

SENATE GRADUATE & RESEARCH COUNCIL

MONDAY, MAY 6, 2024

10:00 A.M. EST

NH 3318 / Zoom

[Governing Documents and Resources](#)

Chair – C. Dean

TIMING	AGENDA ITEM	PAGE	ACTION
	OPEN SESSION		
	1. Conflict of Interest	3	Declaration
10:00 a.m. (5 mins)	Consent Agenda <i>Motion: To approve or receive for information the items on the consent agenda, listed as items 2-5 below.</i>		
	2. Minutes of April 8, 2024 Meeting	4	Decision (SGRC)
	3. Research Ethics (Julie Joza)	6	
	a. Human Research Ethics Board (HREB) [Terms of Reference updates]	7	Decision (SGRC)
	b. Clinical Research Ethics Board (CERB) [Terms of Reference updates]	14	Decision (SGRC)
	4. Graduate Awards (Marianne Simm)		
	a. Samit & Reshma Sharma Graduate Scholarship in Quantum Information [endowment]	20	Decision (SGRC)
	b. Samit & Reshma Sharma Graduate Scholarship in Mathematics [endowment]	20	Decision (SGRC)
	c. Samit & Reshma Sharma Graduate Scholarship in Optometry and Vision Science [endowment]	20	Decision (SGRC)
	d. L'OEUF Massive Impact Graduate Award [trust]	21	Decision (SGRC)
	e. Mathematics Domestic Doctoral Scholarship [operating]	21	Information
	5. Curricular Submissions		
	a. Faculty of Science (Martin Ross)	22	Decision (1 SEN-R, 2 SGRC)
	Regular Agenda		
	6. Business Arising from the Minutes	Oral	Input
10:05 a.m. (10 mins)	7. Co-chairs' Remarks	Oral	Information
10:15 a.m. (45 mins)	8. Research Data Management (Ian Milligan & Alison Hitchens)	48	Input
	9. Graduate Studies Academic Calendar (GSAC) Changes (Jeff Casello)	64	Decision (SEN-R)

TIMING	AGENDA ITEM	PAGE	ACTION
	10. Other Business	Oral	Input
	CONFIDENTIAL		
	11. Senate And Committee/Council Effectiveness Survey 2023/2024	78	Information
	12. Other Business	Oral	Input
	13. Adjournment	Oral	Input

“Decision (SGRC)” to be approved on behalf of Senate

“Decision (SEN-C)” to be recommended to Senate for approval (consent agenda)

“Decision (SEN-R)” to be recommended to Senate for approval (regular agenda)

May 3, 2024

Tim Weber-Kraljevski
Governance Officer
Secretary to SGRC

Important Dates

May 6, 2024	Senate Meeting
June 10, 2024	Senate Meeting
June 17, 2024	SGRC Meeting
September 16, 2024	SGRC Meeting
September 23, 2024	Senate Meeting

Excerpt from Senate Bylaw 1

8. Declarations of conflict of interest

8.01	At the beginning of each meeting of Senate or any of Senate’s committees or councils, the chair will call for members to declare any conflicts of interest with regard to any agenda item. For agenda items to be discussed in closed session, the chair will call for declarations of conflict of interest at the beginning of the closed portion of the meeting. Members may nonetheless declare conflicts at any time during a meeting.
8.02	A member shall be considered to have an actual, perceived or potential conflict of interest, when the opportunity exists for the member to use confidential information gained as a member of Senate, or any of Senate’s committees or councils, for the personal profit or advantage of any person, or use the authority, knowledge or influence of the Senate, or a committee or council thereof, to further her/his personal, familial or corporate interests or the interests of an employee of the university with whom the member has a marital, familial or sexual relationship.
8.03	Members who declare conflicts of interest shall not enter into debate nor vote upon the specified item upon which they have declared a conflict of interest. The chair will determine whether it is appropriate for said member to remove themselves from the meeting for the duration of debate on the specified item(s).
8.04	Where Senate or a committee or council of Senate is of the opinion that a conflict of interest exists that has not been declared, the body may declare by a resolution carried by two-thirds of its members present at the meeting that a conflict of interest exists and a member thus found to be in conflict shall not enter into debate on the specified item upon which they have declared a conflict of interest. The chair will determine whether it is appropriate for said member to remove themselves from the meeting for the duration of debate on the specified item(s).

University of Waterloo
SENATE GRADUATE & RESEARCH COUNCIL
Minutes of the April 8, 2024 Meeting
[in agenda order]

Present: Phil Bigelow, Sue Ann Campbell, Jeff Casello (co-chair), David Clausi, Robert de Loe, Peter Deadman, Bernard Duncker, Anna Esselment, Ana Ferrer, Bertrand Guenin, Neela Hassan, Alison Hitchens, Julie Joza, Marina Mourtzakis, Martin Ross, Marianne Simm, Siva Sivoththaman, Shirley Tang, Tim Weber-Kraljevski (secretary), Clarence Woudsma.

Resources/Guests: Tara Collington, Leslie Copp, Maysah Eid, Craig Hardiman, Deborah Kraft, Carrie MacKinnon, Fayaz Noormohamed, Justin Wan.

Absent: Charmaine Dean* (co-chair), Steven Bednarski*, Aiman Fatima, Zerihun Kinate, Joseph Meleshko, Ian Milligan*, Nicholas Pellegrino, Mike Szarka, Kevin White.

*regrets

Organization of Meeting: Jeff Casello took the chair, and Tim Weber-Kraljevski acted as secretary. The secretary advised that a quorum was present. The agenda was approved without formal motion.

1. CONFLICT OF INTEREST

No conflicts of interest were declared.

CONSENT AGENDA

Council heard a motion to approve or receive for information the items of the consent agenda. Esselment and Sivoththaman. Carried with 1 abstention.

2. MINUTES OF THE MARCH 4, 2024 MEETING

Council approved the minutes of the meeting as distributed.

3. RESEARCH ETHICS

Council approved the membership updates and role changes for the Clinical Research Ethic Board, and membership renewal for the Human Research Ethics Board, as distributed.

4. GRADUATE AWARDS

Council received items a.-e. for information.

5. CURRICULAR SUBMISSIONS

Council approved items a.-d. and recommended to Senate to approve item 5.b.1.a and 5.b.2., as distributed.

6. UW/SSHRC GRANT REVIEW COMMITTEE

Council approved items a.-c., as distributed.

7. ACADEMIC QUALITY ENHANCEMENT (AQE) COMMITTEE TERMS OF REFERENCE

Council recommended the proposed terms of reference for the Academic Quality Enhancement (AQE) Committee to Senate Executive Council, as distributed.

REGULAR AGENDA

8. BUSINESS ARISING FROM THE MINUTES

There was no business arising.

9. CO-CHAIR'S REMARKS

Casello thanked those who supported the postdoctoral competitions, and spoke to the following: the successful Future Cities Institute launch on April 3, 2024; the progress on the Council restructuring and next steps; and the impact of budget reductions in the 2024 Operating Budget on graduate scholarships and bursaries. Members discussed: the 2024 Operating Budget, potential opportunities to share costs, and resources for students to find funding.

10. ACADEMIC PROGRAM REVIEWS

- a. Final Assessment Report: Classical Studies.** Hardiman provided a brief overview of the report. Members Discussion: recruitment strategies for the program and potential growth in the number of students. Hardiman left the meeting.
- b. Progress Report: French Studies.** Collington provided a brief overview of the report. Members discussed: the impact of A.I. on language courses. Collington left the meeting.
- c. Progress Report: Taxation.** Kraft provided a brief overview of the report. Members discussed: the rationale for Graduate Diploma being a type 1. Kraft left the meeting.

A motion was heard to approve the Final Assessment Report and the Progress Reports on behalf of Senate, as presented. Woudsma and Ferrer. Carried with 3 abstentions.

11. GLOBAL FUTURES NETWORK

Continuing from the previous meeting's breakout group discussion, Duncker and Noormohamed responded to comments received from members on the Global Futures Network (GFN). Members discussed: the mandate and vision of the GFN; the impact on Centres and Institutes and their role within the GFN; GFN's operational functions and its role of in enabling collaboration and intersectionality, as well as serving as a platform to bring groups and activities under a single banner.

12. CREATE RANKING

With the exception of the chair, the Associate Deans, and Duncker, members left the meeting. Remaining members reviewed and discussed the ranking of the submitted NSERC CREATE Internal Expression of Interest (EOI).

13. OTHER BUSINESS

There was no other business.

14. ADJOURNMENT

With no further business, the meeting adjourned. The next meeting will be held on Monday, May 6, 2024, 10:00 a.m. to 11:30 a.m. in NH 3318

April 22, 2023

Tim Weber-Kraljevski
Governance Officer

Memorandum

To: Members, Senate Graduate and Research Council (SGRC)
From: Julie Joza, Director, Research Ethics
Date: April 22, 2024
Subject: Terms of Reference Updates for Waterloo's Research Ethics Boards

This memo outlines Terms of Reference updates to be implemented for Waterloo's Research Ethics Boards. This update is for consideration and approval by the Senate Graduate and Research Council.

The [President's Anti-Racism Taskforce](#) (PART) identified a recommendation for Waterloo's Research Ethics Boards. Recommendation #25 outlines the following for the Boards to address:

- i. Ensure representation of different ways of knowing and being; equity, diversity, inclusion, and ant-racism training; and best practices for the Research Ethics Board membership, so it has the capacity to support, assess, and approve ethics requests for research which impacts or involves racialized communities, with particular emphasis on Indigenous communities.

The first step the Boards took to ensure representation was to review their Terms of Reference. The Boards discussed changes to their Terms of Reference during their 2023 meetings and have finalized an update. The attached changes to the Board's Terms of Reference are being brought to the Senate Graduate and Research Council for consideration and approval (Appendix A and B attached).

Attachments:

Human Research Ethics Board Terms of Reference updates

Clinical Research Ethics Board Terms of Reference updates

**UNIVERSITY OF WATERLOO
HUMAN RESEARCH ETHICS BOARD**

TERMS OF REFERENCE

A. Statement of Institutional Authority for Research Ethics Boards

The University of Waterloo has two Research Ethics Boards (REBs): the Human Research Ethics Board and the Clinical Research Ethics Board. As constituted sub-committees of the University of Waterloo's Senate Graduate and Research Council, both University of Waterloo's REBs are established and empowered under the authority of the University of Waterloo Senate.

B. Mandate and Accountability of the Research Ethics Boards

The REBs' mandate, on behalf of the University, is to protect the rights and welfare of human participants who take part in research conducted under the auspices of the University. The University of Waterloo's REBs review such research to ensure that it meets ethical principles and that it complies with all applicable regulations, guidelines and standards pertaining to human participant protection. These include but are not limited to the University of Waterloo's Statement on Human Research; its Guidelines for Research with Human Participants (Guidelines) and the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, 2nd edition (TCPS 2). For clinical trials, the REBs follow Health Canada's Food and Drugs Act, the International Conference on Harmonization (ICH) Good Clinical Practice: Consolidated Guideline, and where applicable, U.S. federal regulations. The University of Waterloo's REBs also operate under applicable laws and regulations of the Province of Ontario and of Canada.

The University of Waterloo requires that all research involving humans or human biological materials conducted in its jurisdiction or under its auspices, undergo ethics review and clearance by one of its two REBs prior to initiation of any research related activities, including recruitment and screening activities.

The Human Research Ethics Board (HREB) has jurisdiction over research involving humans conducted under the auspices of the University of Waterloo except for research that is reviewed by the Clinical Research Ethics Board (CREB). CREB has jurisdiction over clinical trials research (i.e., involving a drug or natural health product or medical device testing), research involving a "controlled act" as defined under the Regulated Health Professionals Act of Ontario, 1991, and other research activities as defined under approved standard operating procedures.

C. Membership of the HREB

Membership shall be consistent with the requirements for REB composition specified in Article 6.4. of the TCPS 2 and ICH Good Clinical Practice: Consolidated Guideline. All Board members shall be competent to judge the ethical acceptability of research ethics applications they review. Members of HREB may be required to serve as reviewers, in either a delegated or an ad-hoc sub-committee capacity for applications made to CREB. This is in accordance with Article 6.3 and Chapter 8 of the TCPS 2, encouraging collaboration and information sharing between both REBs, and facilitating timely and effective reviews for researchers. The CREB chair will determine if the application requires expertise that the HREB member has been judged to possess.

To fulfill the mandate of the Board, the membership will be comprised of both voting and non-voting members.

The HREB shall consist of a minimum of 12 voting members:

- six faculty members including:
 - one member with expertise in clinical psychology
 - one member with expertise in the science of human movement
 - one member with expertise in the methods or processes used in engineering/technology research for the conduct of research with humans
 - one member with expertise in statistical methodologies
 - one member with expertise in qualitative methodologies
 - Chair of the Delegated Ethics Review Committee (DERC)¹ from the Department of Psychology (ex-officio)
- one member who is knowledgeable in the relevant law
- two graduate students with experience in the conduct of research with humans
- two members of the community who have no affiliation with the institution
- one member who is a physician knowledgeable in research

The ~~Board committee~~ must reflect gender diversity and therefore, will seek a membership including a mix of at minimum both men and women, and where possible other gender minorities.

To ensure that research is open, accessible, and inclusive to all, the Board will always strive for the membership to represent diverse perspectives that go beyond gender including but not limited to race, cultural backgrounds, disability-, lived experiences, and different ways of knowing and being. The Board's membership is to have the perspectives and capacity to review all forms of research, including studies with, for, and about people from diverse backgrounds, including but not limited to Black, Indigenous, and racialized peoples². The Board upholds the Ontario Human Rights Code prohibiting actions that discriminates against a person becoming a Board member based on a protected ground in a protected social Area.³

Non-voting members of the Board act as resource support, offer expertise and assistance on matters under consideration by the Board, and share information as needed⁴. The following additional members are ex-officio, non-voting:

- Director, Research Ethics; Senior Manager/Manager, Research Ethics
- Research Ethics Advisor
- Research Experiences Group (REG) Coordinator and Ethics Administrator for DERC

Faculty members of DERC also serve on HREB as alternate members. When serving as an alternate member they may vote and count in quorum.

¹ DERC (Psychology) operates under the auspices of HREB with the sole purpose of conducting delegated reviews within Psychology under the Delegated Ethical Review Committee (Psychology) terms of reference.

² HREB uses the terminology Black, Indigenous, and racialized peoples but recognize that other terms may be used to encapsulate these identities. Language is regularly evolving, and HREB approaches this with the utmost respect, and with acknowledgement that as we move forward, there will be different perspectives.

³ The Ontario Human Rights Code protected grounds and protected social areas can be found at <https://www.ohrc.on.ca/en/ontario-human-rights-code>.

⁴ TCPS 2, Article 6.4 stipulates “where research ethics administration staff have the requisite experience, expertise, and knowledge comparable to what is expected of REB members, institutions may appoint them (based on written policies and procedures of the institution) to serve as non-voting members on the REB.

D. Terms of Office of the HREB

1. Following consultation with the respective Faculty Deans and Department Chairs/School Directors and HREB, the Director will nominate members of the HREB.
2. The Senate Graduate and Research Council shall appoint members of HREB.
3. The Vice-President Research and International will appoint the Chair and Vice Chair from the HREB members. The Chair will have a minimum of one-year prior experience as a member of the HREB. An additional member may be appointed from the same area as the Chair. The Vice Chair may discharge the responsibilities of the Chair when the Chair is unable to do so, discharge responsibilities assigned by the Chair, and assist in the overall operation of the REB, as requested.
4. Members of the HREB, except ex-officio members, will serve for a three-year term, when possible, normally renewable once. Terms will be overlapping to preserve experience and continuity of function.

E. Meetings of the HREB

1. The HREB normally will meet face to face eleven times per year. In the absence of any business, meetings may be cancelled by the Manager in consultation with the Chair.
2. Additional meetings of the HREB, or of a sub-committee of its members, may be called by the Manager in consultation with the Chair, as necessary.
3. Each meeting will require the involvement of a quorum defined as half the total voting membership plus one. Quorum must also meet membership criteria specified by relevant research ethics guidelines and regulations. Every effort will be made to ensure that each meeting includes at least one community member.
4. Members shall normally attend HREB meetings with at least 70% attendance per year. When unexpected circumstances arise that prevent a regular member from attending an HREB meeting in person, arrangements will be made where feasible with the member to participate through use of technology (e.g., telephone or video link). In cases where a regular member cannot attend HREB meetings for a protracted period (e.g., during a 6 month's sabbatical), a substitute member from the same discipline may be appointed to serve during the regular member's absence.
5. Members shall notify the Manager of an anticipated absence at least one day prior to a meeting. Members who cannot attend a meeting are expected to provide written comments for each of the protocols under review at the respective meeting. This information is provided to other members of the HREB and becomes part of the discussion and meeting minutes.
6. At the outset of each meeting, members shall declare any real, perceived, or potential conflict(s) of interest related to the applications under review. Examples of conflicts of interest include but are not limited to applications on which they are listed as principal investigator or co-investigator; current or past research collaborations with investigators listed on the application; applications on which students they supervise are listed. Other

members of the HREB will decide whether the member with the conflict of interest should recuse themselves from related discussions.

