

University of Waterloo
SENATE EXECUTIVE COMMITTEE
Notice of Meeting

Date: Monday 4 November 2019

Time: 3:30 p.m.

Place: Needles Hall, Room 3308

AGENDA	Action
1. Minutes of the 7 October 2019 Meeting	Decision
2. December Meeting of Senate	Information
3. Business Arising from the Minutes	
4. Draft 18 November 2019 Senate Agenda	Decision
5. Other Business	

KJJ/ees
28 October 2019

Karen Jack
University Secretary
Secretary to the Committee

University of Waterloo
SENATE EXECUTIVE COMMITTEE
Minutes of the 7 October 2019 Meeting

Present: Michael Beauchemin, Jeff Casello, Shannon Dea, Paul Fieguth, Mark Giesbrecht, Robert Gorbet, Feridun Hamdullahpur (chair), Karen Jack (secretary), Bill Power, James Rush, Richard Staines, Bryan Tolson

Regrets: Kofi Campbell, Naima Samuel, Vivek Unnithan

1. MINUTES OF THE 3 SEPTEMBER 2019 MEETING

Members heard a motion to approve the minutes of the 3 September 2019 meeting. Giesbrecht and Gorbet. Carried unanimously.

2. BUSINESS ARISING FROM THE MINUTES

There was no business arising.

3. AMENDMENTS TO SENATE BYLAW 3

Jack and Beauchemin spoke to the proposed changes, and members heard a motion to forward the amendments to Senate for first reading. Beauchemin and Giesbrecht. Carried unanimously.

4. DRAFT 21 OCTOBER 2019 SENATE AGENDA

The chair and secretary advised members of some changes to the agenda: the “action” for the report from Senate Long Range Planning in the regular agenda will be revised to “Recommendation”; two items will be added to the report from the president re: the recommendation to the Board of the Strategic Plan, and his usual update; two items will be added to the report from the provost re: an update on the student experience review, and a strategic mandate agreement update. Members heard a motion to approve the agenda subject to the changes noted above. Dea and Power.

In discussion: clarification from Casello that the information presented on page 52 re: the handling of final assessment reports and two-year progress reports is not new; a request for and agreement to include Professor Emeritus Phelim Boyle in the recognition and commendation report.

The question was called and the motion carried unanimously.

5. OTHER BUSINESS

There was no other business.

14 October 2019

Karen Jack
University Secretary

University of Waterloo
SENATE
Notice of Meeting

Date: Monday 18 November 2019

Time: 3:30 p.m.

Place: Needles Hall, room 3407

	OPEN SESSION	Action
3:30	<p><u>Consent Agenda</u> Motion: To approve or receive for information by consent items 1-6 below.</p> <ol style="list-style-type: none"> 1. Minutes of the 21 October 2019 Meeting* 2. Reports from Committees and Councils <ol style="list-style-type: none"> a. Graduate & Research Council b. Undergraduate Council 3. Report of the President <ol style="list-style-type: none"> a. Recognition and Commendation 4. Reports from the Faculties 5. Report from the COU Academic Colleague 6. Committee Appointments 	<p>Decision</p> <p>Information Decision/Information</p> <p>Information</p> <p>Information</p> <p>Information</p> <p>Decision</p>
3:35	<p><u>Regular Agenda</u></p> <ol style="list-style-type: none"> 7. Business Arising from the Minutes 	Information
3:40	<ol style="list-style-type: none"> 8. Research Presentation – Charmaine Dean, Vice-President, Research and International 	Information
3:50	<ol style="list-style-type: none"> 9. Reports from Committees and Councils <ol style="list-style-type: none"> a. Executive Committee b. Graduate & Research Council c. Undergraduate Council d. University Committee on Student Appeals 	Second Reading/Decision
4:00		Decision
4:10		Decision
4:20		Information
4:30	<ol style="list-style-type: none"> 10. Report of the President 	Information
4:40	<ol style="list-style-type: none"> 11. Q&A Period with the President 	Information
4:50	<ol style="list-style-type: none"> 12. Report of the Vice-President, Academic & Provost 	Information
5:10	<ol style="list-style-type: none"> 13. Other Business 	
	CONFIDENTIAL SESSION	
5:15	<ol style="list-style-type: none"> 14. Minutes of the 21 October 2019 Meeting* 	Decision
5:20	<ol style="list-style-type: none"> 15. Business Arising from the Minutes 	
5:25	<ol style="list-style-type: none"> 16. Report from Nominating Committee for Honorary Degrees* 	Decision

CONFIDENTIAL SESSION

Action

5:35

17. Decanal Search Committee Updates

Information

5:45

18. Other Business

28 October 2019
KJJ/ees

Karen Jack
University Secretary

*material to be distributed

University of Waterloo
SENATE GRADUATE & RESEARCH COUNCIL
Report to Senate
18 November 2019

Senate Graduate & Research Council met on 7 October 2019 and agreed to forward the following items to Senate for approval or information as part of the consent agenda.

Further details are available at: <https://uwaterloo.ca/secretariat/committees-and-councils/senate-graduate-research-council>

FOR INFORMATION

CURRICULAR SUBMISSIONS

On behalf of Senate, council approved new courses for the Faculty of Environment (planning) and course revisions for the Faculty of Engineering (management sciences; conrad school of business and entrepreneurship).

GRADUATE AWARDS

On behalf of Senate, council approved the Dr. Garry Rempel Memorial Scholarship (trust).

ACADEMIC PROGRAM REVIEW REPORTS

On behalf of Senate, council approved:

- Two-Year Progress Report – School of Environment, Resources & Sustainability (BES, MES, PhD), as presented at Attachment 1
- Final Assessment Report – Quantum Information Collaborative (MAsc, MMath, MSc, PhD), as presented at Attachment 2

/kw Jeff Casello
Associate Vice-President, Graduate Studies and
Postdoctoral Affairs

Charmaine Dean
Vice President, Research & International

Checklist for SUC/SGRC Reviewer Feedback
Quality Assurance Office

Two-Year Progress Report: School of Environment, Resources and Sustainability (BES, MES, PhD)

Name of Reviewer: Jack Rehder

Date: 9/13/2019

Does the Two-Year Progress Report:

- | | | |
|--|--|------------------------------------|
| 1. Clearly describe progress achieved on the various action items in the implementation plan? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2. Explain convincingly any circumstances that would have altered the original implementation plan? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 3. For items that are behind schedule, propose an amended implementation schedule that is reasonable and credible? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |
| 4. Address significant developments or initiatives that have arisen since the program review process, or that were not contemplated by the program review process? | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |

General Comments

Essentially progressing as intended. Provincial government changes resulted in needing to reconsider options for collaboration with other programs. This was well-explained in the report.

Two-Year Progress Report

School of Environment, Resources & Sustainability (BES, MES, PhD)

May 2019

Background

This progress report provides an update on the BES, MES, PhD programs delivered by the School of Environment, Resources and Sustainability (SERS), formerly known as the Department of Environment and Resource Studies (ERS)¹.

The final version of the augmented self-study was submitted to the Associate Vice-President Academic, and Associate Provost, Graduate Studies [now Associate Vice-President, Graduate Studies and Postdoctoral Affairs (AVPGSPA)] in February 2015. The reviewers stated that “SERS’ interdisciplinary and transdisciplinary research on environmental issues is clearly recognized at the national level. Students can have either a Science or Arts focus - thereby diversifying the students in the program. The flexibility of the SERS program is one of its most defining and attractive features. This diversity is positive for the program, moreover, the co-op option, strong faculty, and a unique hands-on program results in high-quality applicants.”

The Final Assessment Report was approved by Senate Undergraduate Council and Senate Graduate and Research Council in September 2016 and was sent to Senate for information in October 2016.

Recommendations

1. A review of the undergraduate program by SERS faculty should be undertaken to identify core courses, as well as identification of courses in areas of specialization to SERS. Advice to students regarding taking courses within these specializations should be discussed.

Response

COMPLETED: This set of actions has been completed as of the date of this report by the Director and Undergraduate Studies Committee, which is comprised of four faculty members, an undergraduate student representative and a staff administrator. All of SERS (all voting faculty members, cross-listed adjuncts who have voting rights, staff

¹ The name change became official January 4, 2016.

members, undergraduate student representatives on the School Council, and graduate student representatives) vetted four iterations of the course review.

During a day-long retreat in April 2016, there was a unanimous vote to adopt course changes, backed with a summary and action plan relevant to the cyclical seven-year review; these documents were provided to the University of Waterloo Quality Assurance team. The only change since then is updating the specializations as courses change across campus and ERS 401 is planning a further course name change effective fall 2019. The course is to be called Translational Ecology, reflecting both the internal mission of SERS and the international attention SERS received for being a leader in this specific area.

Students have been provided with documents and guidance on the courses available in each of the areas of specialization.

2. Propose a name change to School of Environment, Resources and Sustainability (SERS) – as it better reflects the mandate, transdisciplinary approaches, and aspirations of the program. The SERS website should also be updated with advice and options to SERS undergraduate students with possible options of joint degrees, as well as to options of certificates.

Response

COMPLETED: The Board of Governors approved the name change as of November 2015, and the change became official January 4, 2016. The [SERS website](#) was revised by the SERS Director, Associate Directors and three staff members. The Director reallocated staff tasks and time, reducing basic clerical functions in favour of increased media communications via the University of Waterloo web space, Twitter, and Facebook. As of September 2018, these changes were concomitant with an increased number of undergraduate applicants and acceptances (between 95-100 students) in Fall 2017 and again in Fall 2018. There is a small increase in number of international students as well.

3. Establish an informal academic advisors' event in the first-term of the fall that would allow students to ask a variety of questions concerning degree options. Consider inviting your Departmental Student Council to organize such an event.

Response

COMPLETED: This event has been ongoing for nearly 5 years. Dr. Quilley and Dr. Collins served as advisors through July 2018 followed by Dr. Collins and Dr. Murphy.

4. Consider alternative options for mounting field-based courses such as collaboration with other environmental programs.

Response

COMPLETED (IN A MODIFIED FORM): Plans were readied to do this with other universities, the province and other partners, and the package was ready to be submitted to Environment (ENV) Faculty Council in fall 2018. However, the change in provincial government in summer 2018 halted all plans as provincial government partners also are no longer allowed to participate. SERS pivoted further to our other partnerships with non-government organizations (NGOs), the private sector, and Federal agencies. Plans are being made to partner even further with [rare Charitable Research Reserve](#), [Parks Canada](#), and [Walker Aggregates](#) as well as the [Society for Ecological Restoration, Ontario Chapter](#). Engagement with local and provincial First Nations governing bodies and individuals have deepened and the SERS course on First Nations is co-led by a First Nations scholar and leader, [Dan McCarthy](#), who is well respected by First Nations' partners.

