthusiastically supports renewing the CTN for a further five years. We look forward to new initiatives that will seek out to ensure its sustainability.

Sincerely,

Dr. Alexie Tcheuyap

Dean, Faculty of Arts

UNIVERSITY OF WATERLOO

FACULTY OF ENGINEERING | Office of the Dean
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To: Charmaine Dean, Vice-President, Research and International
From: Dr. Mary Wells, Dean, Faculty of Engineering
Date: February 24, 2025
Subject: Renewal of Centre for Theoretical Neuroscience

Dear Dr. Dean,

On behalf of the Faculty of Engineering, I am pleased to express our strong support for the renewal of the Centre for Theoretical Neuroscience (CTN). Since its founding, CTN has become a leading global hub for innovative computer-based and theoretical approaches to understanding the brain. Its success is driven by collaboration across nearly all of Waterloo's Faculties, making it a shining example of how we can advance the University's Global Futures vision by working together across disciplines.

CTN brings together experts from many fields, and I know this teamwork has led to exciting new research by some of our faculty members here in Engineering. For example, its close ties with our Department of Systems Design Engineering has helped advance brain simulation and computer modeling.

CTN's dedication to education is also very aligned with the values of the University of Waterloo and, subsequently, the Faculty of Engineering. Its unique graduate program and regular academic meetings give our students and faculty valuable opportunities to learn and connect. The annual Brain Day and other research events bring together people from local industry, international peers, and future leaders. These events are a clear example of how CTN works together to build a strong "One Waterloo" community and beyond.

The Faculty of Engineering is proud to support CTN's mission of fostering collaboration and innovative thinking. We believe that renewing the Centre for the next five years will further strengthen Waterloo's reputation as a place that thinks differently and acts with purpose.

Sincerely,

Mary Wells

Mary A Wells Ph.D., FEC, FCAE, FIMMM PEng
Dean, Faculty of Engineering | University of Waterloo

January 29, 2025

Dear Review Committee Members,

I am writing to express my strongest support for the UW Centre for Theoretical Neuroscience (CTN) as it, and all other UW Centres, undergoes review. Since its inception, the CTN has provided extraordinary benefits to faculty, post doctoral fellows, graduate students, and undergraduate students in the Department of Psychology. Four faculty members in Psychology are involved in the CTN, serving as the Director/Core Member (Anderson) and Centre Affiliates (Danckert, Fugelsang, Itier).

The CTN provides a physical and intellectual hub for members of our Department wishing to pursue interdisciplinary research in neuroscience. The activities of the CTN, including the colloquium series and Brain Day event, have fostered new inter-faculty research collaborations involving members of our Department. For example, Roxane Itier (Associate Professor, Psychology, CTN Affiliate) and Jeff Orchard (Professor, School of Computer Science, CTN Core Member) recently initiated a collaborative research project using EEG data collected in Dr. Itier's lab to test a computational model of predictive coding during face processing. Thus, the opportunity to share ideas and learn about methodologies is directly enhancing the research activities of faculty across campus.
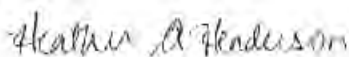
Far beyond the impact on individual faculty members' programs of research, our students and trainees benefit from the myriad training opportunities provided by the CTN. Many of our students participate in the colloquium series and Brain Day conference where they welcome the opportunity to network with other students and scholars from across campus and around the world. It is notable that Psychology students make up the majority of students who formally pursue the graduate diploma in Theoretical Neuroscience, clearly indicating the perceived value of this specialized training for our students. Further, the collaborative research projects fostered via the CTN allow our faculty members to offer unique and innovative training opportunities for students. For example, Drs. Itier and Orchard recently began co-supervising graduate students in Computational Math.

In recognition of the value of the CTN to students and faculty members in Psychology and the Faculty of Arts, we recently agreed to loan the CTN space in the Department (PAS 2273, PAS 2274) for a period of 3 years (March 2025 to February 2028). This space will be used as a formal and informal meeting space and a collaborative working space for faculty and student affiliates.

In summary, the CTN provides an exceptional professional and intellectual environment for many of our faculty members and students. We are thankful to the Director and Core members for their intellectual leadership and believe the CTN serves as a model for what University Centres are designed to accomplish.

If I can provide any additional information, please do not hesitate to contact me by email (hhenderson@uwaterloo.ca) or by phone (519) 888-4567 ex. 41597.

Sincerely,

Heather A. Henderson, Ph.D.
Professor & Chair, Department of Psychology

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FACULTY OF ENGINEERING | Systems Design Engineering
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December 4, 2024

RE: CTN Application for renewal 2024

Dear Charmaine Dean, Vice-President, Research and International,

The Department of Systems Design Engineering (SYDE) in the Faculty of Engineering at the University of Waterloo is proud to renew its support for the Centre for Theoretical Neuroscience (CTN) and its designation as a research centre.