7. The HREB will reach its decisions concerning the ethical acceptability of research that is undergoing ethics review through a process of open discussion and consensus. When members are unable to reach consensus a vote of the quorum present will be taken and recorded.
8. The HREB's deliberations and decisions will be documented in comprehensive, confidential minutes that are securely maintained. The Research Ethics Advisor shall serve as secretary to the HREB.
9. Detailed written feedback from the HREB including its decision on the ethical acceptability of the research shall be communicated to the researcher(s) by the Manager, following consultation with the Chair, HREB, in an efficient and timely manner according to standard operating procedures. Feedback is based on minutes of discussion of the research project.
10. The HREB may, where appropriate, request that the Principal Investigator (PI) or his/her designate attend a meeting to provide further information about and/or to discuss his/her research. The HREB will also accommodate reasonable requests from a PI to attend a meeting to participate in discussions about their research.
11. The HREB may seek the confidential opinion or advice of an ad hoc advisor/reviewer from among University of Waterloo faculty or from a confidential external consultant on a particular application to ensure it has the necessary background information and knowledge to review the ethical acceptability of the application.

F. Responsibilities and Mandates of the HREB

1. To ensure that all research under HREB jurisdiction or teaching projects involving human participants and conducted by students, staff and faculty affiliated with the University of Waterloo, and all research conducted at Waterloo by unaffiliated students, staff, and faculty researchers, undergo ethics review and clearance prior to being conducted. These activities may be conducted on- or off-campus and may be funded or unfunded.
2. To review the ethical acceptability of all research projects, under HREB jurisdiction, involving human participants on behalf of the institution including, but not limited to, those that:
 - may pose greater than minimal risk to participants (i.e., physiological, psychological, economic, social, or other);
 - involve recruitment of persons who may be vulnerable as research participants in the context of a specific study, and/or cannot legally give free and informed consent
 - include ethically sensitive issues, topics and/or procedures; and
 - stipulate full REB review as required by certain granting agencies.

The HREB may grant ethics clearance, propose modifications, disapprove, or terminate proposed or ongoing research conducted within the jurisdiction of the University or under

its auspices to ensure that a proportionate review of risks and benefits has occurred in accordance with the ethical framework proposed under the TCPS 2.

G. Delegation of HREB Authority Related to Ethics Review and Clearance

The HREB delegates to the Director and Senior Manager/Manager, and Research Ethics Advisor(s), by virtue of their membership on the HREB, and according to Standard Operating Procedures, authority to conduct:

1. Initial ethics review and clearance of research under its jurisdiction that poses minimal risk to research participants and includes provision of comprehensive and timely written feedback.
2. Ethics review and clearance of modifications to ongoing research under its jurisdiction that poses minimal risk to research participants and includes provision of comprehensive and timely written feedback.
3. Annual ethics review and clearance of research under its jurisdiction that continues beyond one year.
4. Ethics review and clearance of all revised materials and related documents associated with the ethics review feedback process involving minimal and greater than minimal risk research except for applications that have been categorized as requiring a review by a sub-committee of the HREB or the full HREB.

H. Delegation of HREB Responsibility for Record Keeping and Research Ethics Education

The HREB ensures with assistance of Research Ethics Staff that:

1. HREB members are provided with opportunities for research ethics education during their tenure on the HREB beginning with a new member orientation session.
2. Comprehensive, accurate records (i.e., paper and electronic) of the initial and continuing (i.e., modifications, annual) ethics review and clearance processes are securely maintained for all research under its jurisdiction. This includes all revised materials associated with initial and continuing ethics review.
3. HREB meeting dates and submission deadlines are easily accessible by researchers through information posted on the Research Ethics website.
4. HREB members receive a monthly report on minimal risk research that has undergone ethics review and clearance through the delegated ethics review.
5. Timely information and regular reports are received on any unanticipated issues (events) that have occurred in association with research under its jurisdiction.
6. University of Waterloo guidelines, procedures and sample materials related to the conduct of research with humans are reviewed and updated on a regular basis (e.g., annually) to ensure that they remain current in an evolving research ethics environment.

7. Educational activities (e.g., in-class presentations, seminars and workshops) are provided to University of Waterloo students, faculty and staff involved in research with human participants.
8. Legal or other advice is sought, as required, on matters related to the protection of human participants in research.
9. Timely information on guidelines, procedures, and other matters related to the conduct of research with human participants is provided to the HREB as well as student, staff and faculty researchers who conduct research with humans.

I. Reconsideration and Appeal of HREB Decisions

1. Reconsideration Process

A Principal Investigator may make a written request for reconsideration of an HREB decision when ethics clearance is not granted, or when ethics clearance is conditional on revisions that the Principal Investigator (PI) believes may jeopardize the feasibility or integrity of the research. In consultation with the Chair, the Director (or delegate) will refer such a request, including documentation and supporting materials received for reconsideration from the PI to other members of the HREB for discussion at its next meeting. The HREB will review the written documents, and where appropriate, will request an informal meeting with the PI (or his/her designate). Following consideration of all additional information (verbal and written), the HREB will reach a final decision with respect to its position on the original decision. Every attempt will be made in consultation with the PI to reach a resolution by this informal route.

2. Appeal Process

In the event the matter cannot be resolved through a reconsideration or informal process, the institution shall provide the PI with prompt access to an established appeal process through which the PI may appeal the HREB's decision. An appeal can be requested for procedural or substantive reasons. An appeal committee shall be appointed through the same authority that established the REB, ensuring that members of the appeal committee will have expertise and knowledge to be able to competently judge the ethical acceptability of the research ethics application under review. Members of the HREB whose decision is under appeal shall not serve on the appeal committee. The appeal committee will act impartially in its review of documentation provided by the HREB and the PI (or designate), and will consult with others as required, including but not limited to, members of the HREB and the PI (or designate). The appeal committee will issue a written report with its decision on the matter with copies to the PI and HREB. It may approve, reject or request modifications to the research proposal. The appeal committee's decision will be final.

*Original Approval, Senate Research Council, September 14, 1989
 Revised May 1999; approved Senate Research Council June 10, 1999
 Revised May 2000; approved Senate Research Council May 29, 2000
 Revised Feb. 2005; approved Senate Graduate & Research Council, May 11, 2005
 Revised Feb. 2006; approved Senate Graduate & Research Council, Feb. 27, 2006
 Revised Oct. 2011; approved Senate Graduate & Research Council, Nov. 14, 2011*

Revised August 2012; approved Senate Graduate & Research Council, September 10, 2012
Revised January 2014; approved Senate Graduate & Research Council, April 2014
Revised October 2016; Approved Senate Graduate Research Council, November 2016
Revised December 2019; Approved Senate Graduate Research Council; February 2020
Revised February 2024; Approved Senate Graduate Research Council; March 2024
[Revised April 2024.](#)

**UNIVERSITY OF WATERLOO
CLINICAL RESEARCH ETHICS BOARD**

TERMS OF REFERENCE

A. Statement of Institutional Authority for Research Ethics Boards

The University of Waterloo has two Research Ethics Boards (REBs): the Clinical Research Ethics Board and the Human Research Ethics Board. As constituted sub-committees of the University of Waterloo's Senate Graduate and Research Council, both University of Waterloo's REBs are established and empowered under the authority of the University of Waterloo Senate.

B. Mandate and Accountability of the Research Ethics Boards

The REBs' mandate, on behalf of the University, is to protect the rights and welfare of human participants who take part in research conducted under the auspices of the University. The University of Waterloo's REBs review such research to ensure that it meets ethical principles and that it complies with all applicable regulations, guidelines and standards pertaining to human participant protection. These include but are not limited to the University of Waterloo's Statement on Human Research; its Guidelines for Research with Human Participants (Guidelines) and the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans, 2nd edition (TCPS 2). For clinical trials, the REBs follow Health Canada's Food and Drugs regulations (Part C, Division 5), Natural Health Products Regulations (Part 4), Medical Devices regulations (Part 3), International Conference for Harmonization of Technical Requirements for Pharmaceuticals for Human Use (ICH) guidance: Good Clinical Practice, International Organization for Standardization of Good Clinical Practices (GCP) as set out by ISO 14155 – Clinical Investigation of medical devices for human subjects, and international regulations, including U.S. federal regulations for research involving human participants. The University of Waterloo's REBs also operate under applicable laws and regulations of the Province of Ontario and of Canada.

The University of Waterloo requires that all research involving humans or human biological materials conducted in its jurisdiction or under its auspices, undergo ethics review and clearance by one of its two REBs prior to initiation of any research related activities, including recruitment and screening activities.

The Clinical Research Ethics Board (CREB) has jurisdiction over clinical trials research (i.e., involving a drug or natural health product or is medical device testing) conducted under the auspices of the University of Waterloo, research involving a "controlled act" as defined under the Regulated Health Professionals Act of Ontario, 1991, and other research activities as defined under approved standard operating procedures. The Human Research Ethics Board (HREB) has jurisdiction over all other research involving humans with which the University is affiliated.

C. Membership of the CREB

Membership shall be consistent with the requirements for REB composition specified in Article 6.4. of the TCPS 2 and ICH Good Clinical Practice: Consolidated Guideline. All Board members shall be competent to judge the ethical acceptability of research ethics applications they review. In accordance with Article 6.3 and Chapter 8 of the TCPS 2, in the interest of fostering a collaborative spirit and appropriate levels of information sharing between both REBs, and to facilitate timely and effective reviews for researchers, members of CREB may be required to serve as reviewers, in either a delegated or ad-hoc sub-committee capacity, for applications

made to HREB if, in the judgment of the Chair of HREB, the application requires expertise which the CREB member has been judged to possess.

To fulfill the mandate of the Board, the membership will be comprised of both voting and non-voting members.

The CREB shall consist of a minimum of 11 voting members:

- three faculty members including
 - one faculty member with expertise in vision science from Optometry
 - one faculty member with expertise in Pharmacology or Immunology/Toxicology from Pharmacy
 - one faculty member with expertise in the science of human movement from Kinesiology
- two clinical physicians knowledgeable about clinical trials research
- one lawyer preferably knowledgeable about clinical trials research and privacy
- one member knowledgeable in ethics/bioethics
- two community members who have no affiliation with the institution
- one member that is a student or post-doctoral fellow preferably with experience in the conduct of research with humans
- one member with expertise in statistical methodologies

The ~~committee~~ Board must reflect gender diversity and therefore, will seek a membership including a mix of ~~minimum both~~ men and women, and where possible other gender minorities.

To ensure that research is open, accessible, and inclusive to all, the Board will always strive for the membership to represent diverse perspectives that go beyond gender including but not limited to race, cultural backgrounds, disability, lived experiences, and different ways of knowing and being. The Board's membership is to have the perspectives and capacity to review all forms of research, including studies with, for, and about people from diverse backgrounds, including but not limited to Black, Indigenous, and racialized peoples¹. The Board upholds the Ontario Human Rights Code prohibiting actions that discriminates against a person becoming a Board member based on a protected ground in a protected social area².

Non-voting members of the Board act as resource support, offer expertise and assistance on matters under consideration by the Board, and share information as needed³. The following additional members are ex-officio (non-voting):

- Director, Research Ethics
- Senior Manager / Manager, Research Ethics
- Research Ethics Advisor

An alternate community member and an alternate student member may be sought to ensure these positions are represented on the Board at each meeting, whenever possible.

D. Terms of Office for the CREB

¹ CREB uses the terminology Black, Indigenous, and racialized peoples but recognize that other terms may be used to encapsulate these identities. Language is regularly evolving, and CREB approaches this with the utmost respect, and with acknowledgement that as we move forward, there will be different perspectives.

² The Ontario Human Rights Code protected grounds and protected social areas can be found at <https://www.ohrc.on.ca/en/ontario-human-rights-code>.

³ TCPS 2, Article 6.4 stipulates "where research ethics administration staff have the requisite experience, expertise, and knowledge comparable to what is expected of REB members, institutions may appoint them (based on written policies and procedures of the institution) to serve as non-voting members on the REB.

1. Following consultation with the respective Faculty Deans and Department Chairs/School Directors and the CREB Chair, the Director will nominate members of the CREB.
2. The Senate Graduate and Research Council shall appoint members of CREB.
3. The Vice-President Research and International will nominate the Chair and Vice Chair from the CREB membership. The Chair will have a minimum of one-year prior experience as a member of the CREB. An additional member may be appointed from the same area of expertise as the Chair. The Vice Chair may discharge the responsibilities of the Chair when the Chair is unable to do so, discharge responsibilities assigned by the Chair and assist in the overall operation of the REB, as requested,
4. Members of the CREB, except the ex-officio members, will serve for a three-year term, when possible, normally renewable once. Terms will be overlapping to preserve experience and continuity of function.

E. Meetings of the CREB

1. The CREB normally will meet face to face eleven times per year. In the absence of any business, meetings may be cancelled by the Manager (or delegate) in consultation with the Chair.
2. Additional meetings of the CREB, or of a sub-committee of its members, may be called by the Manager in consultation with the Chair, as necessary.
3. Each meeting will require the involvement of a quorum defined as half the total voting membership plus one. Quorum must also meet membership criteria specified by relevant research ethics guidelines and regulations. Every effort will be made to ensure that each meeting includes a community member.
4. Members shall normally attend CREB meetings with at least 70% attendance per year. When unexpected circumstances arise that prevent a regular member from attending a CREB meeting in person, arrangements will be made where feasible with the member to participate through use of technology (e.g., telephone or video link). In cases where a regular member cannot attend CREB meetings for a protracted period (e.g., during a 6 month's sabbatical), a substitute member from the same discipline may be appointed to serve during the regular member's absence.
5. Members shall notify the Manager of an anticipated absence at least one day prior to a meeting. Members who cannot attend a meeting are expected to provide written comments on each of the protocols under review at the respective meeting. This information is provided to other members of the CREB and becomes part of the discussion and meeting minutes.
6. At the outset of each meeting, members shall declare any real, perceived, or potential conflict(s) of interest related to the applications under review. Examples of conflicts of interest include but are not limited to applications on which they are listed as Principal Investigator (PI) or co-investigator; current or past research collaborations with investigators listed on the application; applications on which students they supervise are listed. Other members of the CREB will decide whether the member with the conflict of interest should recuse themselves from related discussions.
7. The CREB will reach its decisions concerning the ethical acceptability of research that is undergoing ethics review through a process of open discussion and consensus. When members are unable to reach consensus, a vote of the quorum present may be taken

and recorded.

8. The CREB's deliberations and decisions will be documented in comprehensive, confidential minutes that are securely maintained. The Research Ethics Advisor shall serve as secretary to the CREB.
9. Detailed written feedback from the CREB including its decision on the ethical acceptability of the research shall be communicated to the researcher(s) by the Manager following consultation with the Chair, CREB, in an efficient and timely manner according to standard operating procedures. Feedback is based on minutes of discussion of the research project.
10. The CREB may, where appropriate, request that the PI or his/her designate attend a meeting to provide further information about and/or to discuss his/her research. The CREB will also accommodate reasonable requests from a PI to attend a meeting to participate in discussions about their research.
11. The CREB may seek the confidential opinion or advice of an ad hoc advisor/reviewer from among University of Waterloo faculty or from a confidential external consultant on a particular application to ensure it has the necessary background information and knowledge to review the ethical acceptability of the application.

F. Responsibilities and Mandates of the CREB

1. To ensure that all research under CREB jurisdiction, involving human participants conducted by students, staff and faculty affiliated with the University of Waterloo, and all clinical trials research conducted at Waterloo by unaffiliated students, staff, and faculty researchers, undergo ethics review and clearance prior to being conducted. This research may be conducted on- or off-campus and may be funded or unfunded.
2. To review the ethical acceptability of all research projects, under CREB jurisdiction, involving human participants on behalf of the institution including, but not limited to, those that:
 - may pose greater than minimal risk to participants (i.e., physiological, psychological, economic, social, or other);
 - involve recruitment of persons who may be vulnerable as research participants in the context of a specific study, and/or cannot legally give free and informed consent
 - include ethically sensitive issues, topics and/or procedures; and
 - stipulate full REB review as required by certain granting agencies

The CREB may grant clearance, propose modifications, disapprove, or terminate proposed or ongoing research conducted within the jurisdiction of the University or under its auspices to ensure that a proportionate review of risks and benefits has occurred in accordance with the ethical framework proposed under the TCPS 2.

G. Delegation of CREB Authority Related to Ethics Review and Clearance

The CREB delegates to the Director, Senior Manager / Manager, and Research Ethics Advisor(s), by virtue of their membership on the CREB, and according to standard operating procedures, authority to conduct:

1. Initial ethics review and clearance of research under its jurisdiction that poses minimal risk to research participants and includes provision of comprehensive and timely written feedback.