Implementation of these plans depends largely on the provincial government. The timeline will be slow-walked and could be anywhere from 12 to 24 months at best.

5. Investigate a number of modes to provide a sense of community among the graduate students, particularly additional student space. Reviewers suggested that SERS strengthen student and faculty engagement and a unit-wide culture by building their own traditions such as weekly seminar series, creating a graduate student society, hosting special events (e.g., Iron Chef Competition at UVic).

Response

IN PROGRESS: SERS increased events that fostered earlier opportunities for networking and community building amongst students (e.g. get-togethers during Orientation week, unit-wide potlucks and meet-and-greets during terms, more alumni visits, more discussions during our monthly ERS Salon). The students have indicated, during standing committee meetings and retreats, that these changes have been positive. The incomplete part is space allocation; however, in September 2018, the Dean announced that SERS will be allocated some space in EV1, floor 2 west. With the addition of research-based clusters and more graduate space - SERS expects that much of the student space issues will be resolved.

6. The faculty should seek additional lab space for equipment and storage needs for the SERS program.

Response

IN PROGRESS: There is still an issue with locked-down dry storage on a permanent basis – though the Dean did free up some space in EV2 for that purpose on a lend-lease basis (which is appreciated). In terms of wet lab space, Dr. Trant’s lab is now online. The recent relocation of the Centre for Teaching Excellence from EV1 to East Campus provided an opportunity to further address ongoing and future space needs. Additional office space in EV1, near the former CTE suite, was provided for SERS personnel.

SERS identified many of the same issues that were highlighted by the external reviewers. In addition to the recommendations above, SERS added the following:

- i. The messaging of SERS needed to be clearer and consistent not only in social media and the web, but it must also permeate recruitment and course content. This has been COMPLETED as of September 2018 (see the various social media feeds and the overhauled website).
- ii. The departure of a key faculty instructor created a gap in some teaching areas around community (city/town/neighbourhood) scale sustainability but is also an opportunity to explore possible alternatives for this position with the Dean such as local governance/community-based sustainability with a focus on teaching experiential education. This is PARTIALLY IN PROGRESS as the Dean is proposing several initiatives that should lead to SERS and ENV (as a whole) being able to fill these gaps and expand into the areas indicated. One recent ENV level hire (Dr. Nugent) is 20% housed in SERS and some of his teaching filled these gaps, hence this is PARTIALLY COMPLETED.
- iii. SERS took on the delivery of ENVS 200 and offered to do the same for ENVS 195 (for which the Dean’s Office hired dedicated ENV level staff). There may be some room to consider how to deliver other ecologically-based courses as a better package, in consultation across the Faculty of Environment and outside ENV. SERS is also a key developer of an online course in Sustainability, open to students outside of ENV. This is IN PROGRESS; the online Sustainability course has SERS participating but it was agreed that ENV would lead on a cross-Faculty mounting of this course. It was agreed ENVS 195 would remain with the Dean’s Office and a new hire at that level means a Continuing Lecturer has filled that role. SERS completed and began delivering (winter 2019) an online introductory course in [Environmental and Sustainability Assessment](#). The packaging of ecologically-based courses has been tightened in SERS and with the hire of Dr. Barbeau as a Continuing Lecturer in SERS, the plans for the cross-ENV and cross-UW packaging is in development (Dr. Barbeau is starting these plans in fall 2019; she has been busy with the online course and redesigning the spring term field courses after UW and ENV ended the lease with the Huntsville facility).

iv. SERS continues to fine tune its social media use, especially when it comes to alumni relations, but also with its current and potential students. With increased competition for students - internal and external - SERS has increased work with the recruitment group on strategies to get more applications to their undergraduate and graduate programs. The fine tuning continues but this has really been COMPLETED (see our social media pages/accounts). There are demographic constraints on recruiting more students into SERS but thanks to the Associate Dean, Undergraduate Studies, SERS has met or exceeded its undergraduate target the last 2 years. The PhD program is robust but demographics and competition with universities that fully fund Master's students is making it difficult to meet the MES/MRP targets. SERS is doing a review of the MES/MRP and plans to submit a bold revamp in winter 2019.

Updated Implementation Plan

	Recommendations	Proposed Actions	Responsibility for Leading and Resourcing (if applicable) the Actions	Timeline for addressing Recommendations
1.	A review of the undergraduate program by SERS faculty should be undertaken to identify core courses, as well as identification of courses in areas of specialization to SERS. Advice to students regarding taking courses within these specializations should be discussed.	COMPLETED though SERS will continue updating information, e.g. SERS is modifying the 'specializations' guide and modifying ERS 401 so the name reflects the ERS mission better (new name is Translational Ecology)	Associate Director - Undergraduate Studies monitors this and leads the Undergraduate Studies Committee for the same purpose.	COMPLETED though SERS will continue updating information, e.g. SERS is modifying the 'specializations' guide and modifying ERS 401 so the name reflects the ERS mission better (new name is Translational Ecology). Timeline: complete, first offering Winter 2020 (S. Murphy)
2.	Proposed name change to School of Environment, Resources and Sustainability better reflects the mandate, transdisciplinary approaches, and aspirations of SERS. The SERS website will be updated with advice and options to SERS undergraduate students with possible options of joint degrees, as well as to options of certificates etc.	COMPLETED. Name change has been School of Environment, Resources and Sustainability (SERS) since 2016, officially. Website was updated. No further actions.	Director and Associate Directors Revised by the three SERS staff members and the SERS Director and Associate Directors.	The Board of Governors approved the name change as of November 2015, and the change became official January 4, 2016. COMPLETED – no further actions. The updated SERS website: https://uwaterloo.ca/environment-resources-and-sustainability/ .
3.	Establish an informal academic advisors' event in the first-term of the fall term that would allow students to ask a variety of questions concerning degree options. This will be organized in conjunction with ERSSA (the School's undergraduate student association)	COMPLETED. SERS Increased allocation of staff (Patti Bester) and professor (Drs. Collins and Quilley) time so that there are more academic advisors for students (especially 1 st year) to answer questions about options and paths.	Directors and Associate Directors SERS Communications team is tasked with developing the information and materials needed for this and related purposes	COMPLETED – no further actions needed other than monitoring and swapping personnel as sabbaticals occur.

		Dr. Murphy replaced Dr. Collins July-December 2018 (Dr. Collins is on sabbatical); Dr. Murphy and Dr. Collins will fill these roles as of January 2019.	Directors and Associate Directors	
4.	<p>Consider alternative options for mounting field-based courses such as collaboration with other environmental programs.</p> <p>There should be more collaboration with other programs outside of the University of Waterloo on experiential learning.</p>	COMPLETED/MODIFIED The provincial government change in summer 2018 halted inter-university plans. SERS expanded this initiative with non-provincial partners.	Director and Associate Directors; Dr. Barbeau helps lead here since she teaches many of the field-based courses in spring term.	COMPLETED/MODIFIED. SERS will keep expanding with non-provincial partners as there always will be ongoing opportunities.
5.	Investigate several modes to provide a sense of community among the graduate students, particularly additional student space.	COMPLETED. The space related office issues were solved, per the Dean. The events to build the traditions per the reviewers were launched in 2017 and have been successful.	Director, Associate Directors, SERS delegate to the Faculty of Environment Space Committee, SERS Communications Team	COMPLETED. No further action planned (other than to continue to schedule events and monitor for any needed changes)
6.	The faculty should seek additional lab space for equipment and storage needs for the SERS program.	Most current needs either COMPLETED or IN PROGRESS to be completed by January 2019; CaRE research group constraints not resolved, storage space still temporary	Director, Associate Directors, and SERS delegate to the Faculty of Environment Space Committee	SERS will continue to engage with ENV Dean for future lab and permanent storage space needs; CaRE lab needs not resolvable at present (current solution is to disperse work and use spaces for CaRE students with

		and future wet lab space likely constrained.		collaborators at – per fall 2018 – 4 other universities or federal labs)
	The unit shall clarify and provide consistent messaging across communications platforms ²	COMPLETED. SERS has clearer and consistent messaging in social media, the web, and recruitment materials and course content	Director and SERS Communications Team	SERS Communications team continues to update as needed but this is COMPLETED
	Increase FTE to compensate for loss of 1 FTE in teaching and research capacity in a specific area (community scale sustainability) ³	Loss of FTE created an opportunity to explore possible alternatives for this position with the Dean such as local governance/community-based sustainability with a focus on teaching experiential education. PARTIALLY COMPLETED/PARTIALLY IN PROGRESS.	Director	COMPLETED in the sense that Dr. Nugent (ENV level hire but 20% anchored in SERS) fills some of these roles and IN PROGRESS in the sense that the Dean’s recent plans and initiatives should complete these ENV wide but focused in part on SERS. The hiring of SERS Continuing Lecturer Dr. Barbeau enhanced the environmental community sustainability courses. The Dean has indicated SERS is in line for a likely FTE hire though the looming budget constrains via the Province cloud the timeline.

The Department Chair/Director, in consultation with the Dean of the Faculty shall be responsible for monitoring the Implementation Plan.

² Note: this item was an added by the program, in addition to the existing external reviewers’ recommendations

³ Note: this item was an added by the program, in addition to the existing external reviewers’ recommendations



Date of next program review: _____ 2021 _____
Date

Signatures of Approval:

Chair/Director

Date

AFIW Administrative Dean/Head (For AFIW programs only) _____ Date

Faculty Dean _____ Date

Note: AFIW programs fall under the Faculty of ARTS; however, the Dean does not have fiscal control nor authority over staffing and administration of the program.

Associate Vice-President, Academic _____ Date
(For undergraduate and augmented programs)

Associate Vice-President, Graduate Studies and Postdoctoral Affairs _____ Date
(For graduate and augmented programs)

Senate Graduate and Research Council
Attachment 2 (Consent)
Checklist for SUC/SGRC Reviewer Feedback
Quality Assurance Office

Final Assessment Report: Quantum Information Collaborative

Name of Reviewer: Daniel Martel

Date: 6/3/2019

Does the Final Assessment Report:

1. Include a credible implementation plan that not only addresses the substantive issues identified from the program review process, but also clearly identifies:
 - The actions that will follow from specific recommendations? **Yes** **No**
 - Those who will be responsible for acting on those recommendations? **Yes** **No**
 - Those who will be responsible for providing resources? **Yes** **No**
 - Priorities for implementation and realistic timelines for initiating and monitoring actions? **Yes** **No**
2. Provide rationales for any recommendations that have not been pursued? **Yes** **No**

General Comments

In terms of the response to comment number four (“4. We have been told that international students would very much appreciate increased help from the university regarding administrative procedures for obtaining visas.”), I thought there could be more done in terms of assisting students with the procedures for obtaining visas. This could be as simple as helping guide students to the proper University wide international student services, or include some information on the IQC graduate studies webpage.