The CTN has become a cornerstone of neuroscience research at Waterloo, gaining an international reputation for excellence and innovation in this expanding field. By bringing together faculty and departments from across the university, the CTN has established itself as a vital hub for interdisciplinary collaboration and engagement in the neuroscience community. This mission closely **aligns with SYDE's values, and we are pleased to continue contributing to and supporting its** endeavors.

Three of SYDE's faculty members actively collaborate with the CTN: Dr. Christopher Eliasmith (founding director), Dr. Chrystopher Nehaniv (affiliate member), and Dr. Bryan Tripp (core member). Each of these researchers has highlighted the significant impact of their involvement with the CTN, including increased international recognition and the recruitment of exceptional graduate students to their research groups.

The CTN has made outstanding contributions to advancing our understanding of the brain through the research of its members. Additionally, its dedication to knowledge-sharing and community-building through outreach is commendable. The annual *Brain Day* seminar is a prime example, offering students an invaluable opportunity to learn from leading experts in theoretical neuroscience. By making *Brain Day* presentations available online, the CTN amplifies its impact and extends its reach to a broader audience.

We are inspired by the CTN's progress and growth and are confident it will continue to elevate Waterloo's profile in neuroscience research. Please consider this letter as our enthusiastic endorsement of the Centre for Theoretical Neuroscience and its continued recognition as a research centre.

Sincerely,

Dr. Lisa Aultman-Hall
Professor and Chair
Department of Systems Design Engineering
University of Waterloo

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February 3, 2025

Prof. B. Anderson, Director
Centre for Theoretical Neuroscience
University of Waterloo

Dear Professor Anderson:

I am writing to express my strong support for the Centre for Theoretical Neuroscience.

Four faculty members in Mathematics have been involved with the Centre, both as core members (from Applied Math, Statistics & Actuarial Sciences, and Computer Science) and as affiliate members. They have benefited from the interdisciplinary research that the Centre fosters. These cross-Faculty collaborations are critical to a deeper understanding of complex problems, such as theoretical neuroscience.

In the coming years and decades, I'm confident theoretical neuroscience will remain an area of great opportunity, benefitting both individuals and society, and the Centre for Theoretical Neuroscience is poised to play a global leadership role in this area.

Yours truly,

Mark Giesbrecht
Dean, Faculty of Mathematics
Professor, David R. Cheriton School of Computer Science

January 27, 2025

Britt Anderson, PhD & MD
Director, Centre for Theoretical Neuroscience
Associate Professor, Department of Psychology
University of Waterloo, Canada

Dear Professor Anderson,

I am writing, as Chair of the Department of Statistics and Actuarial Science, to express my strong support for the Centre of Theoretical Neuroscience (CTN).

Faculty members in the Department of Statistics and Actuarial Science and a good number of graduate students have been active members of the CTN and their research has greatly benefited from activities in the Centre. The Centre is indeed an excellent example of cross Faculty interdisciplinary research activities which the University, and in particular our Department, strongly encourages.

In the future the area of Theoretical Neuroscience, and the role of Statistics in linking theory with evidence, will remain an area of great opportunity. The Centre will continue to play an important role in this exciting area.

Sincerely Yours,

Changbao Wu, Professor and Chair
Department of Statistics and Actuarial Science
University of Waterloo
Email: cbwu@uwaterloo.ca

February 20th, 2025

Dear Members of the Senate Graduate and Research Council,

The Centre for Theoretical Neuroscience is obviously an important asset to the University of Waterloo, as will surely be attested by the other letters of support it will receive.

CTN is also an asset to UW's Department of Philosophy. Some department members work in CTN, where they find the interdisciplinary collaborators and specialized equipment they need for their work. Supported this way they have established high impact, internationally recognized research programs. Some philosophy graduate students take courses through CTN and engage in research supervised by CTN faculty; they benefit greatly from these opportunities. Many more of our graduate students benefit from CTN programming, especially its popular annual Brain Day. CTN is highly deserving of continued support.

Sincerely,

Mathieu Doucet
Associate Professor and Department Chair
Department of Philosophy

UNIVERSITY OF WATERLOO

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28 January 2025

To whom it may concern,

The Cheriton School of Computer Science recognizes the significant value of the Centre for
Theoretical Neuroscience, as it promotes and supports important interdisciplinary research. It has
successfully facilitated collaboration between the School's faculty members, other researchers on
campus, and external partners. Such interdisciplinary collaboration is essential for maintaining
Waterloo's reputation and advancing its strategic plan. The efforts made by the centre are crucial for
developing world-leading interdisciplinary research. Overall, the Centre for Theoretical Neuroscience
positively impacts research programs and graduate studies, and I strongly support its continuation.

Sincerely,

Raouf Boutaba
Professor and Director
David R. Cheriton School of Computer Science

Department of Applied Mathematics,
University of Waterloo,

April 14, 2023

Professor Britt Anderson,
Department of Psychology,
University of Waterloo.
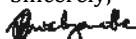
Dear Professor Anderson,

I am writing to express my strong support for the Centre for Theoretical Neuroscience, which has been instrumental in fostering interdisciplinary connections and advancing ground-breaking research programs since its inception in 2006.