2. Ethics review and clearance of modifications to ongoing research under its jurisdiction that poses minimal risk to research participants and includes provision of comprehensive and timely written feedback.
3. Annual ethics review and clearance of all research under its jurisdiction that continues beyond one year.
4. Ethics review and clearance of all revised materials and related documents associated with the ethics review feedback process involving minimal and greater than minimal risk research except for applications that have been categorized as requiring a review by a sub-committee of the CREB or the full CREB.

H. Delegation of CREB Responsibility for Record Keeping and Research Ethics Education

The CREB ensures with assistance of Research Ethics Staff that:

1. CREB members are provided with opportunities for research ethics education during their tenure on the CREB beginning with a new member orientation session.
2. Comprehensive, accurate records (i.e., paper, and electronic) of the initial and continuing (i.e., modifications, annual) ethics review and clearance processes are securely maintained for all research under its jurisdiction. This includes all revised materials associated with initial and continuing ethics review.
3. CREB meeting dates and submission deadlines are easily accessible by researchers through information posted on the Research Ethics website.
4. CREB members receive a monthly report is received on minimal risk research that has undergone ethics review and clearance through the delegated ethics review process by the Research Ethics staff.
5. Timely information and regular reports are received on any unanticipated issues (events) that have occurred in association with research under its jurisdiction.
6. University of Waterloo guidelines, procedures and sample materials related to the conduct of research with humans are reviewed and updated on a regular basis (e.g., annually) to ensure that they remain current in an evolving research ethics environment.
7. Educational activities (e.g., in-class presentations, seminars, and workshops) are provided to University of Waterloo students, faculty and staff involved in research with human participants.
8. Legal or other advice is sought, as required, on matters related to the protection of human participants in research.
9. Timely information on guidelines, procedures, and other matters related to the conduct of research with human participants is provided to the CREB as well as student, staff and faculty researchers who conduct research with humans.

G. Reconsideration and Appeal of CREB Decisions

1. Reconsideration Process

A Principal Investigator (PI) may make a written request for reconsideration of a CREB decision when ethics clearance is not granted, or when ethics clearance is conditional on revisions that the PI believes may jeopardize the feasibility or integrity of the research. In consultation with the Chair, the Director (or delegate) will refer such a request, including documentation and supporting materials received for reconsideration from the PI to other members of the CREB for discussion at its next meeting. The CREB will review the written documents, and where appropriate, will request an informal meeting with the PI (or their designate). Following consideration of all additional information (verbal and written), the CREB will reach a final decision with respect to its position on the original decision. Every attempt will be made, in consultation with the PI to reach a resolution by this informal route.

2. Appeal Process

In the event the matter cannot be resolved through a reconsideration or informal process, the institution shall provide the PI with prompt access to an established appeal process through which the PI may appeal the CREB's decision. An appeal can be requested for procedural or substantive reasons. An appeal committee shall be appointed through the same authority that established the REB, ensuring that members of the appeal committee will have expertise and knowledge to be able to competently judge the ethical acceptability of the research ethics application under review. Members of the CREB whose decision is under appeal shall not serve on the appeal committee. The appeal committee will act impartially in its review of documentation provided by the CREB and the PI (or designate), and will consult with others as required, including but not limited to, members of the CREB and the PI (or designate). The appeal committee will issue a written report with its decision on the matter with copies to the PI and CREB. It may approve, reject, or request modifications to the research proposal. The appeal committee's decision will be final.

*Approved Senate Graduate & Research Council, February 2009;
 Revised CREC Oct. 2011; approved Senate Graduate & Research Council, Nov. 14, 2011
 Revised CREC August 2012, approved Senate Graduate & Research Council, Sept. 10, 2012
 Revised ORE August 2013; approved Senate Graduate & Research Council, September 9, 2013;
 Revised ORE August 2016; approved Senate Graduate & Research Council, September 12, 2016
 Revised CREC December 2019; approved Senate Graduate & Research Council, February 10, 2020
 Revised CREB September 2022; approved Senate Graduate & Research Council, October 3, 2022
 Revised [CREB April 2024](#)*



April 15, 2024

TO: Tim Weber-Kraljevski, Governance Officer

FROM: Heidi Mussar, Associate Director, Graduate Financial Aid & Awards

RE: Agenda items for Senate Graduate & Research Council – May 2024

Items for Approval

a) Samit & Reshma Sharma Graduate Scholarship in Quantum Information - endowment

A scholarship, valued at least \$3,000, will be awarded annually to a graduate student registered full-time in a research-based master's or doctoral program in the Faculty of Engineering, Math or Science who are part of the Quantum Information program. Selection will be based on academic excellence (minimum cumulative average of 80% or equivalent) and research potential in quantum information science and technology as demonstrated in their scholarship application. Interested students should submit an application by February 1 to IQC.

The funds are endowed in 2024 by Samit & Reshma Sharma foundation to celebrate the Institute of Quantum Computing at University of Waterloo. It is hoped that the award will enhance societal knowledge and expertise in quantum information and computing. To be awarded annually to a student who demonstrates outstanding academic achievement and research excellence for graduate studies with most significant practical impact in quantum information research.

Total gift = \$100,001

b) Samit & Reshma Sharma Graduate Scholarship in Mathematics – endowment

A scholarship, valued at least \$3,000, will be awarded annually to full-time graduate students enrolled in any thesis-based master's or doctoral program in any branch in the Faculty of Mathematics. Selection is based on academic excellence (minimum 80% cumulative average or the equivalent) and research potential. Interested students should submit an application by January 31st to the Graduate Studies Offices in the Faculty of Mathematics.

The funds are endowed in 2024 by Samit & Reshma Sharma foundation to celebrate the first dedicated Faculty of Mathematics in Canada at University of Waterloo. It is hoped that the award will enhance societal knowledge and expertise in mathematics, statistics and computer science. To be awarded annually by the Graduate Studies office to a student who demonstrates outstanding academic achievement & research excellence for graduate studies with most significant practical impact in applied mathematics.

Total gift = \$100,001

c) Samit & Reshma Sharma Graduate Scholarship in Optometry and Vision Science - endowment

A scholarship, valued at least \$3,000, will be awarded annually to a graduate student registered full-time in the School of Optometry and Vision Science in the Faculty of Science. Selection is based on academic excellence and demonstrated interest in advancing vision science. Focused on areas of research excellence, consideration will be given to students who are conducting research that advances optometric care through new innovative treatments, techniques, and

models and/or further the understanding of eye and vision care through clinical, biomedical and/or imaging research. The Graduate Studies Office in the School of Optometry and Vision Science will identify candidates and select recipients annually in the winter term.

The fund is endowed in 2024 by Samit & Reshma Sharma foundation to celebrate the Centers for Ocular Research, & for Sight Enhancement at University of Waterloo. It is hoped that the award will enhance societal knowledge & expertise for innovation in optometry and vision research. To be awarded annually by the Graduate Studies office to a student who demonstrates outstanding academic achievement and research excellence for graduate studies with most significant practical impact in Optometry and Vision Science education and patient care.

Total gift = \$100,001

d) L'OEUF Massive Impact Graduate Award – trust

An award, valued at \$5,000, will be awarded annually to a full-time graduate student enrolled in the master's of Architecture program in the School of Architecture, Faculty of Engineering. Selection is based on a thesis project's potential to create positive, transformative impact on a large scale. Students interested in applying must submit an application form that can be found on the School of Architecture website, by the deadline advertised, normally each spring. This fund is made possible by a donation from L'OEUF Architects.

Total gift = \$25k pledged between May 2024 and May 2028

Items for Information

e) Mathematics Domestic Doctoral Scholarship – operating

Originally established in April 2018 as part of the Domestic Doctoral funding initiative, the Faculty of Mathematics is sunsetting this award effective May 1, 2024 in order to simplify the overall administration of operating scholarships within the Faculty.

Faculty of Science
SGRC submission

MEMORANDUM

To: Tim Weber-Kraljevski

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

Date: April 15, 2024

Re: Science Graduate and Research Council Agenda

I would ask that the motions below be placed on the agenda for the upcoming SGRC meeting. The motions were all approved at the Science Faculty Council (March 19th, 2024).

Physics

1. To approve adding new transfer entry Internship options to the following MSc programs, MSc in Physics, MSc in Physics – Quantum Information program and MSc in Physics – Nanotechnology program.

Rationale and form: see Science Motion 1 forms

Biology and Earth and Environmental Sciences

2. To revise the course title, description, and requisites of EARTH 624 and BIOL 624

Rationale and form: see Science Motion 2 forms

Thank you,



Martin Ross, PhD, Associate Dean Graduate Studies – Faculty of Science

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: Science

Program: Master of Science (MSc) in Physics

Program contact name(s): Jan Kycia, Associate Chair

Form completed by: Holly Haig-Brown, Kayla Sutton, Graduate Program Manager(s)

Description of proposed changes:

Note: changes to courses and milestones also require the completion/submission of the [SGRC Graduate Studies Course/Milestone Form](#).

Adding a new transfer entry Internship option to the MSc in Physics program, in addition to keeping the regular existing MSc program.

Is this a [major modification](#) to the program? Yes

Rationale for change(s):

Work integrated learning (WIL) options do not currently exist in the Department of Physics and Astronomy graduate programs. In line with the University’s strategic plan, we would like to offer an internship option for the MSc in Physics Thesis, Master’s Research Paper and Coursework study options. The Department of Physics and Astronomy has received feedback from current faculty and current graduate students that opportunities for work experiences outside of coursework or traditional thesis-based research is desirable to enrich students’ degrees as well as provide them with many transferrable skills and a variety of experiences in preparation to enter the workplace after graduation. The internship will provide students with the opportunity to apply coursework and research experiences to real-world problems and allow collaboration with industry or other partners. The addition of the internship option continues to align with the programs learning outcomes.

Proposed effective date: Term: Fall Year: 2024

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

<https://uwaterloo.ca/graduate-studies-academic-calendar/science/department-physics-and-astronomy>

Current MSc in Physics Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Internship Graduate Studies Academic Calendar content:
Graduate research fields <ul style="list-style-type: none"> • Astrophysics and Gravitation 	Graduate research fields <ul style="list-style-type: none"> • Astrophysics and Gravitation

Current MSc in Physics Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Internship Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> • Atomic Molecular and Optical Physics • Biophysics • Chemical Physics • Condensed Matter and Materials Physics • Industrial and Applied Physics • Quantum Computing • Subatomic Physics <p>Graduate specializations</p> <ul style="list-style-type: none"> • Quantum Technology <p>Program information</p> <ul style="list-style-type: none"> • Admit term(s) <ul style="list-style-type: none"> ○ Fall ○ Winter ○ Spring • Delivery mode <ul style="list-style-type: none"> ○ On-campus • Program type <ul style="list-style-type: none"> ○ Joint ○ Master's ○ Research • Registration option(s) <ul style="list-style-type: none"> ○ Full-time ○ Part-time • Study option(s) <ul style="list-style-type: none"> ○ Thesis ○ Master's Research Paper ○ Coursework • Additional program information <ul style="list-style-type: none"> ○ Note: the coursework study option is only open to students at the University of Waterloo. <p>Admission requirements</p> <ul style="list-style-type: none"> • Minimum requirements <ul style="list-style-type: none"> ○ An Honours Bachelor's degree (or equivalent) in Science with at least a 75% standing. • Application materials <ul style="list-style-type: none"> ○ Graduate Record Examination (GRE) Physics subject test scores for all students who have completed their post-secondary education outside of Canada. 	<ul style="list-style-type: none"> • Atomic Molecular and Optical Physics • Biophysics • Chemical Physics • Condensed Matter and Materials Physics • Industrial and Applied Physics • Quantum Computing • Subatomic Physics <p>Graduate specializations</p> <ul style="list-style-type: none"> • Quantum Technology <p>Program information</p> <ul style="list-style-type: none"> • Admit term(s) <ul style="list-style-type: none"> ○ Fall ○ Winter ○ Spring • Delivery mode <ul style="list-style-type: none"> ○ On-campus • Program type <ul style="list-style-type: none"> ○ Joint ○ Master's ○ Research • Registration option(s) <ul style="list-style-type: none"> ○ Full-time ○ Part-time • Study option(s) <ul style="list-style-type: none"> ○ Thesis ○ Master's Research Paper ○ Coursework • Additional program information <ul style="list-style-type: none"> ○ Note: the <u>internship</u> option is only open to students at the University of Waterloo. <p>Admission requirements</p> <ul style="list-style-type: none"> • Minimum requirements <ul style="list-style-type: none"> ○ <u>Students in the Master of Science (MSc) in Physics program can apply to transfer into the Master of Science (MSc) in Physics - Internship program option after completing at least one academic term. Admittance will be decided based on the student's progress to date, and is subject to approval by the student's supervisor(s) and the Associate Chair, Graduate</u>

Current MSc in Physics Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Internship Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> ○ Supplementary information form ○ Transcript(s) <ul style="list-style-type: none"> • References <ul style="list-style-type: none"> ○ Number of references: 3 ○ Type of references: 2 of which are normally from academic sources • English language proficiency (ELP) (if applicable) <p>Degree requirements</p> <p>Thesis option:</p> <ul style="list-style-type: none"> • Graduate Academic Integrity Module (Graduate AIM) • Courses <ul style="list-style-type: none"> ○ Students must complete the following 4 one-term courses (0.50 unit weight): <ul style="list-style-type: none"> ▪ 1 Physics core course ▪ 2 graduate level courses ▪ 1 graduate level or 300 or 400 level undergraduate course. Undergraduate courses must be approved by the student’s supervisor, the Associate Chair of Graduate Studies, Department of Physics and Astronomy and the Associate Dean of Science for Graduate Studies prior to enrolment in the course. ▪ Physics core courses: <ul style="list-style-type: none"> ▪ PHYS 701 Quantum Mechanics 1 ▪ PHYS 703 Introduction to Quantum Field Theory ▪ PHYS 704 Statistical Physics 1 ▪ PHYS 706 Electromagnetic Theory ▪ PHYS 767 Quantum Information Processing ▪ PHYS 781 Fundamentals of Astrophysics ▪ PHYS 782 Fundamentals of Astrophysics II: Observational Techniques and Data Analysis 	<p><u>Studies in the Department of Physics and Astronomy.</u></p> <p>Degree requirements</p> <p>Thesis option:</p> <ul style="list-style-type: none"> • Graduate Academic Integrity Module (Graduate AIM) • Courses <ul style="list-style-type: none"> ○ Students must complete the following 4 one-term courses (0.50 unit weight): <ul style="list-style-type: none"> ▪ 1 Physics core course ▪ 2 graduate level courses ▪ 1 graduate level or 300 or 400 level undergraduate course. Undergraduate courses must be approved by the student’s supervisor, the Associate Chair of Graduate Studies, Department of Physics and Astronomy and the Associate Dean of Science for Graduate Studies prior to enrolment in the course. ▪ Physics core courses: <ul style="list-style-type: none"> ▪ PHYS 701 Quantum Mechanics 1 ▪ PHYS 703 Introduction to Quantum Field Theory ▪ PHYS 704 Statistical Physics 1 ▪ PHYS 706 Electromagnetic Theory ▪ PHYS 767 Quantum Information Processing ▪ PHYS 781 Fundamentals of Astrophysics ▪ PHYS 782 Fundamentals of Astrophysics II: Observational Techniques and Data Analysis ○ 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

Current MSc in Physics Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Internship Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> ○ 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 Thesis <ul style="list-style-type: none"> ○ Students must complete a thesis based on original research. The subject of research must be approved by the candidate’s supervisor. ○ Acceptance of the thesis requires the approval by an Examining Committee following an oral defence of the thesis. ● Other requirements <ul style="list-style-type: none"> ○ Advisory Committee meetings: it is required that the student meet formally with their Advisory Committee within the first six months of registration and subsequently at least once per year. If the student receives more than one unsatisfactory evaluation from an Advisory Committee meeting, they may be required to withdraw from the program. ○ The MSc Advisory Committee must consist of at least three members, including: <ul style="list-style-type: none"> ▪ The student’s supervisor(s); the primary supervisor acts as the Committee Chair. ▪ At least one Committee member that is a regular faculty member of the Department of Physics and Astronomy at the University of Waterloo. Note: This requirement does not apply for MSc students who are supervised by a Perimeter Institute faculty member with ADDS status. ▪ At least two Committee members that are regular, adjunct, or cross-listed faculty members of the Department of Physics and Astronomy at the University of Waterloo or the Department of Physics at the University of Guelph. 	<p style="text-align: center;">program.</p> <ul style="list-style-type: none"> ● Master’s Internship <ul style="list-style-type: none"> ○ <u>A Master’s internship is available for students to collaborate with a partner in industry or elsewhere.</u> ○ <u>The internship must be complementary to the student’s thesis project.</u> ○ <u>Requests to undertake an internship must be approved by the student’s supervisor and the Associate Chair, Graduate Studies.</u> ○ <u>It is the student’s responsibility to identify potential organizations with which to undertake their internship. Students will prepare an internship proposal, outlining how the work of the organization relates to their thesis and the experience sought through the internship. A letter of support from the organization indicating the role and location of the internship and willingness of the direct supervisor to mentor the intern will be submitted to the Associate Chair, Graduate Studies.</u> ○ <u>The internship milestone requires the successful completion of a one-term (four-month) full-time work experience with a department approved partner. Internships will normally take place in the 3rd, 4th or 5th term of study. The internship may last for up to two terms (8 months) with approval of the student’s supervisor and Associate Chair, Graduate Studies, provided that the internship does not result in the candidate being enrolled past-program time limits.</u> ○ <u>Students cannot complete their program with the final term as an internship term.</u> ○ <u>A written report arising out of the internship experience will be required and will be evaluated by the student’s supervisor and another reader designated by the Graduate Officer. This report should be used toward the Master’s thesis. The report should summarize the work experience and linkages to the student’s thesis research, program curriculum, and professional development goals.</u> ● Master’s Thesis