Requested Revisions

Suggestion: While the administrative procedures for obtaining visas is beyond the scope of IQC, the comment from the reviewers can be interpreted as students requesting assistance navigating this process. I recommend that links directing international students to the University’s “International student services” page (<https://uwaterloo.ca/discover-graduate-studies/international-students/international-student-services>) be added somewhere on the IQC graduate studies webpages.

Checklist for SUC/SGRC Reviewer Feedback Quality Assurance Office

Final Assessment Report: Quantum Information Collaborative (MAsc, MMath, MSc, PhD)

Name of Reviewer: Rich Staines

Date: 6/3/2019

Does the Final Assessment Report:

1. Include a credible implementation plan that not only addresses the substantive issues identified from the program review process, but also clearly identifies:
 - The actions that will follow from specific recommendations? Yes No
 - Those who will be responsible for acting on those recommendations? Yes No
 - Those who will be responsible for providing resources? Yes No
 - Priorities for implementation and realistic timelines for initiating and monitoring actions? Yes No
2. Provide rationales for any recommendations that have not been pursued? Yes No

General Comments

This Final Assessment Report identifies the strengths and challenges that were raised in the recent program review. The plans for acting on the recommendations are well-described and currently underway or already completed.

Requested Revisions

None (other than inclusion of the signatures of approval).

Final Assessment Report

Quantum Information Collaborative (MAsc, MMath, MSc, PhD)

April 2019

Summary of the Program Review:

In accordance with the University Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the external evaluation and the internal response and assessments of the Quantum Information Collaborative graduate program (MAsc, MMath, MSc, PhD). The program is delivered by the Departments of Electrical and Computer Engineering, Applied Mathematics, Combinatorics and Optimization, Chemistry, Physics and Astronomy and the David R. Cheriton School of Computer Science. A self-study (Volume I) was submitted to the Associate Vice-President, Graduate Studies and Postdoctoral Affairs on January 20, 2017. The self-study presented the program descriptions and learning outcomes, an analytical assessment of this program, including the data collected from a student survey along with the standard data package prepared by the Office of Institutional Analysis & Planning (IAP). Appended to Volume I were the course outlines for all courses in the program. The CVs for each full-time faculty member in the Department were included in Volume II of the self-study.

Two arm's-length external reviewers were selected from Volume III of the self-study. Dr. Christian Kurtsiefer, Professor of Physics and Quantum Technologies, National University of Singapore, and Dr. Robert Boyd, Professor of Physics, University of Ottawa were ranked and selected by the selected by the Associate Vice-President, Graduate Studies and Postdoctoral Affairs, as well as one internal reviewer (Dr. Larry Swatuk, Associate Professor of Environment, Enterprise and Development).

Reviewers appraised the self-study documentation and conducted a site visit to the University on October 30 and 31, 2017. The visit included interviews with the Vice-President, Academic and Provost; Associate Vice-President, Graduate Studies and Postdoctoral Affairs; Deans of the Faculties of Engineering, Math and Science; Faculty Associate Deans of Graduate Studies; Chairs/Directors of the Departments, Faculty members, staff and meetings with a group of current graduate students. The visit also included a tour of the facilities, including the Quantum-Nano Centre and Research Advancement Centre.

This final assessment report is based on information extracted, in many cases verbatim, from the self-study, the external reviewers' report and the program response.

Program characteristics:

The Quantum Information Collaborative program offers degrees as specializations within the six respective units. The degree conferred is that of the home program and the completion of the collaborative program is indicated by a transcript notation to the degree, and an adjunct qualification to the degree.

Thesis Master's program

The objective of the thesis Master's collaborative program is to provide students with a strong and broad foundation in quantum information science together with knowledge and expertise from their home program discipline. This prepares the students for a range of career opportunities in, for example, research establishments, industry, or government. It also prepares students for further graduate study and research leading towards a PhD. The following Master's degrees are offered:

- Master of Applied Science in Electrical and Computer Engineering (Quantum Information)
- Master of Mathematics in Applied Mathematics (Quantum Information)
- Master of Mathematics in Combinatorics and Optimization (Quantum Information)
- Master of Mathematics in Computer Science (Quantum Information)
- Master of Science in Chemistry (Quantum Information)
- Master of Science in Physics and Astronomy (Quantum Information)

PhD Program

The objective of the PhD collaborative program is to prepare candidates for a career as scholars and researchers with advanced expertise in quantum information science and their home program discipline. Graduates are expected to have acquired autonomy in conducting research, preparing scholarly publications, and communicating their research and its importance and relevance. The program is designed to provide a broad knowledge of quantum information, including theory and implementations, and in their home program discipline, as well as advanced expertise in some aspect of quantum information science, and training in basic research. The following Doctoral degrees are offered:

- Doctor of Philosophy in Electrical and Computer Engineering (Quantum Information)
- Doctor of Philosophy in Applied Mathematics (Quantum Information)
- Doctor of Philosophy in Combinatorics and Optimization (Quantum Information)
- Doctor of Philosophy in Computer Science (Quantum Information)
- Doctor of Philosophy in Chemistry (Quantum Information)
- Doctor of Philosophy in Physics and Astronomy (Quantum Information)

Summary of strengths, challenges and weaknesses based on self-study:

Strengths

- Offerings: QIC is a cutting-edge, interdisciplinary program that includes regular offerings of courses on introductory as well as advanced topics, a weekly colloquium, several weekly informal institute-wide meetings, and an active visitor and conference program;
- Faculty: taught by arguably one of the strongest and most diverse faculty in quantum information;
- Connections: students have the opportunity to interact with a cohort of 100 students, 30 postdoctoral fellows and 15 affiliated faculty members working on a wide variety of theoretical and experimental aspects of quantum information;
- Balance: the graduate program carefully balances the goals of the home academic units with rigorous training in quantum information science and technology.

Challenges

- Faculty recruitment: leading researchers often get competitive offers from several other top universities;
- Faculty retention: many faculty members have resigned from the University of Waterloo to take positions at other prestigious institutions, most often in their country of origin. These include: Technical University of Munich, University of Innsbruck, University of Latvia, etc.
- Gender balance: females are underrepresented in faculty and graduate student numbers;
- Graduate student recruitment: competition between institutions conducting quantum information research is fierce. High-quality domestic students are often attracted to top US schools such as Berkeley, Caltech and MIT, causing a slow decrease in domestic graduate students;
- Curriculum: The diversity of students in the program sometimes makes it difficult to design and deliver courses effectively. The challenge is often in finding the right balance between the needs of students with little background versus the needs of those with adequate training;
- Space: As the IQC has outgrown the Quantum-Nano Building, graduate students are split across campus. This presents a barrier to interaction as well as participation in regular events such as colloquia and seminars. A frequent shuttle between the buildings mitigates this issue.

Summary of key findings from the external reviewers:

The program is in excellent standing. It has a fantastic international reputation: the program is able to attract top talent internationally, and graduates are able to find excellent job opportunities all over the world. It also appears that most graduates seem to have no difficulty

finding attractive opportunities in academia. The program appears to be very well set up and thought out from the beginning.

However, its students come from three faculties and seven academic departments, each with its own set of degree requirements; there were significant complications related to the fact that IQC [Quantum Information] is not itself an academic unit. The only issue that arose in the discussions repeatedly was some concerns about transportation between the two physically separated locations, which seems to be addressable with relatively minor effort. This would encourage better interaction between the two student bodies residing in the two locations, and provide better safety at late hours.

Program response to external reviewer recommendations:

1. We suggest that a review be conducted to determine if better transportation between the campuses can be arranged.

Response

Transportation between RAC and QNC is an ongoing issue that has received considerable attention and will continue to be monitored and considered. Prior to 2016, shuttle hours were limited to business hours, but extended operation hours began in 2016 offering shuttle service until 1am.

As of April 2019, at the urging of IQC faculty, the University has greatly increased the level of service. There is now a night-time safety shuttle, managed by campus police, that services RAC after normal business hours.

2. It might be beneficial for the students at IQC to implement a weekly journal club meeting (if this is not already in place). Such a meeting could encourage more student interactions, but this may increase the total number of seminars and talks offered at the Institute, thereby diluting the importance of each.

Response

There is a weekly journal club, which is mainly focused on experimental research that takes place at RAC on Fridays. An IQC postdoc is currently investigating the possibility of a theory focused reading group that discusses recent <https://arxiv.org/> postings of interest.

3. We have obtained hearsay evidence that there are not enough seminars that are more mathematically focussed. One specific suggestion would be to invite Anne Broadbent or someone working in a similar area to present such a seminar.

Response

There are many mathematically focused seminars given by IQC students, postdocs, faculty, and visitors. For example, the Quantum Innovators in Computer Science and Mathematics Workshop in September 2017 featured 15 talks, each one hour in length, given by early career researchers working on theoretical aspects of quantum information science. Every PhD student enrolled in the QI graduate program, including students working on mathematical aspects of quantum information, is required to present two research-level seminars as part of their studies. The IQC colloquium committee routinely issues invitations to researchers in all areas of quantum information science, including mathematically focused areas. In addition, seminars at Perimeter Institute and in departmental seminar series and colloquia (such as C&O's Tutte Seminar) often feature talks on mathematical aspects of quantum information. It is therefore difficult to take this bit of hearsay evidence as a basis for further action.

4. We have been told that international students would very much appreciate increased help from the university regarding administrative procedures for obtaining visas.

Response

IQC naturally supports both its international student members and the request on their behalf for administrative help from the university concerning visas. As a specific action, IQC will add links to the IQC Graduate Studies webpage that connect students to University resources already supporting international students, e.g., the "International Student Services" page:

<https://uwaterloo.ca/discover-graduate-studies/international-students/international-student-services>

5. We have heard that in some departments TA assignments to graduate students especially for introductory courses require an excessive amount of time; however, in most departments this seemed not to be an issue.

Response

While TA assignments are a departmental responsibility, we feel it is important for our students in different departments to feel like equal citizens. Accordingly, IQC will seek to help graduate students feel that their TA assignments are out of alignment with their peers, by advocating to the departments on their behalf.