As Core members of the Center, Jeff Orchard, Sue Ann Campbell and affiliate member Dr. Brian Ingalls from Applied Math, have consistently demonstrated their dedication to the Center's mission of facilitating cross-faculty collaborations and innovative research in neuroscience. Their contributions have been invaluable in propelling the Center to new heights.

Furthermore, they have also made significant contributions to the Center's research programs, demonstrating their deep understanding of the complex and dynamic interactions between mathematical models and neuroscience. The Centre's group of faculty, spanning Mathematics, Engineering, Health, and Arts, has uniquely positioned it, to address critical questions in neuroscience and to tackle emerging challenges in the field. The Centre's research on diseases, such as Epilepsy, has the potential to revolutionize our understanding of these conditions, and their work on brain models and AI promises to yield exciting breakthroughs in the future.

In conclusion, I would like to reiterate my unwavering support for the Centre for Theoretical Neuroscience, a beacon of excellence in interdisciplinary research and a source of inspiration for all those seeking to extend the boundaries of human knowledge.

Sincerely,

Siv Sivaloganathan,
========
Professor & Chair,
Department of Applied Math

For Information   **Open Session**

To: Senate Finance Committee

From: Secretariat

Agenda Item: **10**.1 **Annual Senate Survey**

Background

The annual survey of Senate, and that of Senate's committees/councils, will be distributed in the coming weeks.

In advance of the survey's issues a copy of the survey for Senate committees/councils is provided here for information. This was reviewed by Senate Executive Committee at its meeting on February 18, 2025.

Documentation Provided

    i.   Attachment - Senate Committee/Council Self-Assessment Survey, 2024-25

Senate Committee/Council Self-Assessment Survey, 2024-25

This survey is designed for members to provide feedback on their experience with the committee/council. Your feedback is essential to understanding the strengths of the committee/council, as well as to identify specific areas where improvement can be made.

Data from respondents will be compiled and aggregated to provide Senate with a high-level overview of how members as a group view Senate governance at the University of Waterloo. Comments provided as part of the survey will also be reported in aggregate and without attribution.

For all questions, please indicate your response by selecting a value on the corresponding rating scale:
- 5 = I strongly agree

- 4 = I agree

- 3 = Neutral

- 2 = I disagree

- 1 = I strongly disagree

- N/A / not enough information to evaluate

You will also have the opportunity to offer comments to support your rating.

2. How long have you served on this committee/council? [required response, multiple choice]

- Less than 1 year
- 1-3 years
- 3 or more years

3. *Meeting preparation and logistics* – meetings are intended to operate effectively and efficiently. This section examines how members prepare for and operate within meetings. [required response, matrix]

- The pre-meeting information package and other information provided for decision-making frame the issues at the right level with sufficient detail.
- Committee/council meetings are focused on the right topics, aligned with its role and mandate.
- Committee/council meeting practices (e.g., meeting times, venues, facilitation, etc.) help foster inclusion.
- Meetings address issues of substance.
- The Committee/Council chair(s) and/or administration effectively frame issues and topics for discussion
- Staff support before, during, and after meetings is effective.

4. Please provide any additional comments in relation to the above. [short text entry]

5. Group dynamics and relationships – Relationship dynamics influence the effectiveness of the Committee/Council. This section explores your perception of how members relate to each other. [required response, matrix]

- Meeting dynamics encourage critical dialogue and discussion.
- Member disagreement is viewed as a search for solutions rather than a "win/lose".
- Meetings are conducted in a respectful manner that ensures open communication and meaningful participation.
- At committee/council meetings I ask questions and provide input based on my knowledge, experience, analytical skills, and common sense.
- At committee/council meetings I ask constructive questions and seek additional information to clarify issues I do not understand
- At committee/council meetings I ask tough questions when the need arises.

- At committee/council meetings I have the freedom to express a dissenting opinion in a constructive matter.
- At committee/council meetings I feel heard.
- At committee/council meetings where I participate by videoconference, I feel appropriately engaged (e.g., my feedback is actively solicited and/or I am encouraged to participate as if I were there in person).
- The chair(s) of the committee/council carries their duties well

6. Please provide any additional comments in relation to the above. [short text entry]

7. Overall experience – Please provide your observations on your overall experience as a member of the committee/council, as well as any other observations you would like to share. [required response, matrix]

- I feel knowledgeable about my role and responsibilities as a member of the committee/council.
- I find my responsibilities as a member to be stimulating and rewarding.
- Involvement in committee/council work provides a connection between my efforts and the success of the University.

8. Please provide any additional comments in relation to the above.
[short text entry]

9. What does the committee/council do particularly well? [short text entry]

10. What would help the committee/council to function more effectively? [short text entry]

11. Do you have any suggestions for committee/council education or other areas of professional development for the Committee/Council? [short text entry]

12. Please provide any additional comments you would like to offer. [short text entry]