Current MSc in Physics Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Internship Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> ○ The MSc Defence Committee must consist of a minimum of three voting faculty members, including: <ul style="list-style-type: none"> ▪ The supervisor(s). ▪ Two other faculty members, of which one must be a regular faculty member of the Department of Physics and Astronomy at the University of Waterloo. <p>Master's Research Paper option:</p> <ul style="list-style-type: none"> • Graduate Academic Integrity Module (Graduate AIM) • Courses <ul style="list-style-type: none"> ○ Students must complete 7 one-term courses (0.50 unit weight) acceptable for graduate credit. ○ At least 4 courses must be PHYS graduate level courses. ○ 2 of the courses may be upper level undergraduate courses. The supervisor must submit a memo justifying why the undergraduate course(s) are acceptable for graduate credit, and approval must be received from the Physics and Astronomy Graduate Officer and the Associate Dean of Science for Graduate Studies prior to enrolment in the course. ○ 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 <ul style="list-style-type: none"> ○ The Master's Research Paper will have to be approved by the candidate's Supervisory Committee. • Other requirements <ul style="list-style-type: none"> ○ Progress report: At least once per academic year, students must complete an activity progress report. The report will contain an account of past achievements, and an outline of the 	<ul style="list-style-type: none"> ○ Students must complete a thesis based on original research. The subject of research must be approved by the candidate's supervisor. ○ Acceptance of the thesis requires the approval by an Examining Committee following an oral defence of the thesis. <ul style="list-style-type: none"> • Other requirements <ul style="list-style-type: none"> ○ Advisory Committee meetings: it is required that the student meet formally with their Advisory Committee within the first six months of registration and subsequently at least once per year. If the student receives more than one unsatisfactory evaluation from an Advisory Committee meeting, they may be required to withdraw from the program. ○ The MSc Advisory Committee must consist of at least three members, including: <ul style="list-style-type: none"> ▪ The student's supervisor(s); the primary supervisor acts as the Committee Chair. ▪ At least one Committee member that is a regular faculty member of the Department of Physics and Astronomy at the University of Waterloo. Note: This requirement does not apply for MSc students who are supervised by a Perimeter Institute faculty member with ADDS status. ▪ At least two Committee members that are regular, adjunct, or cross-listed faculty members of the Department of Physics and Astronomy at the University of Waterloo or the Department of Physics at the University of Guelph. ○ The MSc Defence Committee must consist of a minimum of three voting faculty members, including: <ul style="list-style-type: none"> ▪ The supervisor(s). ▪ Two other faculty members, of which one must be a regular faculty member of the Department of Physics and Astronomy at the University of Waterloo.

Current MSc in Physics Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Internship Graduate Studies Academic Calendar content:
<p>work to be completed in the period between this and the subsequent submission. The activity report is reviewed and evaluated by the student’s supervisor and the Graduate Officer.</p> <p>Coursework option:</p> <ul style="list-style-type: none"> • Graduate Academic Integrity Module (Graduate AIM) • Courses <ul style="list-style-type: none"> ○ At this time, the only MSc in Physics coursework option includes a Graduate Specialization in Quantum Technology. ○ A Graduate Specialization is a University credential that is recognized on the student’s transcript but not on the diploma and is intended to reflect that a student has successfully completed a set of courses that together provide an in-depth study in the area of the Graduate Specialization. Students must complete the following 8 one-term courses (0.50 unit weight) acceptable for graduate credit in order to obtain the Graduate Specialization in Quantum Technology on their transcript: <ul style="list-style-type: none"> ▪ PHYS 701 Quantum Mechanics 1 ▪ PHYS 760/QIC 860 Laboratory on Control of Quantum Technology ▪ PHYS 761/QIC 861 Laboratory on Photonic Quantum Technology ▪ PHYS 762/QIC 862 Laboratory on Low Temperature Quantum Technology and Nanofabrication ▪ PHYS 763/QIC 863 Independent Project in Quantum Technology or 1 QIC 800 level elective ▪ PHYS 767/QIC 710 Quantum Information Processing ▪ QIC 750 Quantum Information Processing Devices ▪ 1 PHYS 700 level or QIC 800 level elective 	<p>Master's Research Paper option:</p> <ul style="list-style-type: none"> • Graduate Academic Integrity Module (Graduate AIM) • Courses <ul style="list-style-type: none"> ○ Students must complete 7 one-term courses (0.50 unit weight) acceptable for graduate credit. ○ At least 4 courses must be PHYS graduate level courses. ○ 2 of the courses may be upper level undergraduate courses. The supervisor must submit a memo justifying why the undergraduate course(s) are acceptable for graduate credit, and approval must be received from the Physics and Astronomy Graduate Officer and the Associate Dean of Science for Graduate Studies prior to enrolment in the course. ○ 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 Internship <ul style="list-style-type: none"> ○ <u>A Master's internship is available for students to apply theory in practice with an industry or other partner.</u> ○ <u>Requests to undertake an internship must be approved by the student's supervisor and the Associate Chair, Graduate Studies.</u> ○ <u>It is the student's responsibility to identify potential organizations with which to undertake their internship. Students will prepare an internship proposal, outlining how the work of the organization relates to the Master of Science in Physics program and the professional experience sought through the internship. A letter of support from the organization indicating the role and location of the internship and willingness of the direct supervisor to mentor the intern will be submitted to the Associate Chair, Graduate Studies.</u> ○ <u>The internship milestone requires the successful completion of a one-term</u>

Current MSc in Physics Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Internship Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> ○ Substitutions of courses are possible subject to approval from the Graduate Officer. ○ It is recommended that students who wish to go on to PhD programs choose the PHYS 763/QIC 863 Independent Project in Quantum Technology course to develop their research capabilities. ○ 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. No more than 2 courses, of the first 4 taken, can have averages of less than 70%. 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. 	<p><u>(four-month) full-time work experience with a department approved partner. The internship may last for up to two terms (8 months) with approval of the student’s supervisor and Associate Chair, Graduate Studies, provided that the internship does not result in the candidate being enrolled past-program time limits. Internships will normally take place in the 3rd, 4th or 5th term of study.</u></p> <ul style="list-style-type: none"> ○ <u>Students cannot complete their program with the final term as an internship term.</u> ○ <u>A written report arising out of the internship experience will be required and will be evaluated by the student’s supervisor and another reader designated by the Graduate Officer. This report is distinct from the Master’s Research Paper. The report should summarize the work experience and linkages to the student’s research, program curriculum, and professional development goals.</u> <ul style="list-style-type: none"> ● Master’s Research Paper <ul style="list-style-type: none"> ○ The Master's Research Paper will have to be approved by the candidate's Supervisory Committee. ● Other requirements <ul style="list-style-type: none"> ○ Progress report: At least once per academic year, students must complete an activity progress report. The report will contain an account of past achievements, and an outline of the work to be completed in the period between this and the subsequent submission. The activity report is reviewed and evaluated by the student’s supervisor and the Graduate Officer. <p>Coursework option:</p> <ul style="list-style-type: none"> ● Graduate Academic Integrity Module (Graduate AIM) ● Courses <ul style="list-style-type: none"> ○ At this time, the only MSc in Physics coursework option includes a Graduate Specialization in Quantum Technology.

Current MSc in Physics Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Internship Graduate Studies Academic Calendar content:
	<ul style="list-style-type: none"> ○ A Graduate Specialization is a University credential that is recognized on the student’s transcript but not on the diploma and is intended to reflect that a student has successfully completed a set of courses that together provide an in-depth study in the area of the Graduate Specialization. Students must complete the following 8 one-term courses (0.50 unit weight) acceptable for graduate credit in order to obtain the Graduate Specialization in Quantum Technology on their transcript: <ul style="list-style-type: none"> ▪ PHYS 701 Quantum Mechanics 1 ▪ PHYS 760/QIC 860 Laboratory on Control of Quantum Technology ▪ PHYS 761/QIC 861 Laboratory on Photonic Quantum Technology ▪ PHYS 762/QIC 862 Laboratory on Low Temperature Quantum Technology and Nanofabrication ▪ PHYS 763/QIC 863 Independent Project in Quantum Technology or 1 QIC 800 level elective ▪ PHYS 767/QIC 710 Quantum Information Processing ▪ QIC 750 Quantum Information Processing Devices ▪ 1 PHYS 700 level or QIC 800 level elective ○ Substitutions of courses are possible subject to approval from the Graduate Officer. ○ It is recommended that students who wish to go on to PhD programs choose the PHYS 763/QIC 863 Independent Project in Quantum Technology course to develop their research capabilities. ○ 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. No more than 2 courses, of the first 4 taken, can have averages of less than 70%. 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

Current MSc in Physics Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Internship Graduate Studies Academic Calendar content:
	<p>program.</p> <ul style="list-style-type: none"> • <u>Master’s Internship</u> <ul style="list-style-type: none"> ○ <u>A master’s internship is available for students to apply theory in practice with an industry or other partner.</u> ○ <u>Requests to undertake an internship must be approved by the student’s supervisor and the Associate Chair, Graduate Studies.</u> ○ <u>It is the student’s responsibility to identify potential organizations with which to undertake their internship. Students will prepare an internship proposal, outlining how the work of the organization relates to the Master of Science in Physics program and the professional experience sought through the internship. A letter of support from the organization indicating the role and location of the internship and willingness of the direct supervisor to mentor the intern will be submitted to the Associate Chair, Graduate Studies.</u> ○ <u>The internship milestone requires the successful completion of a one-term (four-month) full-time work experience with a department approved partner. The internship may last for up to two terms (8 months) with approval of the student’s supervisor and Associate Chair, Graduate Studies, provided that the internship does not result in the candidate being enrolled past-program time limits.</u> ○ <u>Students cannot complete their program with the final term as an internship term.</u> ○ <u>Internships will normally take place after the 2nd term of study and may only take place after students have successfully completed the following courses: PHYS 701, PHYS 767/QIC 710, QIC 750, and at least two of the three required laboratory courses: PHYS 760/QIC 860, PHYS 761/QIC 861, PHYS 762/QIC 862.</u> ○ <u>A written report arising out of the internship experience will be required and will be evaluated by the student’s supervisor and another reader designated by the Graduate Officer. The report should summarize the work experience and linkages to the</u>

Current MSc in Physics Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Internship Graduate Studies Academic Calendar content:
	<u>student's program curriculum, and professional development goals.</u>

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

Students currently enrolled in a program with an optional internship milestone will have the option to partake in an internship under the same guidelines as indicated in the Graduate Studies Academic Calendar.

- Department/School approval date** (mm/dd/yy): 12/13/23
- Reviewed by GSPA** (for GSPA use only) date (mm/dd/yy): 11/14/23
- Faculty approval date** (mm/dd/yy): 03/19/2024
- 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: Science

Program: Master of Science (MSc) in Physics – Quantum Information

Program contact name(s): Jan Kycia, Associate Chair

Form completed by: Kayla Sutton, Graduate Program Manager

Description of proposed changes:

Note: changes to courses and milestones also require the completion/submission of the [SGRC Graduate Studies Course/Milestone Form](#).

Adding a new transfer entry Internship option to the MSc in Physics – Quantum Information program, in addition to keeping the regular existing MSc in Physics – Quantum Information program.

Is this a [major modification](#) to the program? Yes

Rationale for change(s):

Work integrated learning (WIL) options do not currently exist in the Department of Physics and Astronomy graduate programs. In line with the University’s strategic plan, we would like to offer an internship option for the MSc in Physics – Quantum Information program. The Department of Physics and Astronomy has received feedback from current faculty and current graduate students that opportunities for work experiences outside of coursework or traditional thesis-based research is desirable to enrich students’ degrees as well as provide them with many transferrable skills and a variety of experiences in preparation to enter the workplace after graduation. The internship will provide students with the opportunity to apply coursework and research experiences to real-world problems and allow collaboration with industry or other partners. The addition of the internship option continues to align with the programs learning outcomes.

Proposed effective date: Term: Fall Year: 2024

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

<https://uwaterloo.ca/graduate-studies-academic-calendar/science/department-physics-and-astronomy>

Current MSc in Physics – Quantum Information Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Quantum Information – Internship Graduate Studies Academic Calendar content:
Program information	Program information

Current MSc in Physics – Quantum Information Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Quantum Information – Internship Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> • Admit term(s) <ul style="list-style-type: none"> ○ Fall ○ Winter ○ Spring • Delivery mode <ul style="list-style-type: none"> ○ On-campus • Program type <ul style="list-style-type: none"> ○ Collaborative ○ Master’s ○ Research • Registration option(s) <ul style="list-style-type: none"> ○ Full-time ○ Part-time • Study option(s) <ul style="list-style-type: none"> ○ Thesis 	<ul style="list-style-type: none"> • Admit term(s) <ul style="list-style-type: none"> ○ Fall ○ Winter ○ Spring • Delivery mode <ul style="list-style-type: none"> ○ On-campus • Program type <ul style="list-style-type: none"> ○ Collaborative ○ Master’s ○ Research • Registration option(s) <ul style="list-style-type: none"> ○ Full-time ○ Part-time • Study option(s) <ul style="list-style-type: none"> ○ Thesis
<p>Admission requirements</p> <ul style="list-style-type: none"> • Minimum requirements <ul style="list-style-type: none"> ○ An Honours Bachelor’s degree (or equivalent) in Science with at least a 75% standing. • Application materials <ul style="list-style-type: none"> ○ Graduate Record Examination (GRE) Physics subject test scores for all students who have completed their post-secondary education outside of Canada. ○ Supplementary information form ○ Transcript(s) • References <ul style="list-style-type: none"> ○ Number of references: 3 ○ Type of references: 2 of which are normally from academic sources • English language proficiency (ELP) (if applicable) 	<p>Admission requirements</p> <ul style="list-style-type: none"> • Minimum requirements <ul style="list-style-type: none"> ○ <u>Students in the Master of Science (MSc) in Physics – Quantum Information program can apply to transfer into the Master of Science (MSc) in Physics – Quantum Information - Internship program option after completing at least one academic term. Admittance will be decided based on the student’s progress to date, and is subject to approval by the student’s supervisor(s) and the Associate Chair, Graduate Studies in the Department of Physics and Astronomy.</u>
<p>Degree requirements</p> <p>Thesis option:</p> <ul style="list-style-type: none"> • Graduate Academic Integrity Module (Graduate AIM) 	<p>Degree requirements</p> <p>Thesis option:</p> <ul style="list-style-type: none"> • Graduate Academic Integrity Module (Graduate AIM) • Courses <ul style="list-style-type: none"> ○ Students must complete the following 4 one-term courses (0.50 unit weight): <ul style="list-style-type: none"> ▪ PHYS 767 Quantum Information Processing (cross-listed with QIC 710)

Current MSc in Physics – Quantum Information Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Quantum Information – Internship Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> • Courses <ul style="list-style-type: none"> ○ Students must complete the following 4 one-term courses (0.50 unit weight): <ul style="list-style-type: none"> ▪ PHYS 767 Quantum Information Processing (cross-listed with QIC 710) ▪ QIC 750 Quantum Information Processing Devices ▪ 1 graduate level course ▪ 1 graduate level or 400 level undergraduate course. Undergraduate courses must be approved by the student’s supervisor and the Associate Chair of Graduate Studies, Department of Physics and Astronomy and the Associate Dean of Science for Graduate Studies prior to enrolment in the course. ○ 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 Thesis <ul style="list-style-type: none"> ○ Students must complete a thesis based on some original research in quantum information. The subject of research must be approved by the candidate’s supervisor. ○ Acceptance of the thesis requires the approval by an Examining Committee following an oral defence of the thesis. • Other requirements <ul style="list-style-type: none"> ○ Advisory Committee meetings: it is required that the student meet formally with their Advisory Committee within the first six months of registration and subsequently at least once per year. If the student receives more than one unsatisfactory evaluation from an Advisory Committee meeting, they may be required to withdraw from the program. ○ The MSc Advisory Committee must consist of at least three members, including: 	<ul style="list-style-type: none"> ▪ QIC 750 Quantum Information Processing Devices ▪ 1 graduate level course ▪ 1 graduate level or 400 level undergraduate course. Undergraduate courses must be approved by the student’s supervisor and the Associate Chair of Graduate Studies, Department of Physics and Astronomy and the Associate Dean of Science for Graduate Studies prior to enrolment in the course. ○ 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 Internship <ul style="list-style-type: none"> ○ <u>A Master’s internship is available for students to collaborate with a partner in industry or elsewhere.</u> ○ <u>The internship must be complementary to the student’s thesis project in quantum information.</u> ○ <u>Requests to undertake an internship must be approved by the student’s supervisor and the Associate Chair, Graduate Studies.</u> ○ <u>It is the student’s responsibility to identify potential organizations with which to undertake their internship. Students will prepare an internship proposal, outlining how the work of the organization relates to their thesis and the experience sought through the internship. A letter of support from the organization indicating the role and location of the internship and willingness of the direct supervisor to mentor the intern will be submitted to the Associate Chair, Graduate Studies.</u> ○ <u>The internship milestone requires the successful completion of a one-term (four-month) full-time work experience with a department approved partner. Internships will normally take place in the 3rd, 4th or 5th term of study. The</u>