6. We heard that, for some departments, it can take substantial time to provide an offer letter to a graduate student after the prospective advisor has accepted the student. Such

a delay can be a problem in a competitive environment where one tries to hire the best students on the market. We recommend looking into this issue, as streamlining this process could provide a competitive advantage to the University of Waterloo.

Response

IQC agrees that graduate student offer letters should be sent to accepted graduate students as soon as possible, and makes every attempt to work with the departments and schools to do this in a timely manner. However, IQC does not handle graduate student admissions. IQC will, however, make sure that no IQC process slows down the generation of offer letters.

7. We were told that restrictions in some departments on the composition of the thesis committee put unnecessary constraints in bringing in members outside the department. In an interdisciplinary operation like IQC this seems to be an inappropriate limitation.

Response

This is a departmental/faculty issue which is difficult for IQC to address directly. However, it is clear that allowing more interdisciplinary committees would be of benefit to the IQC program and students. Where possible, IQC will advocate to the departments and faculties for this.

Implementation Plan:

	Recommendations	Proposed Actions	Responsibility for Leading and Resourcing (if applicable) the Actions	Timeline for addressing Recommendations
1.	Review transportation between RAC and QNC.	After hours shuttle service has already been implemented. Satisfaction will continue to be monitored.	Na Young Kim (IQC faculty member); Kevin Resch (IQC Executive Director)	Completed
2.	Implementation of weekly journal club	No follow up required, there already is a weekly journal club (and the possibility to implement a second).	n/a	n/a
3.	Increase the number of mathematically focused seminars	No follow up required, the number of mathematically focused seminars is deemed ample.	n/a	n/a
4.	Offer help to international students in obtaining visas.	IQC will add links to the IQC Graduate Studies webpage that connect students to University resources already supporting international students, e.g., the " International Student Services " page.	n/a	n/a
5.	Investigate time requirements for introductory course TA assignments	IQC will help graduate students who feel that their TA assignments are excessive.	Chris Wilson (IQC Graduate Director)	Ongoing
6.	Investigate graduate student offer letter timeliness	IQC will assure that no IQC process slows the production of offer letters	Chris Wilson (IQC Graduate Director)	Ongoing

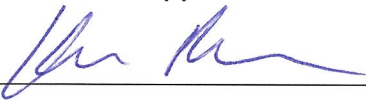
	Recommendations	Proposed Actions	Responsibility for Leading and Resourcing (if applicable) the Actions	Timeline for addressing Recommendations
7.	Investigate thesis committee membership compositions	Where possible, IQC will advocate for more liberal policies on interdisciplinary committees	Chris Wilson (IQC Graduate Director)	Ongoing
8.	Take steps toward achieving gender equity [self-identified need].	Continue to prioritize hiring women faculty members and bringing in female researchers to give colloquia and seminars. Maintain gender balance in the recruiting events Quantum Innovators and USEQIP.	Kevin Resch (IQC Executive Director); IQC Colloquium Committee; IQC Equity and Inclusivity Committee; IQC Conference Committee; QCSYS, USEQIP and Quantum Innovators organizing committees	IQC is actively recruiting female faculty, with promising results. The “Quantum Innovators” workshop held each fall invites top postdocs to IQC for a three day conference. Many of our faculty hires first come to IQC to attend this workshop. Over the last few years, we have actively pursued gender equity goals in inviting and recruiting participants. In 2018, approximately 50% of the participants were female. This has been very effective in recruiting female faculty, with IQC hiring three new female faculty members in the last five years, all of whom participated in Quantum Innovators before applying to IQC.

The Department Chair/Director, in consultation with the Dean of the Faculty shall be responsible for monitoring the Implementation Plan.

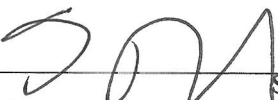



Date of next program review: 2022-2023
Date


Signatures of Approval:


Chair/Director Date


Faculty Dean (Science) 22-7-19
Date


Faculty Dean (Math) 25-7-2019
Date
Stephen M. Watt, Dean
Faculty of Mathematics


Faculty Dean (Engineering) 17 July 2019
Date

Associate Vice President, Academic
(For undergraduate and augmented programs) Date

May 7, 2019

Associate Vice-President, Graduate Studies and Postdoctoral Affairs
(For graduate and augmented programs) Date

University of Waterloo
SENATE UNDERGRADUATE COUNCIL
Report to Senate
18 November 2019

Senate Undergraduate Council met on 8 October 2019 and agreed to forward the following items to Senate. Council recommends that these items be included for information or approval, as noted, in the consent agenda.

Further details are available at: uwaterloo.ca/secretariat/committees-and-councils/senate-undergraduate-council

FOR APPROVAL

ACADEMIC REGULATION CHANGES

**Faculty of Environment
Audit Status**

1. **Motion:** That Senate approve the removal of the following restriction in the audit status regulation, effective 1 September 2020

Background and Rationale:

As Environment increases its online course offerings, this revision will open the possibility for Audit Status for all courses be it on campus or online.

See: Calendar: <http://ugradcalendar.uwaterloo.ca/page/ENV-Courses-Enrolment-and-Grades>

Revised calendar text: strike out = deleted, bold = new entry

Students may request to register for Audit status (AUD) in a course ~~taught on campus~~ if the Faculty administering the course allows Audits. Students interested in an Audit must consult with the course instructor at the beginning of the course to ascertain what conditions are attached to the granting of an AUD. Audits must be approved by the course instructor and the student's academic plan advisor during the two week add period. Failure to satisfy the conditions of an Audit will result in the course receiving a grade of WD (Withdrew).

**Faculty Of Mathematics
BCS and BMath Combinations and Co-op Regulations**

2. **Motion:** That Senate approve the following changes to the plan combination and co-op regulations, effective 1 September 2020

Background and Rationale:

QUEST does not permit students to enroll in both co-op and non-co-op plans at the same time. Any students pursuing a stand-alone Honours co-op plan in the Faculty of Mathematics can only add other co-op Honours plans. Through this discussion, it was noted that students need to complete the co-op requirements of each plan that they are enrolled in. For example, students enrolled in the Math/Teaching plan only require 4 work terms to graduate, but could be pursuing another Honours plan that requires 5 work terms. To graduate with both plans, the student would therefore need to graduate with 5 work terms. Students only completing 4 work terms could still graduate with the Math/Teaching plan, but only if they

chose not to graduate with the second Honours plan. The proposed bolded calendar text is intended to clarify these requirements for students.

Revised calendar text: strike out = deleted, bold = new entry

Bachelor of Computer Science and Bachelor of Mathematics Academic Plan Combinations

Plans will be listed on a student's diploma in the above order.

A BCS or BMath student's plan must include one of the following:

- A stand-alone Math Faculty Honours plan, or
- Two Math Faculty Joint Honours plans, or
- A Joint BCS plan and a non-Math Joint Honours plan (acceptable non-Math Joint Honours plans are listed in the non-Math faculty section of the Calendar)

More plans may be added subject to the other restrictions of this section. The plan listed first on a graduating student's diploma will dictate the student's degree: if the first plan is a BCS plan, then the student will graduate with a BCS. If the first plan is a BMath plan, then the student will graduate with a BMath.

Math Faculty Joint Honours Plans

Joint honours academic plans both offered by the Math Faculty, in conjunction with the common degree requirements in Table I, require a total of 40 courses (20 units): the 10 mathematics courses in the Faculty core (outlined in Table II) plus the joint requirements of the two departments/school for a minimum of 26 mathematics courses, and at least 10 non-math courses (five units). Joint requirements for each department/school can be found in the corresponding department/school description.

Restrictions on Multiple-Plan Combinations

1. A stand-alone BCS plan cannot be combined with any BMath plan (including Joint Honours plans).
2. A stand-alone BMath Joint Honours plan cannot be combined with any non-Math Joint Honours plan.
3. The BMath (Data Science) and BCS (Data Science) plans cannot be combined with any other Faculty of Mathematics Honours or Joint Honours plan.
4. With the exception of Mathematical Finance, which can be combined with another Actuarial Science and/or Pure Mathematics plan, no student may enrol in or graduate from two plans from the same group in the following list:
 - All plans offered by Actuarial Science
 - All plans offered by Applied Mathematics
 - All plans offered by Combinatorics and Optimization (including all Mathematical Optimization plans)
 - All plans offered by Computational Mathematics
 - All plans offered by Computer Science
 - All plans offered by Pure Mathematics
 - All plans offered by Statistics
 - Bachelor of Computer Science and Bachelor of Mathematics Academic Plan Combinations Math Faculty Council to Senate Undergraduate Council- October 2019
 - All Math/Business plans other than Mathematical Economics
5. **A stand-alone BCS Honours co-op plan or BMath Honours co-op plan cannot be combined with any stand-alone non-co-op Honours plan (including Joint Honours plans).**

Co-op Regulations

General Regulations

- Co-operative mathematics students are expected to follow the normal academic/work-term sequence appropriate to their plan from admission through to graduation.
- Students admitted at the 1A level, with the exception of those in the Mathematics/Chartered Professional Accountancy and Bachelor of Business Administration (BBA)/Bachelor of Mathematics (BMath) Double Degree plans, will normally have eight academic terms and six work terms.
- Students may not end their sequence with a work term.
- Students' requests to re-arrange their sequence will normally be approved if all the criteria listed on the Faculty of Mathematics Sequence Change Form are met. Students who alter their sequence without obtaining prior approval may be required to withdraw from the co-op system. It is the student's responsibility to deal with any timetabling difficulties that may arise and to select courses for subsequent terms.

Professional Development (PD) Courses

- As specified in Table I, co-op students are required to complete a minimum of five different Professional Development (PD) courses.
- PD 1 is required in the academic term prior to the first work term and PD 11 is required during the first work term.
- Students in the Bachelor of Mathematics in Computer Science and Bachelor of Computer Science plans must include PD 10, Professional Responsibility in Computing, as one of their PD courses.
- With the exception of PD 1, PD courses are normally taken during co-op work terms.
- Students are required to take a PD course each work term until the requirement is completed.

Work Reports

Co-op students must submit a work report following every work term until they have completed four acceptable work reports. Successful completion of PD 11 meets the requirement for a first work report.

Co-op Standing Rules

Conditions	Co-op Standing
<ul style="list-style-type: none"> • The student is on academic probation after a full-time term for the first time, • Two missing or failed PD courses and one missing or failed work report. 	
No standing above applies, and in the most recent work term, the Employer Evaluation was Excellent or Outstanding.	Excellent co-op standing
No standing above applies.	Good co-op standing

The following table describes the implications of the standings listed above.

Co-op Standing	Implications
Withdraw from co-op	The student must withdraw from co-op, and will be transferred to the most closely matching regular plan for which the student is admissible.
Co-op probation	The student must meet with a co-op advisor to determine conditions necessary to remediate their co-op standing. A student who is on probation in co-op solely because of their academic standing will be placed in Good co-op standing if they return to Good or Excellent academic standing after one full-time academic term without missing or failing any PD courses or work reports. The student's access to

	the co-op employment process will be blocked pending completion of remedial requirements.
Good co-op standing	Eligible to continue in co-op.
Excellent co-op standing	Eligible to continue in co-op.

Courses on a Work Term

- Co-op students on a work term are limited to one course (0.5 unit), unless they have written support from their employer to take two courses (1.0 unit). COOP, PD, and WKRPT courses are not included in these limits.

Transferring into Co-op

- Late transfers to the co-op system are considered once per term. Admission is very competitive and is a function of availability and demonstrated academic performance at the university level.
- Regular students in the Faculty of Mathematics may apply to transfer to the co-op system of study in their 1B term. To be eligible, at the time of admission to co-op, such students must have successfully completed between 4.0 and 6.0 units, including transfer credits.
- Non-co-op students from other faculties at the University of Waterloo may apply to transfer to the co-op system in the Faculty of Mathematics at the end of their 1B term, as part of the internal transfer process.

Non-co-op students external to the University of Waterloo are eligible to apply for co-op in the Faculty of Mathematics only if, at the time of admission, they have successfully completed no more than 3.0 units of math transfer credits and between 4.0 and 6.0 transfer credits overall.

- Applications to transfer to co-op from co-op students external to the University of Waterloo will be considered on a case-by-case basis.

Multiple Co-op Majors

- **Students pursuing more than one stand-alone Honours co-op plan in the Faculty of Mathematics:**
 - **Must meet the co-op requirements associated with each plan.**
 - **Can count completed work terms, PD courses, and work term reports toward each stand-alone Honours co-op plans.**
- **Students cannot graduate with a combination of co-op and non-co-op Honours plans (see Bachelor of Computer Science and Bachelor of Mathematics Academic Plan Combinations)**

FOR INFORMATION

MINOR PLAN & CURRICULAR MODIFICATIONS

Council approved the following on behalf of Senate:

- minor plan changes for the faculties of engineering (life sciences option, physical sciences option nanotechnology engineering, architectural engineering, civil engineering, environmental engineering, geological engineering, electrical and computer engineering, management sciences option and management engineering, biomedical engineering, systems design engineering); environment (environment and business, international development, business option, GEM specializations, diploma in ecological restoration and rehabilitation); mathematics (data science, statistics, computer science); software engineering. The list of courses counting towards the Global Experience Certificate was also updated.

- new courses for the faculties of engineering (nanotechnology, architectural engineering, civil and environmental engineering, geological engineering, environmental engineering, electrical and computer engineering); environment (geography and environmental management, school of planning, school of environment, enterprise and development).
- course changes for the faculties of arts (accounting and financial management); engineering (nanotechnology, civil and environmental engineering, electrical and computer engineering, management sciences, biomedical engineering, systems design engineering); environment (school of environment, resources & sustainability, geography and environmental management, school of environment, enterprise and development, international development, aviation); science (aviation).
- course inactivations for the faculty of engineering (electrical and computer engineering).

/rmw

David DeVidi
Associate Vice-President, Academic

University of Waterloo
SENATE
Report of the President
18 November 2019

FOR INFORMATION

Recognition and Commendation

A Waterloo School of Architecture professor's research has captured a top sustainable design award and will be showcased at Expo 2020 taking place in Dubai next year. **Elizabeth English** was awarded first place in the sustainable products category of the **Architecture MasterPrize Product Design Award** for her Buoyant Foundation Project of which she is the founder and director. Designed for flood-prone areas throughout the world, the retrofitted houses float without damage during flooding while remaining grounded under ordinary conditions. The earth-friendly approach works in synchrony with natural flood cycles, rather than trying to control the forces of nature. The awards recognize exceptional architectural product designers and manufacturers along with those achieving excellence in architectural projects and practice. English has been selected to have her research, entitled *Vulnerable in Vietnam*, featured at Expo 2020 Dubai's Global Best Practice Programme called, "Small Steps, Big Leaps, Solutions for Sustainable Impact." Twenty-five million people are expected to attend Expo 2020, which runs from October 2020 to April 2021.

(adapted from the Faculty of Engineering *News*, 1 October 2019)

From over 5,000 applicants, and among 88 finalists, **Chidi Umenwofor-Nweze** from Iqaluit, Nunavut, was selected as one of the 35 recipients from across Canada to become a **2019 Loran Scholar**, receiving Canada's largest and most comprehensive undergraduate merit-based award. She has chosen to pursue her undergraduate studies at the University of Waterloo this autumn. The Loran Scholars Foundation invests in Canada's greatest resource – our youth. To find these young people, the foundation administers the most thorough scholarship selection process in the country. As such, selection supersedes grades and is based on evidence of integrity, courage, compassion, grit, a high level of personal autonomy, and a dedication to creating positive change. "Being a Loran Scholar means striving to be a leader who improves myself, those around me, and the world through a lifelong cultivation of character and integrity as well as a dedication to selfless service," Chidi says. A McCall MacBain Loran Scholar, Chidi studied at The Mahindra United World College of India in Paud, India, where she was co-captain of her robotics team and assisted in a computer literacy program in a village near her school. She was a chorister and portrayed Alexander Hamilton in a student-led production of "Hamilton." Chidi has undertaken infrastructural projects, such as a bus shelter and pediatric unit, within the Government of Nunavut. On her decision to attend the University of Waterloo out of Loran's 25 partner universities, Chidi credits Waterloo's "holistic and hands-on approach to addressing problems." In pursuit of her Bachelor of Science with a concentration in Systems Design Engineering, she says "I am excited to study in an environment that will not only challenge me academically but challenge me to apply what I learn as an engineer with awareness and compassion towards the social and environmental systems that are affected or manipulated by my actions." Of the 661 past and present Loran Scholars, 39 have attended the University of Waterloo over the past three decades, including Mark Schaan (Loran Scholar '97) who became a Rhodes Scholar.

(adapted from the *Daily Bulletin*, 17 October 2019)

University of Waterloo
REPORT OF THE DEAN OF APPLIED HEALTH SCIENCES TO SENATE
November 18, 2019

FOR INFORMATION

A. APPOINTMENTS

Adjunct Appointment

Graduate Supervision

LIZOTTE, Daniel, Assistant Professor, School of Public Health and Health Systems, October 1, 2019 – September 30, 2021.

SPRING, Andrew, Assistant Professor, School of Public Health and Health Systems, September 1, 2019 – September 30, 2022.

Adjunct Reappointment

Graduate Supervision and Research

BYRNE, Kerry, Assistant Professor, School of Public Health and Health Systems, October 1, 2019 – December 31, 2023.

Research

GRAHAM, Ryan, Associate Professor, Department of Kinesiology, July 1, 2019 – June 30, 2020.

Special Appointments

Undergraduate Instruction

RAMCHANDANI, Rohit, School of Public Health and Health Systems, January 1, 2020 – April 30, 2020.

STEVENSON, Michael, School of Public Health and Health Systems, January 1, 2020 – April 30, 2020.

Graduate Instruction

HYNDMAN, Brian, School of Public Health and Health Systems, November 1, 2019 – February 29, 2020.

Postdoctoral Appointments

NEUBAUER, Noelannah, School of Public Health and Health Systems, Faculty of Applied Health Sciences, September 1, 2019 – May 31, 2020.

NORTHWOOD, Melissa, School of Public Health and Health Systems, September 1, 2019 – August 31, 2021.

PAROKARAN VARGHESE, Jessy, Department of Kinesiology, October 1, 2019 – March 31, 2020 (6-month extension).

Research Associate Reappointment

ROBERTSON, Andrew, Department of Kinesiology, October 1, 2019 – September 30, 2020.

Changes to Visiting Appointment

WANG, Baoheng, Visiting Scholar, Department of Recreation and Leisure Studies, **revised from** April 10, 2019 – April 9, 2020 **to June 20, 2020 – July 31, 2021.**



Lili Liu, Dean
Applied Health Sciences

UNIVERSITY OF WATERLOO
REPORT OF THE DEAN OF THE FACULTY OF ARTS TO SENATE
November 18, 2019

FOR INFORMATION

A. APPOINTMENTS

Adjunct Appointments – Miscellaneous (research, consultations, etc.)

CARRINGTON, Peter, Professor (Professor Emeritus), Department of Sociology and Legal Studies, September 1, 2019 to March 31, 2022.

Adjunct Reappointments – Miscellaneous (research, consultations, etc.)

STENTON, Douglas, Assistant Professor, Department of Anthropology, August 1, 2019 to August 31, 2021.

B. RESIGNATION

SIMPSON, Jennifer, Professor, Department of Communication Arts, effective October 1, 2019.



Sheila Ager
Dean, Faculty of Arts

UNIVERSITY OF WATERLOO
REPORT OF THE DEAN OF ENGINEERING TO SENATE
November 18, 2019

FOR INFORMATION

A. *APPOINTMENTS*

New Definite Term Reappointment-full-time

ANDERSON, William, Associate Professor, Department of Civil and Environmental Engineering, January 1, 2020 – December 31, 2022. PhD in Biology, University of Waterloo, Waterloo, ON, 2004; BA in Microbiology, University of Regina, Regina, Saskatchewan, 1979.

KALIKINKAR, Mandal, Assistant Professor, Department of Electrical and Computer Engineering, September 15, 2019 – February 15, 2020. PhD in Electrical and Computer Engineering, University of Waterloo, Waterloo, ON, 2013; M. Tech in Computer Science, Indian Statistical Institute, India, 2009; MSc in Mathematics, Visva-Bharati University, India, 2007; BSc in Mathematics, University of Burdwan, India, 2005.

Visiting Appointments

ABDULAZEEM, Nourhan, Researcher, Department of Mechanical and Mechatronics Engineering, February 1, 2020 – May 15, 2020.

BELL, Kevan, Researcher, Department of Systems Design Engineering, August 12, 2019 – December 24, 2019.

HAN, Yunshi, Researcher, Department of Mechanical and Mechatronics Engineering, October 3, 2019 – February 14, 2020.

HOPEWELL, Dennis, Scholar, Department of Chemical Engineering, August 1, 2019 – August 31, 2021.