Current MSc in Physics – Quantum Information Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Quantum Information – Internship Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> ▪ The student’s supervisor(s); the primary supervisor acts as the Committee Chair. ▪ At least one Committee member that is a regular faculty member of the Department of Physics and Astronomy at the University of Waterloo. Note: This requirement does not apply for MSc students who are supervised by a Perimeter Institute faculty member with ADDS status. ▪ At least two Committee members that are regular, adjunct, or cross-listed faculty members of the Department of Physics and Astronomy at the University of Waterloo or the Department of Physics at the University of Guelph. ○ The MSc Defence Committee must consist of a minimum of three voting faculty members, including: <ul style="list-style-type: none"> ▪ The supervisor(s). ▪ Two other faculty members, of which one must be a regular faculty member of the Department of Physics and Astronomy at the University of Waterloo. 	<p><u>internship may last for up to two terms (8 months) with approval of the student’s supervisor and Associate Chair, Graduate Studies, provided that the internship does not result in the candidate being enrolled past-program time limits.</u></p> <ul style="list-style-type: none"> ○ <u>Students cannot complete their program with the final term as an internship term.</u> ○ <u>A written report arising out of the internship experience will be required and will be evaluated by the student’s supervisor and another reader designated by the Graduate Officer. This report should be used toward the Master’s thesis. The report should summarize the work experience and linkages to the student’s thesis research, program curriculum, and professional development goals.</u> <ul style="list-style-type: none"> • Master’s Thesis <ul style="list-style-type: none"> ○ Students must complete a thesis based on some original research in quantum information. The subject of research must be approved by the candidate’s supervisor. ○ Acceptance of the thesis requires the approval by an Examining Committee following an oral defence of the thesis. • Other requirements <ul style="list-style-type: none"> ○ Advisory Committee meetings: it is required that the student meet formally with their Advisory Committee within the first six months of registration and subsequently at least once per year. If the student receives more than one unsatisfactory evaluation from an Advisory Committee meeting, they may be required to withdraw from the program. ○ The MSc Advisory Committee must consist of at least three members, including: <ul style="list-style-type: none"> ▪ The student’s supervisor(s); the primary supervisor acts as the Committee Chair. ▪ At least one Committee member that is a regular faculty member of the Department of Physics and Astronomy at the University of Waterloo. Note: This

Current MSc in Physics – Quantum Information Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Quantum Information – Internship Graduate Studies Academic Calendar content:
	<p>requirement does not apply for MSc students who are supervised by a Perimeter Institute faculty member with ADDS status.</p> <ul style="list-style-type: none"> ▪ At least two Committee members that are regular, adjunct, or cross-listed faculty members of the Department of Physics and Astronomy at the University of Waterloo or the Department of Physics at the University of Guelph. ○ The MSc Defence Committee must consist of a minimum of three voting faculty members, including: <ul style="list-style-type: none"> ▪ The supervisor(s). ▪ Two other faculty members, of which one must be a regular faculty member of the Department of Physics and Astronomy at the University of Waterloo.

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

Students currently enrolled in a program with an optional internship milestone will have the option to partake in an internship under the same guidelines as indicated in the Graduate Studies Academic Calendar.

Department/School approval date (mm/dd/yy): 12/13/23

Reviewed by GSPA (for GSPA use only) date (mm/dd/yy): 11/14/23

Faculty approval date (mm/dd/yy): 03/19/2024

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: Science

Program: Master of Science (MSc) in Physics - Nanotechnology

Program contact name(s): Jan Kycia, Associate Chair

Form completed by: Kayla Sutton, Graduate Program Manager

Description of proposed changes:

Note: changes to courses and milestones also require the completion/submission of the [SGRC Graduate Studies Course/Milestone Form](#).

Adding a new transfer entry Internship option to the MSc in Physics - Nanotechnology program, in addition to keeping the regular existing MSc in Physics - Nanotechnology program.

Is this a [major modification](#) to the program? Yes

Rationale for change(s):

Work integrated learning (WIL) options do not currently exist in the Department of Physics and Astronomy graduate programs. In line with the University's strategic plan, we would like to offer an internship option for the MSc in Physics - Nanotechnology program. The Department of Physics and Astronomy has received feedback from current faculty and current graduate students that opportunities for work experiences outside of coursework or traditional thesis-based research is desirable to enrich students' degrees as well as provide them with many transferrable skills and a variety of experiences in preparation to enter the workplace after graduation. The internship will provide students with the opportunity to apply coursework and research experiences to real-world problems and allow collaboration with industry or other partners. The addition of the internship option continues to align with the programs learning outcomes.

Proposed effective date: Term: Fall Year: 2024

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

<https://uwaterloo.ca/graduate-studies-academic-calendar/science/department-physics-and-astronomy>

Current MSc in Physics – Nanotechnology Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Nanotechnology – Internship Graduate Studies Academic Calendar content:
Program information	Program information

Current MSc in Physics – Nanotechnology Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Nanotechnology – Internship Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> • Admit term(s) <ul style="list-style-type: none"> ○ Fall ○ Winter ○ Spring • Delivery mode <ul style="list-style-type: none"> ○ On-campus • Program type <ul style="list-style-type: none"> ○ Collaborative ○ Master's ○ Research • Registration option(s) <ul style="list-style-type: none"> ○ Full-time ○ Part-time • Study option(s) <ul style="list-style-type: none"> ○ Thesis <p>Admission requirements</p> <ul style="list-style-type: none"> • Minimum requirements <ul style="list-style-type: none"> ○ An Honours Bachelor's degree (or equivalent) in Science with at least a 75% standing. • Application materials <ul style="list-style-type: none"> ○ Graduate Record Examination (GRE) Physics subject test scores for all students who have completed their post-secondary education outside of Canada. ○ Supplementary information form ○ Transcript(s) • References <ul style="list-style-type: none"> ○ Number of references: 3 ○ Type of references: 2 of which are normally from academic sources • English language proficiency (ELP) (if applicable) <p>Degree requirements</p> <p>Thesis option:</p> <ul style="list-style-type: none"> • Graduate Academic Integrity Module (Graduate AIM) • Courses <ul style="list-style-type: none"> ○ Students must complete the following 4 one-term courses (0.50 unit weight): <ul style="list-style-type: none"> ▪ NANO 600 Introduction to Nanotechnology ▪ 1 nanotechnology core course ▪ 1 of PHYS 701, PHYS 704 or PHYS 706 	<ul style="list-style-type: none"> • Admit term(s) <ul style="list-style-type: none"> ○ Fall ○ Winter ○ Spring • Delivery mode <ul style="list-style-type: none"> ○ On-campus • Program type <ul style="list-style-type: none"> ○ Collaborative ○ Master's ○ Research • Registration option(s) <ul style="list-style-type: none"> ○ Full-time ○ Part-time • Study option(s) <ul style="list-style-type: none"> ○ Thesis <p>Admission requirements</p> <ul style="list-style-type: none"> • Minimum requirements <ul style="list-style-type: none"> ○ <u>Students in the Master of Science (MSc) in Physics - Nanotechnology program can apply to transfer into the Master of Science (MSc) in Physics – Nanotechnology Internship program option after completing at least one academic term. Admittance will be decided based on the student's progress to date, and is subject to approval by the student's supervisor(s) and the Associate Chair, Graduate Studies in the Department of Physics and Astronomy.</u> <p>Degree requirements</p> <p>Thesis option:</p> <ul style="list-style-type: none"> • Graduate Academic Integrity Module (Graduate AIM) • Courses <ul style="list-style-type: none"> ○ Students must complete the following 4 one-term courses (0.50 unit weight): <ul style="list-style-type: none"> ▪ NANO 600 Introduction to Nanotechnology ▪ 1 nanotechnology core course ▪ 1 of PHYS 701, PHYS 704 or PHYS 706

Current MSc in Physics – Nanotechnology Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Nanotechnology – Internship Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> ○ Students must complete the following 4 one-term courses (0.50 unit weight): <ul style="list-style-type: none"> ▪ NANO 600 Introduction to Nanotechnology ▪ 1 nanotechnology core course ▪ 1 of PHYS 701, PHYS 704 or PHYS 706 ▪ 1 graduate level or 300 or 400 level undergraduate course. Undergraduate courses must be approved by the student’s supervisor, the Associate Chair of Graduate Studies, Department of Physics and Astronomy and the Associate Dean of Science for Graduate Studies prior to enrolment in the course ○ Nanotechnology core courses: <ul style="list-style-type: none"> ▪ NANO 601 Characterization of Nanomaterials ▪ NANO 602 Structure and Spectroscopy of Nanoscale Materials ▪ NANO 603 Nanocomposites ▪ NANO 604 Nanomechanics and Molecular Dynamics Simulations ▪ NANO 605/SYDE 683 Design of MEMS & NEMS ▪ NANO 606/SYDE 682 Advanced MicroElectroMechanical Systems: Physics, Design & Fabrication ○ Core courses are designed to provide the base knowledge and skill set required to prepare students for more specialized courses and to conduct interdisciplinary nanoscale research. ○ Students who have completed their Bachelor of Applied Science (BASc) degree in Nanotechnology Engineering at the University of Waterloo can not take NANO 600. Instead, they can choose any 1 course from the list of nanotechnology core 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 	<ul style="list-style-type: none"> ▪ 1 graduate level or 300 or 400 level undergraduate course. Undergraduate courses must be approved by the student’s supervisor, the Associate Chair of Graduate Studies, Department of Physics and Astronomy and the Associate Dean of Science for Graduate Studies prior to enrolment in the course ○ Nanotechnology core courses: <ul style="list-style-type: none"> ▪ NANO 601 Characterization of Nanomaterials ▪ NANO 602 Structure and Spectroscopy of Nanoscale Materials ▪ NANO 603 Nanocomposites ▪ NANO 604 Nanomechanics and Molecular Dynamics Simulations ▪ NANO 605/SYDE 683 Design of MEMS & NEMS ▪ NANO 606/SYDE 682 Advanced MicroElectroMechanical Systems: Physics, Design & Fabrication ○ Core courses are designed to provide the base knowledge and skill set required to prepare students for more specialized courses and to conduct interdisciplinary nanoscale research. ○ Students who have completed their Bachelor of Applied Science (BASc) degree in Nanotechnology Engineering at the University of Waterloo can not take NANO 600. Instead, they can choose any 1 course from the list of nanotechnology core 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. • <u>Master’s Internship</u> <ul style="list-style-type: none"> ○ <u>A Master’s internship is available for students to collaborate with a partner in industry or elsewhere.</u>

Current MSc in Physics – Nanotechnology Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Nanotechnology – Internship Graduate Studies Academic Calendar content:
<p>be required to withdraw from the program.</p> <ul style="list-style-type: none"> • Nanotechnology Seminar <ul style="list-style-type: none"> ○ This seminar is a forum for student presentation of research results or proposals. Invited speakers from academia and industry will also present results of research from time to time. The range of topics that will be addressed in the seminar crosses all areas of research in the collaborative program. Each student is required to present at least 1 research seminar. To receive credit, students are required to attend at least 8 seminars other than their own before completing their program. ○ The seminar is graded on a Credit/Non-Credit basis. • Master's Thesis <ul style="list-style-type: none"> ○ Students must complete a thesis based on original research. The subject of research must be approved by the candidate's supervisor. ○ Acceptance of the thesis requires the approval by an Examining Committee following an oral defence of the thesis. • Other requirements <ul style="list-style-type: none"> ○ Advisory Committee meetings: it is required that the student meet formally with their Advisory Committee within the first six months of registration and subsequently at least once per year. If the student receives more than one unsatisfactory evaluation from an Advisory Committee meeting, they may be required to withdraw from the program. ○ The MSc Advisory Committee must consist of at least three members, including: <ul style="list-style-type: none"> ▪ The student's supervisor(s); the primary supervisor acts as the Committee Chair. ▪ At least one Committee member that is a regular faculty member of the Department of Physics and Astronomy at the University of Waterloo. Note: This requirement does not apply for MSc students who are 	<ul style="list-style-type: none"> ○ <u>The internship must be complementary to the student's thesis project.</u> ○ <u>Requests to undertake an internship must be approved by the student's supervisor and the Associate Chair, Graduate Studies.</u> ○ <u>It is the student's responsibility to identify potential organizations with which to undertake their internship. Students will prepare an internship proposal, outlining how the work of the organization relates to their thesis and the experience sought through the internship. A letter of support from the organization indicating the role and location of the internship and willingness of the direct supervisor to mentor the intern will be submitted to the Associate Chair, Graduate Studies.</u> ○ <u>The internship milestone requires the successful completion of a one-term (four-month) full-time work experience with a department approved partner. Internships will normally take place in the 3rd, 4th or 5th term of study. The internship may last for up to two terms (8 months) with approval of the student's supervisor and Associate Chair, Graduate Studies, provided that the internship does not result in the candidate being enrolled past-program time limits.</u> ○ <u>Students cannot complete their program with the final term as an internship term.</u> ○ <u>A written report arising out of the internship experience will be required and will be evaluated by the student's supervisor and another reader designated by the Graduate Officer. This report should be used toward the Master's thesis. The report should summarize the work experience and linkages to the student's thesis research, program curriculum, and professional development goals.</u> <ul style="list-style-type: none"> • Nanotechnology Seminar <ul style="list-style-type: none"> ○ This seminar is a forum for student presentation of research results or proposals. Invited speakers from academia and industry will also present results of research from time to time. The range of topics that will be

Current MSc in Physics – Nanotechnology Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Nanotechnology – Internship Graduate Studies Academic Calendar content:
<p>supervised by a Perimeter Institute faculty member with ADDS status.</p> <ul style="list-style-type: none"> ▪ At least two Committee members that are regular, adjunct, or cross-listed faculty members of the Department of Physics and Astronomy at the University of Waterloo or the Department of Physics at the University of Guelph. <ul style="list-style-type: none"> ○ The MSc Defence Committee must consist of a minimum of three voting faculty members, including: <ul style="list-style-type: none"> ▪ The supervisor(s). ▪ Two other faculty members, of which one must be a regular faculty member of the Department of Physics and Astronomy at the University of Waterloo. 	<p>addressed in the seminar crosses all areas of research in the collaborative program. Each student is required to present at least 1 research seminar. To receive credit, students are required to attend at least 8 seminars other than their own before completing their program.</p> <ul style="list-style-type: none"> ○ The seminar is graded on a Credit/Non-Credit basis. <ul style="list-style-type: none"> • Master’s Thesis <ul style="list-style-type: none"> ○ Students must complete a thesis based on original research. The subject of research must be approved by the candidate’s supervisor. ○ Acceptance of the thesis requires the approval by an Examining Committee following an oral defence of the thesis. • Other requirements <ul style="list-style-type: none"> ○ Advisory Committee meetings: it is required that the student meet formally with their Advisory Committee within the first six months of registration and subsequently at least once per year. If the student receives more than one unsatisfactory evaluation from an Advisory Committee meeting, they may be required to withdraw from the program. ○ The MSc Advisory Committee must consist of at least three members, including: <ul style="list-style-type: none"> ▪ The student’s supervisor(s); the primary supervisor acts as the Committee Chair. ▪ At least one Committee member that is a regular faculty member of the Department of Physics and Astronomy at the University of Waterloo. Note: This requirement does not apply for MSc students who are supervised by a Perimeter Institute faculty member with ADDS status. ▪ At least two Committee members that are regular, adjunct, or cross-listed faculty members of the Department of Physics and Astronomy at the University of Waterloo or the

Current MSc in Physics – Nanotechnology Graduate Studies Academic Calendar content:	Proposed MSc in Physics – Nanotechnology – Internship Graduate Studies Academic Calendar content:
	<p>Department of Physics at the University of Guelph.</p> <ul style="list-style-type: none"> ○ The MSc Defence Committee must consist of a minimum of three voting faculty members, including: <ul style="list-style-type: none"> ▪ The supervisor(s). ▪ Two other faculty members, of which one must be a regular faculty member of the Department of Physics and Astronomy at the University of Waterloo.

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

Students currently enrolled in a program with an optional internship milestone will have the option to partake in an internship under the same guidelines as indicated in the Graduate Studies Academic Calendar.