HUI, Chen, Scholar, Department of Systems Design Engineering, October 1, 2019 – September 30, 2020.

KAREEM, Mostafa, Researcher, Department of Mechanical and Mechatronics Engineering, February 1, 2020 – May 15, 2020.

NIE, Qianqian, Scholar, Department of Mechanical and Mechatronics Engineering, November 30, 2019 – November 29, 2020.

RIHAN, Mennatallah, Researcher, Department of Mechanical and Mechatronics Engineering, February 1, 2020 – May 15, 2020.

SALIB, Philopatear, Researcher, Department of Mechanical and Mechatronics Engineering, February 1, 2020 – May 15, 2020.

ZHOU, Jumei, Lecturer, Department of Chemical Engineering, February 15, 2020 – August 14,

2020.

Special Appointments

Undergraduate Instruction

CHRISTIAN, Beverley, Lecturer, Department of Mechanical and Mechatronics Engineering, September 1, 2019 – December 31, 2019.

HOOD, Kevin, Lecturer, Conrad Business Entrepreneurship & Technology Centre, September 1, 2019 – December 31, 2019.

PHILPOT, Simone, Lecturer, Department of Systems Design Engineering, September 1, 2019 – December 31, 2019.

SCHMIDT, Philip, Lecturer, Department of Civil and Environmental Engineering, January 1, 2020 – April 30, 2020.

SMEIJERS, Gatlin, Lecturer, Department of Civil and Environmental Engineering, January 1, 2020 – April 30, 2020.

Special Appointments

Graduation Instruction

CATHCART, Colin, Lecturer, School of Architecture, September 1, 2019 – December 31, 2019.

Special Reappointments

Undergraduate Instruction

TEERTSTRA, Peter, Lecturer, Department of Department of Mechanical and Mechatronics, September 1, 2019 – December 31, 2019.

Adjunct Appointments

Undergraduate Instruction and Other

ROLLINS, Leanne, Lecturer, Department of Electrical and Computer Engineering, September 1, 2019 – December 31, 2019.

Adjunct Appointments

Graduate Supervision and Research

EL-HAG, Ayman, Professor, Department of Electrical and Computer Engineering, December 1, 2019 – June 30, 2023.

EL-HAKIM, Mohab, Assistant Professor, Department of Civil and Environmental Engineering, October 1, 2019 – September 30, 2021.

MORTON, Chris, Assistant Professor, Department of Mechanical and Mechatronics Engineering, May 1, 2019 – April 30, 2022.

HADWIN, Paul, Assistant Professor, Department of Mechanical and Mechatronics Engineering, September 1, 2019 – August 31, 2022.

MOO YOUNG, Murray, Distinguished Professor Emeritus, Department of Chemical Engineering, January 1, 2021 – April 20, 2025.

WEST, Jeffrey, Professor, Department of Civil and Environmental Engineering, October 1, 2019 – September 30, 2021.

Adjunct Reappointments

Research

GUIILD, Paul, Professor, Department of Management Sciences, January 1, 2020 – December 31, 2023.

Adjunct Reappointments

Research and Other

BRISTOW, Michele, Assistant Professor, Department of Systems Design Engineering, September

6, 2019 – September 5, 2022.

Cross Appointments

HO, Emmanuel, Associate Professor, School of Pharmacy to Department of Chemical Engineering, October 1, 2019 – September 31, 2021.

B. ADMINISTRATIVE REAPPOINTMENTS

NASSER, Abukhdeir, Associate Chair Graduate Studies, Department of Chemical Engineering, January 1, 2020 – December 31, 2021.



Pearl Sullivan
Dean, Faculty of Engineering

UNIVERSITY OF WATERLOO
REPORT OF THE DEAN OF THE FACULTY OF ENVIRONMENT TO SENATE
November 18, 2019

FOR INFORMATION

A. APPOINTMENTS

Visiting Appointment

LENGYEL, Zsolt, Visiting Scholar, Interdisciplinary Centre on Climate Change (Faculty of Environment), September 1, 2019 to August 31, 2022

Adjunct Appointments

Graduate Supervision

ASHPOLE, Sara, School of Environment, Resources and Sustainability, October 1, 2019 to December 31, 2022

CRAY, Heather, School of Environment, Resources and Sustainability, October 1, 2019 to September 30, 2022.

JOYNER, Ann, Planner-in-Residence, School of Planning, September 1, 2019 to December 31, 2019.

LEMAY, Matthew, Faculty of Environment, October 1, 2019 to December 31, 2022.

PRICE, Gordon, School of Environment, Resources and Sustainability, October 1, 2019 to September 30, 2022.

Special Appointments

Instruction

JOYNER, Ann, Lecturer, School of Planning, January 1, 2020 to April 30, 2020.

NIXON, Kevin, Lecturer, Department of Knowledge Integration, January 1, 2020 to April 30, 2020.

Cross Appointments

GIBSON, Bob, Professor, School of Environment, Resources and Sustainability to School of Planning, October 1, 2019 to December 31, 2022.

LYNES, Jennifer, Associate Professor, School of Environment, Enterprise and Development to School of Environment, Resources and Sustainability, January 1, 2020 to December 31, 2022.

MCLEVEY, John, Associate Professor, Department of Knowledge Integration to the School of Environment, Resources and Sustainability, October 1, 2019 to December 31, 2022.

SINGH, Simron, Associate Professor, School of Environment, Enterprise and Development to the School of Environment, Resources and Sustainability, October 1, 2019 to December 31, 2022.

WEBER, Olaf, Professor, School of Environment, Enterprise and Development to the School of Environment, Resources and Sustainability, October 1, 2019 to December 31, 2022.

B. ADMINISTRATIVE APPOINTMENTS

SCHWEIZER, Vanessa, Associate Director, Waterloo Institute for Complexity & Innovation, July 1, 2019 to April 30, 2020.

SCHWEIZER, Vanessa, Associate Chair, Undergraduate Studies, Department of Knowledge Integration, January 1, 2020 to June 30, 2020.

C. SABBATICAL LEAVES

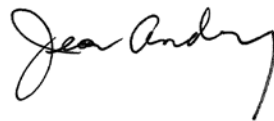
For Approval by the Board of Governors

ROWLANDS, Ian, Professor, School of Environment, Resources and Sustainability, January 1, 2020 to December 31, 2020 at 100% salary.

D. UNPAID LEAVES

HOMER-DIXON, Thomas, Professor, Faculty of Environment, January 1, 2020 to December 31, 2020.

WOLFE, Sarah, Associate Professor, School of Environment, Resources and Sustainability, January 1, 2020 to December 31, 2020.



Jean Andrey
Dean

University of Waterloo
REPORT OF THE DEAN OF MATHEMATICS TO SENATE
November 18, 2019

FOR INFORMATION

A. APPOINTMENTS (for approval by the Board of Governors)

Definite Term - Appointments

SALAHUDDIN, Mohammad Ali, Research Assistant Professor, David R. Cheriton School of Computer Science, October 1, 2019 – September 30, 2020.

Definite Term - Reappointments

BOUDREAU, Christian, Research Associate Professor, Dept. of Statistics & Actuarial Science, September 1, 2019 – August 31, 2024.

Visiting Appointments

GHADIMI, Saeed (Princeton University), Researcher, Dept. of Combinatorics and Optimization, October 3, 2019 – May 31, 2020.

HAMDAQA, Mohammad (Reykjavik University), Assistant Professor, David R. Cheriton School of Computer Science, January 1, 2020 – June 30, 2020.

KARABINA, Koray, Scientist, Dept. of Combinatorics & Optimization, September 1, 2019 – June 30, 2020.

PATHAK, Gautam (Biria Institute of Technology and Science), Scholar, David R. Cheriton School of Computer Science, January 2, 2020 – April 30, 2020.

PENG, Peng (Hunan University), Assistant Professor, David R. Cheriton School of Computer Science, January 1, 2020 – December 31, 2020.

ZHOU, Ping (Beijing Information Science & Technology University), Researcher, Dept. of Statistics and Actuarial Science, February 1, 2020 – January 31, 2021.

Adjunct Appointments

Research

RICHTER, R. Bruce, Professor Emeritus, Dept. of Combinatorics & Optimization, September 1, 2019 – August 31, 2022.

STINSON, Douglas, Professor Emeritus, David R. Cheriton School of Computer Science, September 1, 2019 – June 30, 2025.

Adjunct Reappointments

Instructor

ELGUN, Elcim, Lecturer, Office of the Dean, September 1, 2019 – December 31, 2019.

Research

RADJAVI, Heydar, Professor, Dept. of Pure Mathematics, September 1, 2019 – August 31, 2024.

Cross Appointments

NACKE, Lennart (Associate Professor, Communication Arts), in the David R. Cheriton School of Computer Science, September 1, 2019 – June 30, 2023.

Postdoctoral Fellows appointed as Part-time Lecturers

BIRGHILA, Corina, Dept. of Statistics and Actuarial Science, January 1, 2020 – August 31, 2021.

B. ADMINISTRATIVE APPOINTMENTS

RAGDE, Prabhakar, Director of Undergraduate Studies, David R. Cheriton School of Computer Science, September 1, 2019 – December 31, 2019.

WAN, Justin, Co-Director of Computing and Financial Management, David R. Cheriton School of Computer Science, July 1, 2019 – June 30, 2021.

WAN, Justin, Director of Graduate Studies, David R. Cheriton School of Computer Science, July 1, 2019 – June 30, 2021.

C. SABBATICALS (already approved by the Board of Governors)

EMERSON, Joseph, Associate Professor, Dept. of Applied Mathematics, January 1, 2020 – June 30, 2020, with 85% salary. This is an early sabbatical.

TUNCEL, Levent, Professor, Dept. of Combinatorics & Optimization, March 1, 2020 – August 31, 2020, with 85% salary. This is an early sabbatical.

D. SPECIAL LEAVE

KESHAV, Srinivasan, Professor, David R. Cheriton School of Computer Science, October 1, 2019 – September 30, 2020. This is an unpaid leave.

TAN, Ken Seng, Professor, Dept. of Statistics and Actuarial Science, October 1, 2019 – September 30, 2020. This is an unpaid leave.



Stephen M. Watt
Dean

UNIVERSITY OF WATERLOO
REPORT OF THE DEAN OF SCIENCE TO SENATE
November 18, 2019

For information:

A. APPOINTMENTS

Tenured

YATES, Adam, Associate Professor, Department of Biology, January 1, 2020. [B.Sc. in Environmental Sciences, University of Guelph (2002); M.Sc. in Zoology, University of Western Ontario (2004); Ph.D. in Biology, University of Western Ontario (2009).] Adam's research focuses on the spatial aspects of stream ecology processes in natural and anthropogenic landscapes to address interdisciplinary questions regarding ecological structure and function. His lab uses observational and experimental field studies conducted at ecosystem scales and in controlled mesocosm experiments to provide understand the linkages between landscapes and stream ecosystems. This research program has both discovery and applied aspects.

Probationary Term

SENKO, Crystal, Assistant Professor, Department of Physics and Astronomy, July 1, 2020 to June 30, 2023. [B.S. in Physics, Duke University (2009); Ph.D. in Physics, University of Maryland (2014).]

Adjunct Appointments

Graduate Supervision

AL, Tom, Professor, Department of Earth and Environmental Sciences, September 1, 2019 to August 31, 2022.

KHEYROLLAH POUR, Homa, Assistant Professor, Department of Earth and Environmental Sciences, September 1, 2019 to August 31, 2022.

Undergraduate Instruction

CHARBONNEAU, Claude, Assistant Clinical Professor, School of Pharmacy, September 1, 2019 to December 31, 2020.

Graduate Supervision and Research

PARSONS, Christopher T., Assistant Professor, Department of Earth and Environmental Sciences, September 1, 2019 to August 31, 2022.

Graduate Supervision, Graduate Instruction and Research

WOODS, Jill, Assistant Professor, School of Optometry and Vision Science, October 1, 2019 to September 30, 2022.

Adjunct Reappointments**Graduate Supervision**

BLYTH, Alexander, Associate Professor, Department of Earth and Environmental Sciences, September 1, 2019 to August 31, 2020.

ESMAEILI, Kamran, Associate Professor, Department of Earth and Environmental Sciences, June 1, 2019 to May 31, 2022.

FREY, Steven K., Assistant Professor, Department of Earth and Environmental Sciences, October 1, 2019 to September 30, 2022.

FRIND, Emil, (Distinguished Professor Emeritus), Professor, Department of Earth and Environmental Sciences, September 1, 2019 to August 31, 2022.

LaROWE, Douglas E., Professor, Department of Earth and Environmental Sciences, October 1, 2019 to September 30, 2022.

LEE, Robert G., Professor, Department of Earth and Environmental Sciences, October 1, 2019 to September 30, 2022.

LINNEN, Robert, Professor, Department of Earth and Environmental Sciences, July 1, 2019 to June 30, 2022.

PINTI, Daniele, Professor, Department of Earth and Environmental Sciences, June 1, 2019 to May 31, 2022.

REARDON, Eric J., (Professor Emeritus) Professor, Department of Earth and Environmental Sciences, May 1, 2019 to April 30, 2022.

Graduate Supervision and Research

BOYLE, Latham, Assistant Professor, Department of Physics and Astronomy, September 1, 2019 to August 31, 2024.

VIEIRA, Pedro G.M., Associate Professor, Department of Physics and Astronomy, September 1, 2019 to August 31, 2024.

Graduate Instruction, Graduate Supervision and Research

HARDY, Lucien, Associate Professor, Department of Physics and Astronomy, September 1, 2019 to August 31, 2024.

LANG, Dustin, Associate Professor, Department of Physics and Astronomy, September 1, 2019 to August 31, 2024.

Cross-Appointments

GESHNIZJANI, Ghazal, Research Associate Professor, Department of Applied Mathematics cross-appointed to Department of Physics and Astronomy, October 1, 2019 to August 31, 2022.

SIVOTHTHAMAN, Siva, Professor, Department of Electrical and Computer Engineering cross-appointed to Department of Chemistry, September 1, 2019 to August 31, 2022.

Cross-Reappointments

JONES, Lyndon, Professor, School of Optometry and Vision Science cross-appointed to Department of Chemistry, September 1, 2019 to August 31, 2022.

JOSEPH, Jamie, Associate Professor, School of Pharmacy cross-appointed to Department of Chemistry, September 1, 2019 to August 31, 2022.

Change in Appointment

THOMPSON, Ben, dates for Administrative Appointment as Associate Director, Research, School of Optometry and Vision Science changed. Original dates were October 1, 2018 to September 30, 2022; new dates are October 1, 2018 to December 31, 2019.

Special Reappointments**Undergraduate Instruction**

HEIL, John, Lecturer, Department of Biology, January 1, 2020 to April 30, 2020.

PFISTERER, Steve, Lecturer, Department of Physics and Astronomy, September 1, 2019 to December 31, 2019.

ROSAMOND, Madeline, Lecturer, Department of Earth and Environmental Sciences, September 1, 2019 to December 31, 2019.

Research Associate Reappointed as Part-Time Lecturer

LYNCH, Michael, Lecturer, Department of Biology, January 1, 2020 to April 30, 2020.

B. ADMINISTRATIVE APPOINTMENTS

CHOH, Vivian, Associate Director, Research, School of Optometry and Vision Science, January 1, 2020 to September 30, 2022.

ALREADY APPROVED BY THE BOARD OF GOVERNORS

C. SABBATICAL

GORECKI, Tadeusz, Professor, Department of Chemistry, January 1, 2020 to December 31, 2020, 100% salary arrangements.

REED, Bruce H., Associate Professor, Department of Biology, January 1, 2020 to December 31, 2020. 87.8% salary arrangements.

A handwritten signature in black ink, appearing to read 'R.P. Lemieux', with a long horizontal flourish extending to the right.

R.P. Lemieux
Dean

Report of the Council of Ontario Universities Academic Colleagues Meetings – August and September 2019

Johanna Wandel, COU Academic Colleague

August 20-21, 2019

The August Academic Colleagues meeting included an evening meeting on August 20th, and a full morning of discussion which included an overview of the Council of Ontario Universities (COU) and COU updates on August 21.

Dinner Meeting – Measuring Faculty Performance

The evening meeting was focused on one of the “report only” metrics in Strategic Mandate Agreement 3, Faculty Workload. Robert Luke, vice president, research and innovation, OCAD University presented. Dr. Luke’s presentation was primarily focused on measuring and reporting research output. He provided an overview of what is considered Higher Education Expenditures on Research Development (HERD), Business Expenditures on Research and Development (BERD) and Government Expenditures on Research and Development (GOVERD). Among industrialized nations, Canada ranks highly in both HERD and GOVERD, but is lagging in BERD. Dr. Luke introduced NASA’s Technology Readiness Levels (TRL) scale, which ranges from 1-Basic Principles Observed and Reported to 9-Actual “System Flight” or implementation of research findings. He noted that Canadian university-based research performs superbly in the lower levels of the TRL, but poorly in levels 7-9. He advocated for an increased emphasis on commercialization of research findings.

Dr. Luke’s presentation led to a heated discussion on the suitability of the TRL scale and corresponding emphasis on commercialization for many academic disciplines, particularly in the Arts and Humanities.

COU Overview

Julia Colyar explained the role, purpose and structure of COU and the Terms of Reference for Academic Colleagues for the benefit of new COU members. COU Academic Colleagues serve three-year terms, so the first meeting of any academic year typically includes one third new colleagues.

Updated on Strategic Mandate Agreement 3

Mike Snowdon, COU senior policy analyst, presented an overview of the SMA3 framework. His presentation focused on the key elements of SMA3 (i.e., increasing the proportion of operating funding that is tied to performance from 25% in 2020-21 to 60% in 2024-25), the metrics themselves and how they might be measured and weighted, and consequences of failing to achieve target metrics.

COU Updates

Lisa Krawiec, COU senior policy analyst, summarized current Ontario government policy with respect to Ontario Universities’ labour relations, particularly with respect to compensation on Ontario’s public Service (Bill 124). Julia Colyar, director, COU Policy and Sector Collaboration, summarized recent changes at MTCU. Updates are summarized in Appendix 1.

September 25, 2019

This one-day meeting session included both a regular academic colleagues meeting and, in the afternoon, a full COU meeting of the academic colleagues and executive heads.

Thought Leadership Priorities

The morning sessions focused on COU “thought leadership” on the role COU and universities in general can and should play in public space, including a more pro-active approach to policy, public relations and advocacy. Academic colleagues came prepared to discuss their individual institutions’ priorities as expressed in their strategic plans, though the University of Waterloo’s plan was not specifically discussed given that the existing plan is about to expire and the new plan was not yet approved by Senate. Nevertheless, common priorities in Ontario universities’ strategic plans included environmental sustainability, indigenization, diversity, internationalization, lifelong learning and research excellence. Colleagues noted that universities are well-positioned to address societal needs, but the public perception of the academy does not necessarily match this.

The COU updates in the September meeting focused on the COU Affiliate Review and Strategic Mandate Agreement 3. COU Affiliates are organized groups of university professionals (e.g., the Ontario Universities Registrars Association; Ontario Council of Academic Vice Presidents). A written summary of both updates was provided by COU on October 23:

COU Affiliate Review

Preliminary findings from the Affiliate Review indicate:

- Members across all affiliates appreciate the value of communities of practice at COU. These allow individuals with similar job responsibilities to exchange ideas and share best practices.
- There was consensus across respondents about the need for Executive Heads to set priorities to guide the work of COU affiliates. The need for better communication across affiliates was also emphasized.
- The sector needs to find capacity to be more proactive, rather than reactive, in policy development. It should maintain a rapid response process to respond to changes in policy.
- COU members have difficulty setting collective priorities. This is partly due to differences in size, program mix, region, and communities served.

Update on Strategic Mandate Agreement 3 (SMA3)

The ministry has now laid out its engagement process going forward:

- October – early December: first bilateral discussions
- December 17, 2019 – institutional draft submission
- January 27 – February 7, 2020: second bilateral discussion
- February 18, 2020: final draft submission
- March 30, 2020: finalized document

Current sector priorities are: (1) the faculty workload reporting metric, (2) the skills and competencies metric, and (3) the innovation metric.

On September 30th, the sector submitted a document to MTCU recommending that the faculty workload reporting metric only include teaching activity of full-time faculty members, that data be aggregated at the institution level, and that the metric be reported on institutional websites to allow for institution-specific narrative and context.

COU Council Meeting

The COU Council agenda was devoted to thought leadership priorities. The Academic Colleagues led a discussion focused on how we see not only the role of the university in Ontario society, but how this could be communicated. We focused on two examples that illustrate the importance of multi- and interdisciplinary approaches to address pressing societal needs (health care and climate change) to illustrate the expertise we as a sector have, and the need for closer connections to wider society to have a more significant impact.