Department/School approval date (mm/dd/yy): 12/13/23

Reviewed by GSPA (for GSPA use only) date (mm/dd/yy): 11/14/23

Faculty approval date (mm/dd/yy): 03/19/2024

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: Science

Effective date: Term: Fall Year: 2024

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*):

Cross-listing BIOL 624 with EARTH 624, updating the Course title, Course description, and Requisites

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

Course subject code: EARTH

Course number: 624

Course ID: 000180

Course title (max. 100 characters including spaces):

Current title: Environmental Biogeochemistry

Revised title: Analytical Biogeosciences

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

Grading basis: Numerical

Course credit weight: 0.50

Course consent required: Not required

Course description:

Current description: The influence of physical, chemical and microbiological processes on groundwater geochemistry are examined. Background concepts in microbial ecology and organic geochemistry are developed and related to subsurface environments. Treatment is given to biodegradation of organic pollutants, microbially-mediated redox reactions and organic-metal interactions. EARTH 439 is strongly recommended.

Revised description: The theory and practical application of microanalytical techniques often used in the biogeosciences will be explored. Particular attention will be given to microscopy, X-ray, and spectroscopy techniques. The use of these techniques in the study of microbe-mineral-fluid interactions, and the impact of these interactions on the broader environment, will be explored. Implementing a multi-analytical approach to investigate topics in the biogeosciences will be practiced through research design.

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

Primary meet type: Lecture

Delivery mode: On-campus

Requisites: EARTH 321

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: BIOL 624 (course revision request to be submitted by the BIOL department).

Sections combined/held with:

Rationale for request:

New faculty member adjusting course to suite the difference in research.

Form completed by: Sue Fisher

Department/School approval date (mm/dd/yy): 01/04/2024

Reviewed by GSPA (for GSPA use only) date (mm/dd/yy): 01/16/24

Faculty approval date (mm/dd/yy): 03/19/2024

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: Science

Effective date: Term: Fall Year: 2024

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*):

Cross-listing BIOL 624 with EARTH 624, updating the Course title, Course description, and Requisites

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

Course subject code: BIOL

Course number: 624

Course ID: 000180

Course title (max. 100 characters including spaces):

Current title: Environmental Biogeochemistry

Revised title: Analytical Biogeosciences

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

Grading basis: Numerical

Course credit weight: 0.50

Course consent required: Not required

Course description:

Current description: The influence of physical, chemical and microbiological processes on groundwater geochemistry are examined. Background concepts in microbial ecology and organic geochemistry are developed and related to subsurface environments. Treatment is given to biodegradation of organic pollutants, microbially-mediated redox reactions and organic-metal interactions. EARTH 439 is strongly recommended.

Revised description: The theory and practical application of microanalytical techniques often used in the biogeosciences will be explored. Particular attention will be given to microscopy, X-ray, and spectroscopy techniques. The use of these techniques in the study of microbe-mineral-fluid interactions, and the impact of these interactions on the broader environment, will be explored. Implementing a multi-analytical approach to investigate topics in the biogeosciences will be practiced through research design.

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

Primary meet type: Lecture

Delivery mode: On-campus

Requisites: EARTH 321

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: EARTH 624 (course revision request to be submitted by the EARTH department).

Sections combined/held with:

Rationale for request:

New faculty member adjusting course to suite the difference in research.

Form completed by: Sue Fisher

Department/School approval date (mm/dd/yy): 01/23/2024

Reviewed by GSPA (for GSPA use only) date (mm/dd/yy): 01/16/24

Faculty approval date (mm/dd/yy): 03/19/2024

Senate Graduate & Research Council (SGRC) approval date (mm/dd/yy):

Research Data Management: An Update and a Conversation

Ian Milligan
Office of Research

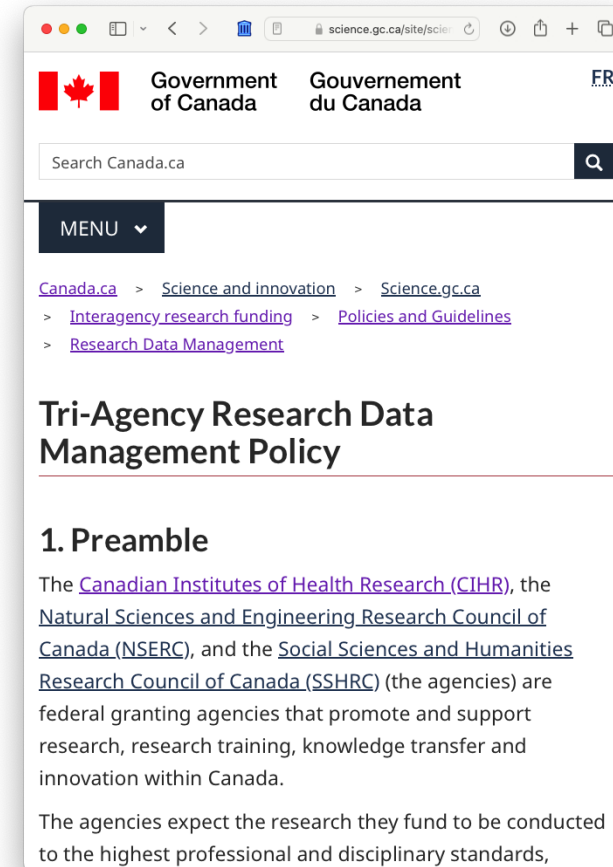
Alison Hitchens
Library

May 2024



The **Tri-Agency Research Data Management Policy**

- The agencies believe that **research data collected through the use of public funds should be responsibly and securely managed and be, where ethical, legal and commercial obligations allow, available for reuse by others.** To this end, the agencies support the FAIR (Findable, Accessible, Interoperable, and Reusable) guiding principles for research data management and stewardship.



The **Tri-Agency Research Data Management Policy**

- **One: Institutional Strategies**

- “Each postsecondary institution and research hospital eligible to administer CIHR, NSERC or SSHRC funds is required to create an institutional RDM strategy and notify the agencies when it has been completed.”

- **Two: Data Management Plans**

- “All grant proposals submitted to the agencies should include methodologies that reflect best practices in RDM. For certain funding opportunities, the agencies will require data management plans (DMPs) to be submitted to the appropriate agency at the time of application, as outlined in the call for proposals; in these cases, the DMPs will be considered in the adjudication process.”

- **Three: Data Deposit**

- “Grant recipients are required to deposit into a digital repository all digital research data, metadata and code that directly support the research conclusions in journal publications and pre-prints that arise from agency-supported research”.

BUT WAIT?

I HAVEN'T DONE A DMP OR DEPOSITED A DATASET?

Did I miss the memo?!

Institutional Strategy

- In February 2023, Waterloo launched our **RDM Institutional Strategy**
- A series of principles
 - Collaboration
 - Respect for Diversity
 - Reciprocity
 - Ease
 - Integrity
 - Commitment
- And a series of objectives, goals, etc.
- SGRC received it, and presumably you all memorized it.



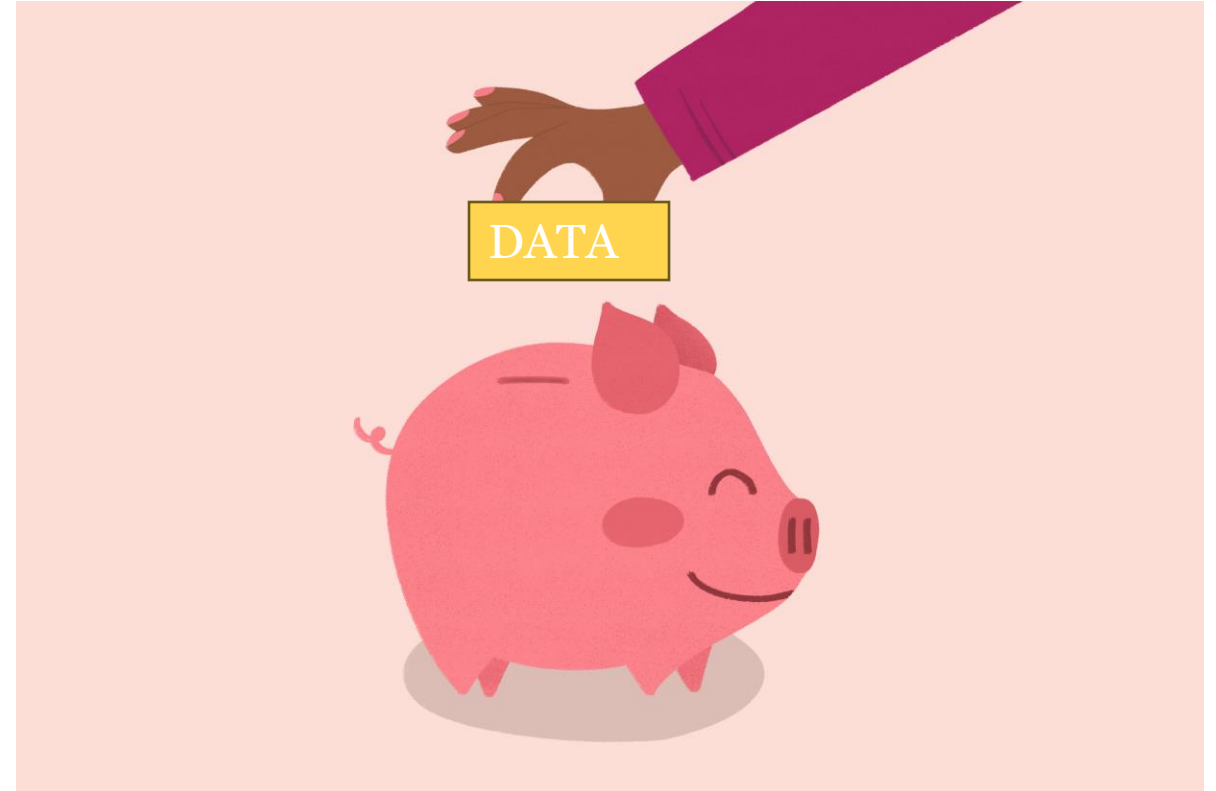
Institutional Strategy



- Our strategic directions
 - Coordinate Services
 - Incentivize
 - Expand Knowledge
 - Promote
 - Invest in Expertise
 - Invest in Technical Infrastructure
- And we have been busy at work with the **implementation working group** and a cross-campus **advisory group**.

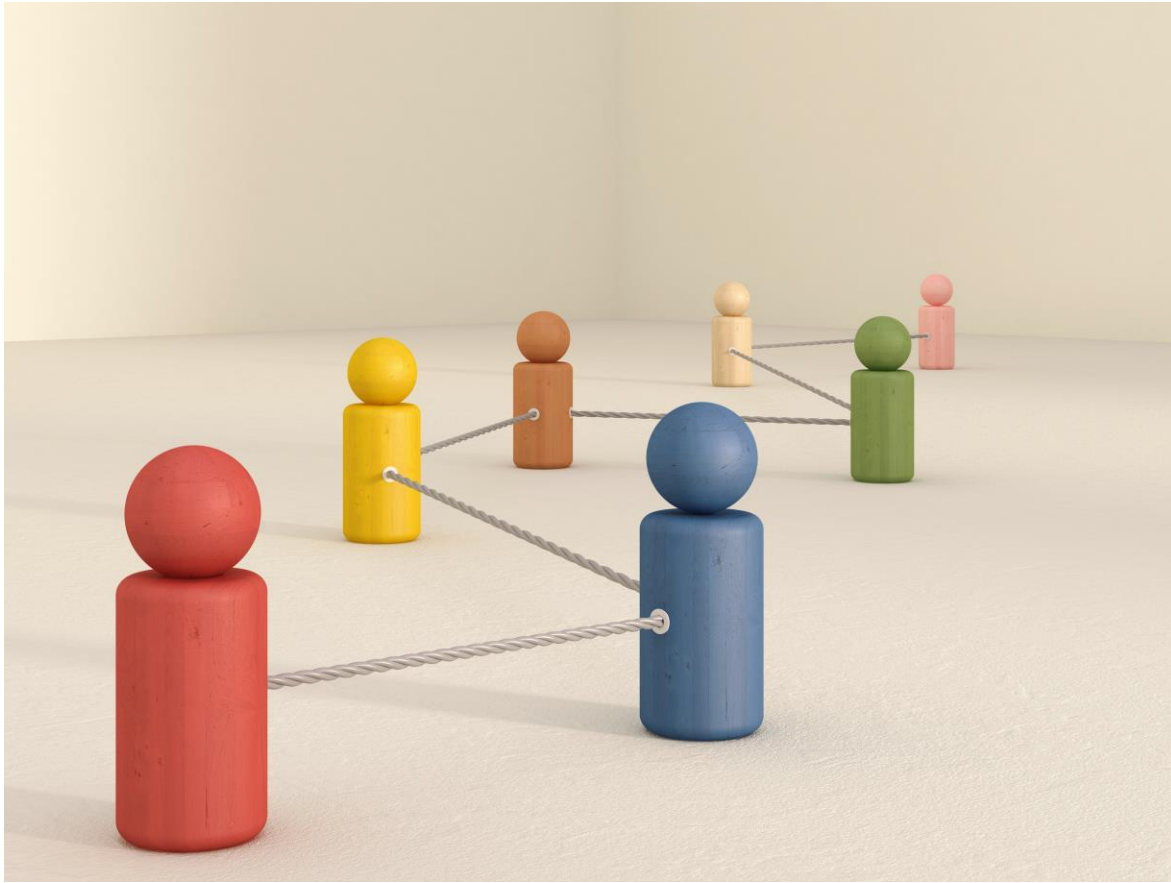
DMP Requirements and Data Deposit

- **Data Deposit:** Still unclear what approach compliance and requirements will take (“After reviewing the institutional strategies and in line with the readiness of the Canadian research community, the agencies will phase in the deposit requirement”).
- **DMPs:**
 - **Several CIHR opportunities:** 8 in the past, and 2 in the future;
 - **NSERC:** Subatomic Physics Discovery Grants - Individual and Project (November 2023)
 - **SSHRC:** Partnership Grants Stage 2 (October 2023)



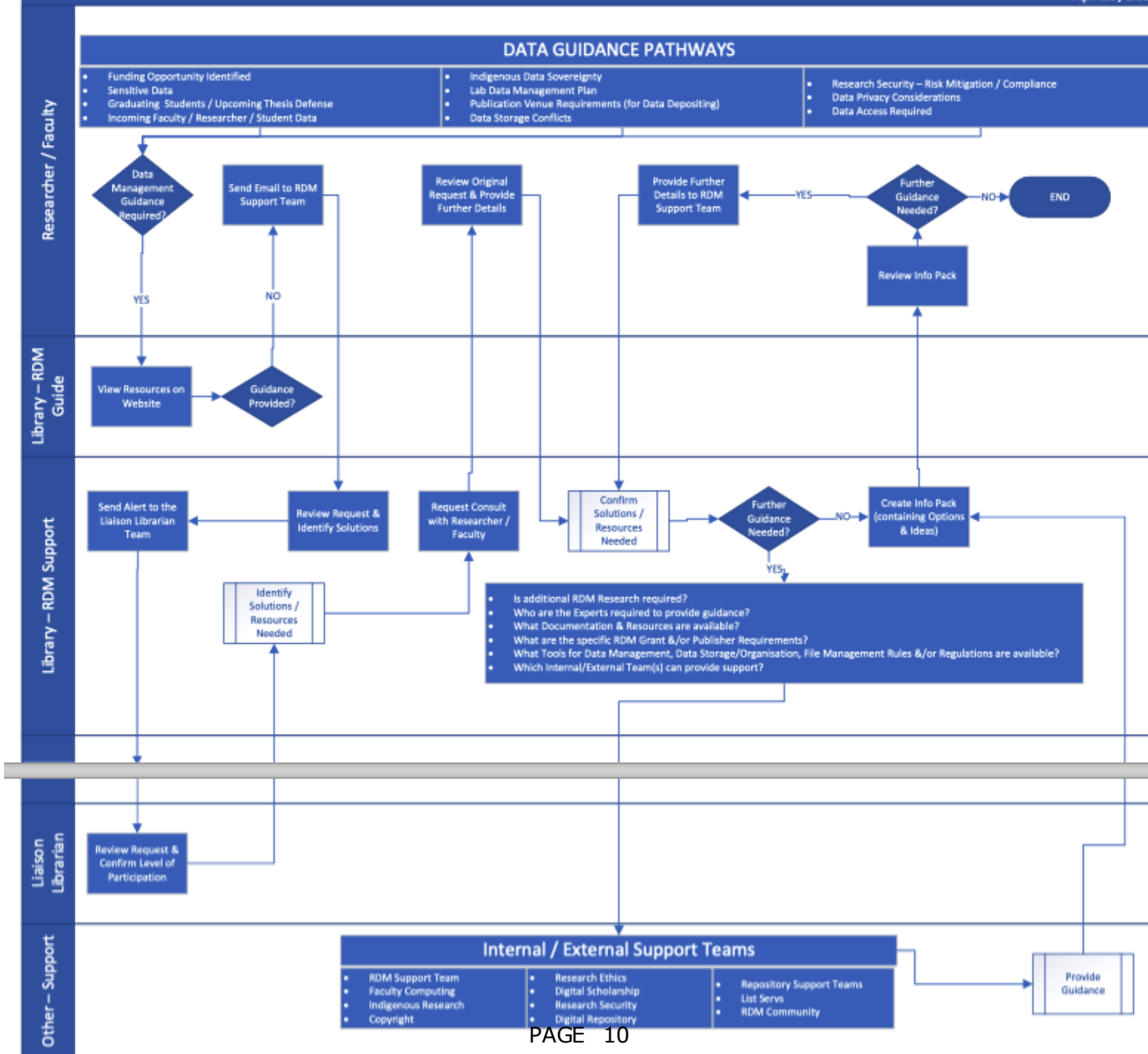
SO WHAT ARE WE DOING ON CAMPUS?

A Federal Model of RDM Service Delivery



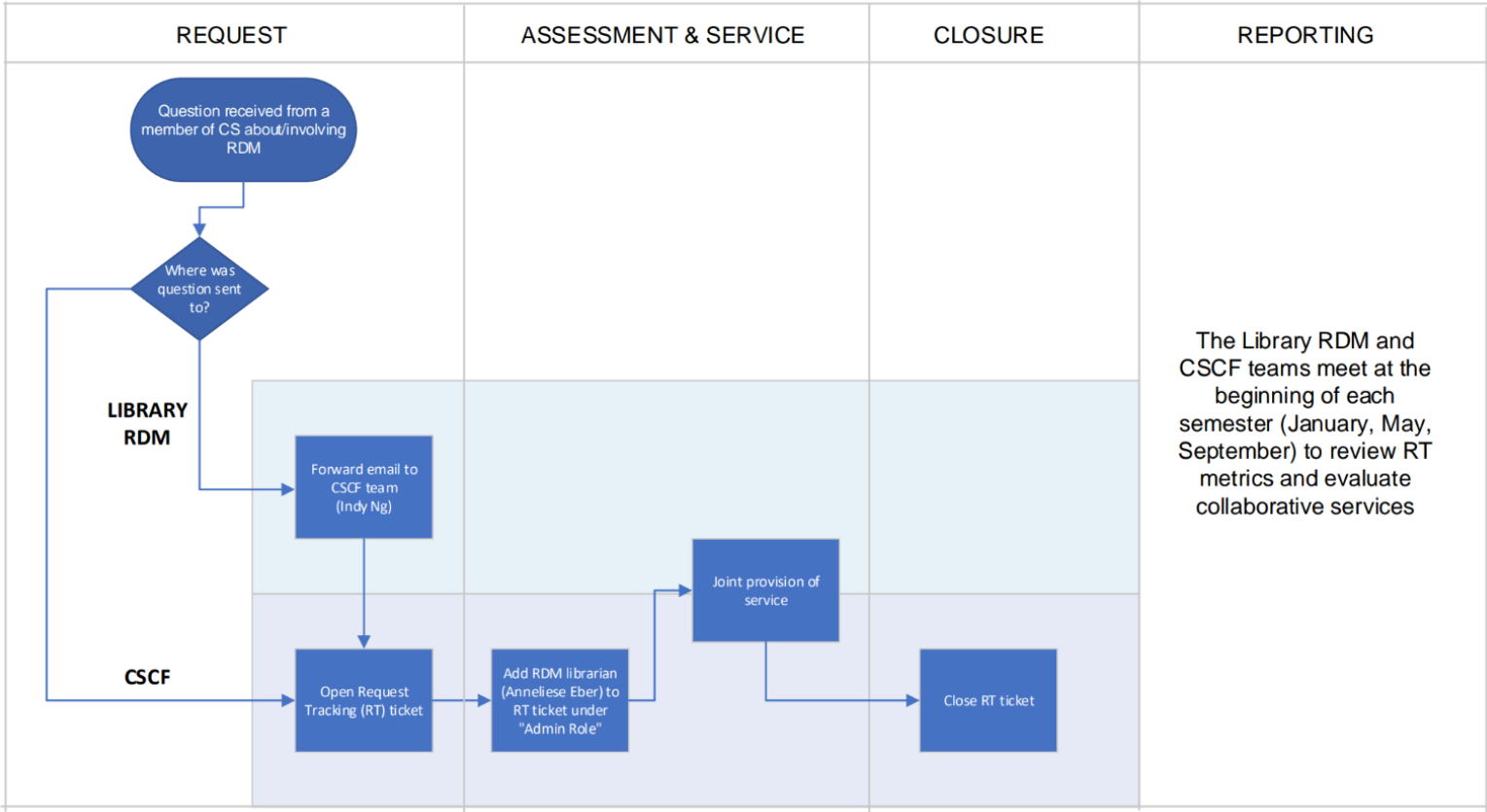
- **There is a base-line level of services that ALL researchers, *irrespective of their Faculty, funding agency, or school/department*, should expect to be able to access.**
 - Sustainable storage
 - Assistance with data management plans (DMPs), metadata, documentation, best practices, etc.
 - Effective referrals to specialized services
- **But there are some services that may be targeted at specialized audience.**
 - Very large datasets
 - High-performance computing and RDM, etc.

Modeling RDM request workflow



Recent collaboration: Library and CSCF RDM requests

RDM and Computer Science Computing Facility (CSCF) Request Workflow



RDM Guide

The screenshot shows a web browser window displaying the 'Research Data Management: Get started' guide on the University of Waterloo's subject guides website. The browser's address bar shows the URL <https://subjectguides.uwaterloo.ca/rdm/getstarted>. The page features the University of Waterloo logo at the top left, followed by a yellow navigation bar with the word 'LIBRARY' in bold. Below this, a breadcrumb trail reads 'Library / Research guides / Research Data Management / Get started'. The main heading is 'Research Data Management: Get started', with a search box to its right. A descriptive paragraph states: 'This guide provides a comprehensive overview of Research Data Management (RDM) best practices, resources, and services available at the University of Waterloo.' Below the text is a horizontal menu with tabs for 'Get started', 'Learn', 'Plan', 'Deposit & Share', and 'Discover'. A large banner image with the text 'RESEARCH DATA MANAGEMENT' and 'LEARNING GUIDE' is positioned below the menu. The page is divided into two columns. The left column has a section titled 'About this guide' with two paragraphs of text. The right column has a section titled 'Research Data Management Librarian Team' with a photograph of three librarians. At the bottom of the page, a white box contains the URL <https://subjectguides.uwaterloo.ca/rdm/getstarted>.

Indigenous Data Sovereignty

- OVPRI's Inclusive Research team developing an Indigenous Data Sovereignty implementation plan, "*Upholding our Commitments to Indigenous Data Sovereignty: Respectful Stewardship of Indigenous Data at the University of Waterloo*"
- Reviewing DMP Assistant tool for opportunities to provide IDS information
- Offered 6 virtual seminars and workshops in 2023 on the First Nations Principles of OCAP® , with more sessions planned in 2024

SO WHY ARE WE HERE TODAY?

Our Big Question

- **How can we build a culture of RDM excellence on campus?**
- Prompts:
 - How can we meet the needs of graduate student training and engagement?
 - What services do we as a university need to offer related to RDM and how do we best communicate about them?
 - How can we meet the unique needs of researchers and communities (e.g., disciplinary differences, Indigenous Data Sovereignty, community-based research etc.)?
- Wrap-up focus: “If we could only do **one thing** to support RDM, what would you suggest?”

UNIVERSITY OF WATERLOO



YOU+WATERLOO

Our greatest impact happens together.



Memo

DATE: May 02, 2024

TO: Tim Weber-Kraljevski, Associate University Secretary, Senate Graduate and Research Council

CC: Mike Grivicic, Associate University Secretary
James W.E. Rush, Vice President Academic and Provost
David Porreca, President, Faculty Association University of Waterloo (FAUW)
Peter Wood, Chair, Lecturer's Committee, FAUW

FROM: Jeff Casello, Associate Vice-President, Graduate Studies and Postdoctoral Affairs
Marianne Simm, Director, Graduate Studies and Postdoctoral Affairs

RE: Graduate Studies Academic Calendar (GSAC) changes

Previously, SGRC had approved text to be included in the Graduate Studies Academic Calendar related to the possible roles and responsibilities of faculty members in supporting graduate student research activities. When the previous text was to be contemplated at Senate, concerns were raised regarding the text and the consultation process that preceded the Senate meeting. Those concerns led to the item being removed from the Senate agenda, pending further discussions.

Subsequently, conversations were had with FAUW leadership, including both the FAUW President and the Chair of FAUW's lecturer committee. As a result of those discussion, we seek approval from SGRC on the revised text that is included below.

To help SGRC in their assessment of this text, we note that the following has changed since the previous version of this calendar entry was considered by SGRC:

1. Editorial changes have been made to replace "Lecturers" with "Teaching Stream faculty" and "Tenure Track" faculty with "Tenure Stream" faculty for consistency with other University guidelines or Policies.
2. Notes have been added to the summary table on Page 11 of this submission in order to:
 - a. Make clear that existing, non-conforming privileges for sole supervision will remain permitted, as appropriate;
 - b. Make explicit that pathways exist for new and existing Teaching Stream Faculty who have an active research program and a familiarity with supervisory best practices to sole-supervise Master's students.
3. The process for Teaching Stream faculty to seek SSPS1 is made explicit.
4. There is an obligation on behalf of the University to provide faculty members whose SSPS has been revoked with guidance on how to rectify gaps in their supervisory practices in order to reacquire SSPS privilege.

5. The roles of Advisory Committees have been updated to include:
 - a. A requirement that they meet and report on a student's progress annually;
 - b. An acknowledgement that these committees can be places where concerns about supervisory performance are identified and communicated to Graduate Officers or Associate Deans.
6. Allows for faculty members who do not hold SSPS2, but are in graduate leadership positions (e.g., as a program director for a course-based master's program) to be part of a Faculty Graduate Studies Committee.

These changes have been vetted by FAUW's Lecturers' Committee on April 23, 2024 and were endorsed unanimously at the Faculty Relations Committee on May 2, 2024.

The graduate studies community wishes to have this text become part of the graduate studies academic calendar (GSAC) for fall, 2024. To make that possible, the final text must be approved not later than the June, 2024 Senate meeting.

Proposed effective date: Term: Fall Year: 2024

Current **Graduate Studies Academic Calendar (GSAC)** page:
<https://uwaterloo.ca/graduate-studies-academic-calendar/general-information-and-regulations>

Approved Doctoral Dissertation Supervisor (ADDS) renamed Sole-supervisory privilege status (SSPS)

The following is a **new stand-alone section to be added to the Graduate Studies Academic Calendar** which will replace program page references to ADDS status, and listing of faculty with ADDS, currently linked to at the end of every PhD program page.

Current content:	Proposed content:
<p>Approved Doctoral Dissertation Supervisors (ADDS)</p> <p>The reputation and quality of an established Faculty depends in large measure on the quality of its PhD programs. In turn, this quality is very sensitive to the qualifications of the individuals to whom the Faculty delegates the responsibility for supervising PhD students. Identification as an Approved Doctoral Dissertation Supervisor (ADDS) is the personal accreditation of an individual faculty member and is based on their activity. The individuals so identified constitute the ADDSs in each Faculty.</p> <p>Other faculty members may co-supervise PhD students along with a faculty member with ADDS status, and may serve on PhD Committees. Information on recent changes in the availability of ADDS can be obtained from the Graduate Officer of the particular department.</p> <p>The Graduate Studies Academic Calendar lists the ADDS status faculty members below. A complete list of all University of Waterloo faculty members appears on the university departmental websites.</p>	<p>Sole-supervisory privilege status (SSPS)</p> <p>The University of Waterloo recognizes the integral roles that supervisors and graduate students play in advancing the research mission of the University. The University also acknowledges its responsibility in ensuring that faculty members who sole-supervise graduate students are well-prepared to be successful in that role.</p> <p>The granting of the privilege to sole-supervise graduate students (SSPS1 or SSPS2) is the accreditation of an individual faculty member and is based on their demonstrated ability to successfully meet the expectations articulated in the guide to graduate research and supervision.</p> <p>Faculty members who hold SSPS1 may sole-supervise Master's students. Faculty members who have SSPS2 may sole-supervise Master's students and PhD students.</p> <p>Normally, SSPS1 is granted to tenure stream faculty members at the time of appointment or subsequently, at the discretion of the Associate Dean Graduate Studies in the faculty member's home Faculty.</p> <p>The ways in which a tenure stream faculty member can achieve SSPS2 for PhD students, can be found in the Organization of Graduate Studies section of the GSPA website.</p>

The following ADDS status content appears on the GSPA site and is **being shared with SGRC for information**, as it relates to the calendar content above: <https://uwaterloo.ca/graduate-studies-postdoctoral-affairs/about/organization-graduate-studies#ADDS>

Web information.

Approved Doctoral Dissertation Supervisor (ADDS)

Preamble

The Approved Doctoral Dissertation Supervisor (ADDS) status is governed by a series of regulations governing how faculty members gain the privilege of sole-supervising PhD students. As such, they are regulations whose authority is vested in the Senate, and any changes to them are to be discussed at Faculty Relations Committee, Graduate Student Relations Committee and the Faculties, and then approved by Senate Graduate and Research Council and by Senate.

Introduction

These regulations set out the qualifications necessary for faculty members to supervise PhD students. Faculty members who demonstrate the qualifications set out in these regulations will receive Approved Doctoral Dissertation Supervisor (ADDS) status, and only they will be:

- permitted to independently supervise PhD students;
- eligible for membership on the Graduate Studies Committee of a Faculty;
- eligible for membership on the University of Waterloo Senate Graduate and Research Council;
- eligible to be Graduate Officers, Faculty Associate Deans, Graduate Studies, or Associate Vice-President, Graduate Studies and Postdoctoral Affairs.
- eligible to chair PhD Examining Committees.

Sole Supervisory Privilege Status (SSPS)

Preamble

The Sole Supervisory Privilege Status (SSPS1 or SSPS2) is a regulation for which authority is vested in the Senate, and any changes to this governance are to be discussed at Faculty Relations Committee, Graduate Student Relations Committee and the Faculties, and then approved by Senate Graduate and Research Council and by Senate.

Introduction

These regulations set out the qualifications necessary for faculty members to sole supervise PhD and Master's students.

Faculty members who demonstrate the qualifications set out in these regulations will receive Sole Supervisory Privilege Status (SSPS1 or SSPS2). A Faculty member who holds SSPS2 status will be:

- permitted to independently supervise PhD students;
- permitted to independently supervise Master's students;
- eligible for membership on the Graduate Studies Committee of a Faculty;
- eligible for membership on the University of Waterloo Senate Graduate and Research Council;
- eligible to be Graduate Officers, Faculty Associate Deans, Graduate Studies, or Associate Vice-President, Graduate Studies and Postdoctoral Affairs.
- eligible to chair PhD Examining Committees.

Normally, a tenure stream faculty member will be granted the privilege to sole supervise

Qualification for ADDS Status

Faculty members who qualify for ADDS status must:

- Be a faculty member at the professorial rank at the University of Waterloo (this includes clinical faculty);
- Normally hold a PhD degree or a terminal degree in their field;
- Demonstrate continuing competence and achievement in research or scholarship appropriate for the discipline;
- Demonstrate appropriate familiarity with University of Waterloo policies and procedures on PhD supervision. This is preferably achieved by the faculty member attending a University-provided workshop or receiving training on supervisory procedures at the Faculty level;
- Demonstrate appropriate supervisory experience: this can be achieved by the faculty member choosing one of the following:
 - Successfully completing a workshop series organized by the office of the Associate Vice-President, Graduate Studies and Postdoctoral Affairs, and facilitated by CTE on graduate supervision, over the course of one year;
 - ~~Successfully supervising to completion at least one Master's thesis;~~
 - Having co-supervised or supervised a PhD thesis to completion (see Guidelines for Best Practice in Co-Supervision).

The above criteria are meant to ensure that faculty members have acquired the appropriate knowledge to facilitate becoming

Master's students, or SSPS1, at the time of the faculty member's appointment . Tenure stream faculty members who do not hold SSPS1 may, at the discretion of the Associate Dean Graduate Studies, sole-supervise Master's students.

Qualification for SSPS2

Faculty members who qualify for SSPS2 must:

1. Be a tenure stream faculty member at the University of Waterloo (this includes clinical faculty);
2. Normally hold a PhD degree or a terminal degree in their field;
3. Demonstrate continuing competence and achievement in research or scholarship appropriate for the discipline;
4. Demonstrate appropriate familiarity with University of Waterloo policies and procedures on graduate student supervision. This is preferably achieved by the faculty member attending a University-provided workshop or receiving training on supervisory procedures at the Faculty level;
5. Demonstrate appropriate supervisory experience: this can be achieved by the faculty member choosing one of the following:
 - a. Successfully completing a workshop series organized by the office of the Associate Vice-President, Graduate Studies and Postdoctoral Affairs, and facilitated by CTE on graduate supervision;
 - b. Having co-supervised or supervised a PhD thesis to completion (see Guidelines for Best Practice in Co-Supervision).

The above criteria are meant to ensure that faculty members have acquired the appropriate knowledge to facilitate

excellent PhD supervisors at Waterloo. For new faculty, ADDS status is to be awarded on potential excellence since building a proven track record of successful graduate supervision requires many years, numerous students and, depending on the discipline, can extend beyond the granting of tenure.

Acquiring ADDS Status

The process of acquiring ADDS status for a faculty member in the tenure-stream at the University of Waterloo is defined as follows:

- Faculty members satisfying all 5 criteria for qualification listed above can request consideration for ADDS status by their Department Chair;
- ~~The Chair must confirm all 5 criteria are met and then pass along the request and any written comments to the Faculty Associate Dean, Graduate Studies for approval;~~
- ~~If the Chair deems that any of the 5 criteria are not met, s/he will provide the faculty member in writing information as to which criteria are not met and guidance as to how to satisfy those criteria in order to become eligible. Faculty members can appeal the Chair's negative decision to the Faculty Associate Dean, Graduate Studies and (in the event of a negative decision from the Faculty Associate Dean) to the Associate Vice-President, Graduate Studies and Postdoctoral Affairs~~
- ~~Individual Faculties may opt to constitute an appropriate advisory committee to the Associate Dean, Graduate Studies to adjudicate ADDS status requests;~~
- ~~After the application is approved by the Faculty Associate Dean, Graduate Studies the recommendation for the granting of ADDS status will be forwarded to the Associate Vice-President, Graduate Studies and Postdoctoral Affairs for approval;~~

satisfactory graduate student supervision at Waterloo.

For new tenure stream faculty, SSPS2 is to be awarded on potential excellence since building a proven track record of successful graduate supervision requires many years, numerous students and, depending on the discipline, can extend beyond the granting of tenure.

Acquiring SSPS2

The process of acquiring SSPS2 for a faculty member in the tenure stream at the University of Waterloo is defined as follows:

- Faculty members satisfying all five criteria for qualification listed above can request consideration for SSPS2 by their Department Chair;
- The Chair will evaluate the candidate's having satisfied all five criteria and, when those criteria are deemed to be met, recommend the approval with any written comments to the Faculty Associate Dean, Graduate Studies;
- The Faculty Associate Dean, or (at the discretion of the Associate Dean) an appropriate advisory committee, will evaluate the candidate's SSPS2 qualifications and, when the qualifications are deemed to be satisfied, will recommend the granting of SSPS2 by the Associate Vice President Graduate Studies and Postdoctoral Affairs;
- The Associate Vice-President, Graduate Studies and Postdoctoral Affairs will vet the request and determine if SSPS2 will be granted; If either the Faculty Associate Dean, Graduate Studies or the Associate Vice-President, Graduate Studies and Postdoctoral Affairs does not approve SSPS2 at the present time, s/he will provide in writing guidance as to what is needed for the faculty member to become eligible. Faculty members can appeal denial of SSPS2 status by the Faculty Associate Dean to the Associate Vice-

- ~~If either the Faculty Associate Dean, Graduate Studies or the Associate Vice-President, Graduate Studies and Postdoctoral Affairs does not approve ADDS status at the present time, s/he will provide in writing guidance as to what is needed for the faculty member to become eligible. Faculty members can appeal denial of ADDS status by the Faculty Associate Dean to the Associate Vice-President, Graduate Studies and Postdoctoral Affairs.~~

Retired Faculty

Those faculty members who are supervising doctoral students when they retire may continue to sole-supervise these students until these students complete their degrees.

Adjunct Faculty and Research Professors

~~Co-supervision with a regular faculty member with ADDS status is normally a requirement for Adjunct Faculty and Research Professors. The Faculty Associate Deans, Graduate Studies, have the authority to waive the co-supervision requirement for a specific student, on the recommendation of the Department/School.~~

Revoking ADDS Status

When circumstances appear to warrant the revocation of ADDS status of a faculty member; the process for doing so is as follows:

- The Chair/Director of the faculty member's unit will recommend revocation of ADDS status to the Faculty Associate Dean, Graduate Studies. Justification for the recommendation should be provided in writing, along with information on efforts that have been made for remediation, and the faculty member in question should be notified in

President, Graduate Studies and Postdoctoral Affairs.

Retired Faculty

Those faculty members who are sole-supervising graduate students when they retire may continue to sole-supervise these students until these students complete their degrees. A retired faculty member may not begin a new sole-supervisory role.

Revoking SSPS

When circumstances appear to warrant the revocation of SSPS1 or SSPS2 of a faculty member, the process for doing so is as follows:

- The Chair/Director of the faculty member's unit will recommend revocation of SSPS (SSPS1, SSPS2 or both) to the Faculty Associate Dean, Graduate Studies. Justification for the recommendation should be provided in writing, along with information on efforts that have been made for remediation, and the faculty member in question should be notified in

<p>advance of the recommendation and the reasons for it;</p> <ul style="list-style-type: none"> • The Faculty Associate Dean, Graduate Studies may reject the recommendation but must provide a written explanation for doing so; • In some cases information may come to the attention of the Faculty Associate Dean, Graduate Studies, suggesting that revocation of ADDS status should be considered. In such circumstances, s/he should approach the Chair/Director to investigate, and if appropriate initiate the process; • If the Faculty Associate Dean, Graduate Studies accepts the Chair/Director's recommendation, the faculty member may appeal the decision to the Associate Vice-President, Graduate Studies and Postdoctoral Affairs, whose decision is final; the Associate Vice-President, Graduate Studies and Postdoctoral Affairs shall provide reasons for his/her decision in writing; • If ADDS status is revoked/ the Faculty Associate Dean, Graduate Studies will notify Graduate Studies and Postdoctoral Affairs to update the University list; • Faculty members whose ADDS status has been revoked have the opportunity to requalify for ADDS status, if they can demonstrate the appropriate competencies required. <p>Other</p> <ul style="list-style-type: none"> • All faculty members of a Faculty Graduate Studies Committee should hold ADDS status. 	<p>advance of the recommendation and the reasons for it;</p> <ul style="list-style-type: none"> • The Faculty Associate Dean, Graduate Studies may reject the recommendation but must provide a written explanation for doing so; • In some cases, information may come (normally from members of a student's advisory committee) to the attention of the Graduate Officer in the student's home program, or the Faculty Associate Dean, Graduate Studies in the student's home Faculty, suggesting that revocation of SSPS should be considered. In such circumstances, they should approach the Chair / Director to investigate, and if appropriate initiate the process; • If the Faculty Associate Dean, Graduate Studies accepts the Chair/Director's recommendation, the faculty member may appeal the decision to the Associate Vice-President, Graduate Studies and Postdoctoral Affairs, whose decision is final; the Associate Vice-President, Graduate Studies and Postdoctoral Affairs shall provide reasons for the decision in writing; • If <u>SSPS2</u> is revoked, the Faculty Associate Dean, Graduate Studies will notify Graduate Studies and Postdoctoral Affairs to update the University list; • <u>A faculty member who has had their SSPS2 revoked shall not be eligible to sole-supervise PhD students;</u> • <u>A faculty member who has had their SSPS1 revoked shall not be eligible to sole supervise Master's students;</u> • Faculty members whose <u>SSPS</u> has been revoked have the opportunity to requalify for SSPS. <u>The necessary steps to have SSPS reinstated, including possible pathways to address the unsatisfactory competencies which led to the revocation, shall be communicated to the faculty member at the time of the revocation.</u>
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<p>(Departments/Schools not offering PhD programs would be exempt.)</p> <ul style="list-style-type: none"> Faculty members from departments that do not have a PhD program may acquire ADDS status and supervise graduate students from other departments within their Faculty where departmental regulations permit. An interim supervisor, who supports a graduate student during a supervisor's absence during a planned (e.g., sabbatical) or unplanned (e.g., medical) leave, is not required to hold ADDS status. 	<p>Other</p> <ul style="list-style-type: none"> All faculty members of a Faculty Graduate Studies Committee should normally hold SSPS2 or serve as a Graduate Program Director. An interim supervisor, who supports a graduate student during a supervisor's absence during a planned (e.g., sabbatical) or unplanned (e.g., medical) leave, is not required to hold <u>SSPS2</u>.
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b) Graduate students' supervisors and committees

This is a new calendar section found under the heading:

Graduate academic roles and program requirements

- Graduate students' supervisors and committees

Graduate students' supervisors and committees

The University of Waterloo strongly encourages regular and productive engagements between graduate students, their supervisors and committees that are purposefully constituted to promote students' attainment of their goals. The University recognizes the value of diverse areas of scholarship and lived experiences of those who support graduate students' research. This section of the calendar defines and provides the regulatory frameworks for graduate student research committees.

The University defines the following roles in support of graduate students:

A Supervisor is the primary point of contact for a graduate student. The supervisor meets or exceeds the expectations articulated in the [roles and responsibilities of supervisors typically a combination of academic, administrative, funding, and personal supports for the graduate student](#).

A Co-supervisor, when appropriate, may share the responsibilities of the Supervisor. Co-supervisory arrangements are desirable when the co-supervisors have complementary knowledge, skills, academic training, professional networks, or other attributes that benefit the student. Co-supervisory relationships may

also provide more timely administrative support for graduate students. No more than two co-supervisors are permitted.

Normally, the supervisor's or one of the co-supervisor's faculty appointment will be in the academic unit administering the student's program.

An Advisory Committee is formed to provide academic, professional and personal support to graduate students and their supervisors. Because of the broad mandate of the Advisory Committee, membership may be purposefully large, including members internal and external to the University with disparate training and experience, provided that a proposed member can contribute meaningfully to the student's academic endeavors.

The advisory committee (as a whole or select members) may also play roles in evaluating a graduate student's academic progress related to their research.

An Examining Committee evaluates a graduate student's performance on major academic milestones which, at the PhD level, may include comprehensive or qualifying exams, research proposals, and thesis defenses.

At the Master's level, an Examining Committee may be constituted, typically to evaluate a student's proposal or thesis.

In many instances, there will be common membership between a student's advisory committee and the student's examining committee, though examining committees are typically composed of those with academic credentials that are equivalent to the student's degree program.

Summary of Supervisory Roles and Advisory Committee Membership [6]

Role	Tenure Stream faculty			Teaching Stream Faculty		External member with adjunct faculty status [4]	Research Professor	Post-doctoral Scholar
	With SSPS2 status	With SSPS1 status	Without SSP status	With SSPS1 status [5]	Without SSP1 status			
PhD sole supervisor	YES	NO	NO	No	NO	NO	NO	NO
PhD co-supervisor	YES	YES [1]	YES [1]	YES [1] [2]	YES [1] [2]	YES [1] [2]	YES [1] [2]	NO
Master's sole supervisor	YES	YES	YES [2]	YES	NO	NO	NO	NO
Master's co-supervisor	YES	YES	YES [2]	YES	YES [3]	YES [3]	YES [3]	YES [3]
PhD and Masters Advisory	YES	YES	YES	YES	YES	YES – adjunct status recommended	YES	YES
<p>[1] with co-supervisor with SSPS2 status [2] with Associate Dean (Graduate Studies) approval [3] with Graduate Officer approval [4] including retired faculty members who maintain adjunct status [5] Teaching Stream faculty who can demonstrate an active research program and knowledge of the university's administrative structures associated with graduate studies, may apply for SSPS1 following the process outlined for Tenure Stream Faculty seeking SSPS2. [6] non-conforming, existing privileges held by faculty members prior to the adoption of these regulations will be retained, as appropriate.</p>								

In unique circumstances, the Associate Dean Graduate Studies in the student's home Faculty may recommend to the Associate Vice President Graduate Studies and Postdoctoral Affairs (AVP-GSPA) a supervisory or advisory relationship that differs from the regulations presented here. The AVP-GSPA shall make the decision to approve or reject the proposed relationship.

The following section provides the regulatory framework for graduate supervision at Waterloo.

PhD Supervisors

In order to sole-supervise PhD students, the proposed supervisor must be a tenure stream member of the University faculty with Sole Supervisory Privilege (SSP2) status.

When a proposed supervisor does not have SSP2 status they may co-supervise with a colleague who satisfies the requirements for sole-supervision.

Similarly, colleagues external to the University of Waterloo who hold adjunct positions at the University may, at the discretion of the Associate Dean Graduate Studies in the student's home Faculty, co-supervise with a colleague who satisfies the requirements for sole-supervision when:

- The adjunct holds a PhD in a related discipline; and
- The adjunct remains active in research.

Research Professors and Teaching Stream faculty are permitted to serve as co-supervisors for PhD students. Postdoctoral scholars may not serve as supervisors or co-supervisors for PhD students.

A faculty member who is sole-supervising PhD students at the time of their retirement may continue to sole-supervise those students to completion. Following their retirement, faculty members may not begin sole-supervising new students.

Masters Supervisors

Any tenure stream faculty member who holds SSPS1 status at the University of Waterloo may sole-supervise research master's students. Faculty members without SSPS1 status may only sole-supervise Research Master's students with approval from the Associate Dean, Graduate Studies, in the student's home Faculty.

Teaching stream Faculty who wish to sole supervise Master's students may seek SSPS1. Teaching Stream Faculty seeking SSPS1 will follow the process outlined for Tenure Stream Faculty pursuing SSPS2. To qualify, Teaching Stream faculty shall demonstrate an active research program and knowledge of the university's administrative structures associated with graduate studies.

Co-supervision by other members of the university community (e.g., postdocs, research associate professors, adjunct faculty) is permitted at the discretion of the Graduate Officer in the student's home unit when:

- the co-supervision adds value to the student's learning outcomes (e.g., research or professional development) and
- for internal members of the university, the role of co-supervisor is permitted by the terms of the proposed co-supervisor's appointment.

Advisory Committee

Purpose and Functions

A student's Advisory Committee acts as a partner with the student and the supervisor(s) in guiding and advising the student on research and assisting supervisor(s) in their monitoring functions. Advisory committee members provide the student with expert guidance or advice in specific areas of the student's research work; for the supervisor(s), advisory committee members provide critical and constructive feedback on the student's research. Procedures for appointing and confirming advisory committees will vary between Faculties.

Collectively, advisory committees are intended to be sources of support to supervisors and students in promoting the resolution of issues and promoting positive academic outcomes. As such, advisory committees can and should play a role in identifying and communicating shortcomings in faculty members' supervisory practices.

Advisory committees (in full or in part) in some Faculties provide regular (at least once per year), formal assessments on students' academic progress, the successful attainment of which is necessary for a student to remain in Good Standing.

Advisory committees are mandatory for PhD students and are recommended for research Master's students.

Membership and Voting

Advisory committees must include the student's supervisor(s) and at least two other full-time faculty members from the University of Waterloo whose complementary fields of expertise will support the planning and execution of the student's research work.

Advisory Committees may include additional members, internal or external to the University, who possess expertise that will add value to the student's research work. Adjunct status is recommended for external members of an advisory committee but is not required.

When an Advisory committee is performing an evaluative role for the student, such as assessing academic progression through committee meetings, additional members (other than the supervisor(s) and two Waterloo faculty members) will normally not be voting members of the committee. Exceptions can be made by the Associate Dean Graduate Studies in the student's home Faculty, on the recommendation of the student and the supervisor(s).

The role(s) of advisory committees should be made clear to both the committee members and the student, including the role in supporting and evaluating academic progression.

The minimum membership of a PhD student's advisory committee shall be the supervisor(s) plus two regular members of the University faculty, at least one of whom will have their primary appointment in the student's home academic program.

The University recommends the formation of the advisory committee as soon as is practical. For PhD students, the committee shall be established not later than the month following the student's successful completion of the Comprehensive or Qualifying exam.

Jurisdiction on Membership

Normally, the composition of a PhD student's advisory committee shall be jointly decided by the student and the supervisor(s) and communicated to the Graduate Officer in the student's home unit.

In some Faculties, membership of the Advisory Committee is at the discretion of the Associate Dean Graduate Studies.

Distinction between Advisory and Examining Committees

The primary role of the advisory committee is to provide support/feedback to the student throughout their research progression.

The primary role of the examining committee is to serve as evaluators of graduate students' research work at defined points coinciding with PhD comprehensive exams, PhD thesis defenses and where appropriate, Master's defenses.

The examining committee evaluates the suitability of the student's research relative to the discipline and the stated degree level expectations of the student's level of study. In many cases, there will be overlap in membership of these committees. However, there may be members of the advisory committee who do not meet the requirements for membership on the examining committee.

A member of a student's advisory committee, who is not part of the examining committee, is not required to be a part of an examination. However, it is recognized that there may be value in the participation of all advisory committee members and thus, members are encouraged, where possible and appropriate, to play an active role in a student's examination (as a non-voting participant). This may include asking questions of the candidate during oral components of a comprehensive exam or a defense.

The membership of Examining Committees for PhD students is defined for [comprehensive exams](#) and for [defenses](#). For Master's programs, see [Master's degree with thesis](#).

Where applicable, the membership of Examining Committees for master's students is specified by the Faculty or the Academic Unit delivering the student's academic program.