Appendix 1: Summary of Provincial Government Labour Relations and Ministry of Training, Colleges and Universities (MTCU) updates from the August 2019 meeting. Notes are courtesy of COU.

Labour relations updates

- Schedule 38 of the Budget Bill, which received Royal Assent on May 29, adds a new section to the MTCU Act to allow the Minister “to make regulations governing the reduction, limitation and alteration of compensation due to certain individuals”.

The intent is to allow government to address employees who are simultaneously drawing full-time salary and pension payments, commonly referred as double dipping. Note that there does not appear to be a large number of employees doing this in the sector. The government has not yet made changes based on this regulation.

Implementation of regulation to prohibit the collection of a full-time salary and pension poses some risks for the sector: breach of collective agreements, legal and Charter challenges, union grievances, increased risks of labour disruption, human rights and equity issues, and brain drain of top talent to other jurisdictions.

- On June 5, Minister Bethlenfalvy introduced Bill 124, an Act to implement moderation measures in respect of compensation in Ontario’s public service. The Act proposes to cap wage increases in Ontario’s civil service and the Broader Public Sector (BPS), including colleges, universities and hospitals. The compensation cap is an average of one per cent for all employees under the collective agreement (and each position or class of position) for each 12-month period. As an exception, an employee’s salary may increase according to the terms of the collective agreement for recognition of the employees’ length of time in employment, performance assessment, and/or successful completion of a program or course of professional technical education.

If passed, the provisions would apply for a period of three years upon the expiry of existing collective agreements. Any collective agreement concluded after June 5 is expected to be consistent with Bill 124. If not, and the legislation passes, it is the Minister’s prerogative to force the parties to go back to the table and negotiate. The government has posted a [technical briefing](#) with additional details.

Bill 124 does not apply to executives covered under the Broader Public Executive Compensation Act, 124, who are under the legislative wage freeze.

- Last summer the government issued a new Compensation Framework Regulation that extended a freeze on compensation for executives of most employers within the BPS, including universities. The government is now proposing amendments to the *Broader Public Sector Executive Compensation Act, 2014 (BPSECA)* that will introduce the concept of pay-for-performance frameworks for executive pay increases, ending automatic adjustments. The amendments allow the government to determine applicable performance metrics and the number of executives to whom an employer may give an increase in salary or pay-for-performance. The government will consult with employers in the BPS to set sector-specific priorities; these consultations are ongoing so a framework for universities has not yet been finalized.

Other updates

- MTCU has asked HEQCO to prepare a consultation report regarding Ontario's digital strategy. HEQCO has met with agencies in Ontario (eCampus Ontario, Contact North, OntarioLearn), and with universities. COU does not have a clear sense of where HEQCO is going.
- MTCU engaged in a consultation to streamline MTCU's program funding approval process. This is a different process than the comprehensive quality assurance process universities complete. MTCU's funding approval process is time consuming and duplicates much of the work already completed as part of the quality assurance review, so COU is hopeful that this consultation will result in some changes to the process.
- MTCU has started a review of the collaborative (university-college) delivery of nursing education. This delivery model is generally considered good for students, and both colleges and universities have invested heavily in these programs. A few colleges would like to deliver stand-alone nursing degrees. In the past—this is the third review in about ten years—the government has decided to retain the current model. COU participated in the consultation meetings and developed a written submission.
- MTCU has struck an Expert Panel on Intellectual Property with the task of delivering an action plan for a provincial intellectual property framework and maximizing commercialization opportunities specifically related to the postsecondary sector. In preparation for an announcement from MTCU, COU has convened an IP Working Group with the mandate to develop a sector IP advocacy strategy.

University of Waterloo
SENATE
18 November 2019

FOR APPROVAL

Committee and Appointments

Motion: To approve the following appointments:

- **Distinguished Teacher Awards Committee:** Firas Mansour (physics and astronomy) as faculty representative, term ending 31 December 2021; Wei-Chau Xie (civil and environmental engineering) as faculty representative, term ending 31 December 2021.

University of Waterloo
SENATE EXECUTIVE COMMITTEE
REPORT TO SENATE
18 November 2019

Changes are proposed to Senate Bylaw 3 to coordinate the bylaw with the Waterloo Undergraduate Student Association's Elections and Referenda Procedure. Undergraduate student candidates in Senate elections are now required to follow WUSA campaign spending limits as stipulated in the Elections and Referenda Procedure.

In addition, "Federation of Students" has been updated to "Waterloo Undergraduate Student Association."

Thus, it is proposed that Senate Bylaw 3 be revised as provided below. In accordance with Senate Bylaw 1, section 14.01*, the bylaw changes were submitted to Senate for first reading at the 21 October 2019 meeting.

FOR APPROVAL

Motion: That Senate approve the proposed bylaw changes at second reading at its 18 November 2019 meeting.

**The passage of a new bylaw or amendment(s) to an existing bylaw is accomplished in two readings by Senate. At the first reading, such discussion as is deemed appropriate by Senate shall take place. At the second reading, further discussion may take place and the vote on the document shall be taken. The two readings shall take place at different, but not necessarily consecutive, meetings of Senate.*

Feridun Hamdullahpur
President

Senate Bylaw 3

A bylaw relating to the selection of members of Senate of the University of Waterloo.

BE IT ENACTED as a bylaw of the University of Waterloo, as follows:

1. Chief Returning Officer

1.01	<p>The university secretary or designate shall act as chief returning officer for the purpose of conducting the election of members of Senate. As chief returning officer, the university secretary or designate has overall responsibility for the general conduct of such elections and by-elections, which shall be by secret ballot. Without restricting the generality of the foregoing, the chief returning officer shall:</p> <p>Establish the timing of Senate elections and by-elections, subject to the provisions described in sections 2.01 and 2.03 below.</p> <p>Call for nominations and when doing so inform the university community of the names of those members of Senate whose terms of office expire on 30 April of that year and whether such members are eligible for a further term of service.</p> <p>Verify the eligibility of nominees and nominators.</p> <p>For undergraduate student elections, provide nomination information to the Federation of Students<u>Waterloo Undergraduate Student Association</u> Election Committee.</p> <p>Distribute ballots and balloting information to eligible voters, allowing at least one week for the polling period.</p> <p>Announce the results to the university community, and resolve ties, as necessary.</p>
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2. Elections

2.01	<p>Elections</p> <p>The election of faculty and student members to Senate shall be completed by the regular March meeting of Senate each year. Undergraduate student elections shall be held in conjunction with the annual elections conducted by the Federation of Students<u>Waterloo Undergraduate Student Association</u> in February. Faculty and graduate student elections are conducted by the Secretariat.</p> <p>The nomination period for faculty constituencies and graduate students is at least twenty-one (21) days. For undergraduate student constituencies, the nomination period is determined in consultation with the Federation of Students<u>Waterloo Undergraduate Student Association</u>. The chief returning officer shall call for nominations from those faculty and student constituencies that have members whose terms are expiring by placing a suitable notice in such places and ways as may be designated from time to time by Senate, with copies to the appropriate faculties and constituency presidents. Nomination forms shall be made available by the Secretariat. Nominations shall be submitted in writing to the chief returning officer. Each nomination shall be signed by the required number of members of the constituency from which the member is to be elected and shall include a signed statement from the nominee agreeing to serve if elected. For faculty and graduate students, the required number of members is five; for undergraduate students elected from a single faculty, the required number is twenty-five; for undergraduate students elected at large, the required number is one hundred.</p>
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	<p>Undergraduate student nominees, or their representatives, shall attend an all candidates' mandatory meeting held by the Federation of Students <u>Waterloo Undergraduate Student Association</u>. The chief returning officer, or designate, shall also be present.</p> <p>For faculty and graduate student elections, the chief returning officer shall publish the candidates' statements in such places and ways as may be designated from time to time by Senate.</p>
2.02	<p>Campaigning/Voter Eligibility</p> <p>Public campaigning shall not take place before the close of nominations. For faculty and graduate student elections, nominees are to provide a brief statement (100 words maximum) to appear with the ballot.</p> <p>The Federation of Students <u>Waterloo Undergraduate Student Association</u> election rules <u>as described in the Association's Elections and Referenda Procedure</u> regulating campaigning for undergraduate student elections, except for including spending limits, shall be followed. The Federation of Students <u>Waterloo Undergraduate Student Association</u> Election Committee decisions may be appealed to the university secretary, who shall act as chief returning officer, and whose decision is final.</p> <p>The campaign spending limit for undergraduate students shall be: up to \$100 for constituency seats and \$200 for at large seats, with all campaign costs to be borne by the candidate.</p> <p>In a faculty constituency, all faculty members who hold a regular faculty appointment in that constituency are eligible to vote. In a graduate student constituency, all full-time and part-time graduate students registered in a degree program in that constituency are eligible to vote. In an undergraduate student constituency, all full-time students registered in a degree program in that constituency are eligible to vote; this includes students whose academic programs require a prolonged absence from campus such as a co-op work term or an approved study term abroad.</p>
2.03	<p>By-Elections</p> <p>The university secretary shall declare a Senate seat vacant: upon receipt of a written resignation from a member of Senate. when a member of Senate ceases to be eligible to represent the constituency that elected the member, for example when a faculty member ceases to hold a regular faculty appointment, or when a student graduates or otherwise ceases to be registered in the constituency that elected the student.¹</p> <p>If, within any year, a member of the Senate or any of its committees or councils, not having been granted permission to be absent by such body, attends less than 50 per cent of the regular meetings of such body, the member's office shall be by that very fact considered to be vacated and a confirmatory resolution shall be passed by Senate declaring the membership vacant. The Senate or its committee or council may grant such permission to members who are going on an approved sabbatical, on a co-op term, or any similar such absence related to the members' employment and/or educational program.</p> <p>Subject to the provisions noted below, the chief returning officer shall call by-elections to fill vacancies as soon as feasible and shall place a suitable notice in such places and ways as may be designated from time to time by Senate, with copies to the appropriate faculties and constituency presidents. Nominations shall remain open for at least one week and shall be submitted in writing to the chief returning officer. Each nomination shall be signed by the required number of members of the constituency from which the member is to be elected; and shall include a signed statement from the nominee agreeing to serve if elected. For faculty and graduate students, the required number of members is five; for undergraduate students elected from a single faculty, the required number is twenty-five; for undergraduate students elected at large, the required number is one hundred.</p>

When a seat is vacant because of the failure of a constituency to nominate any candidate to contest an election or by-election, that seat shall remain vacant until the next annual election, unless a petition [available from the Secretariat] requesting a by-election signed by the required number of members of the constituency concerned is received by the chief returning officer.

When a seat becomes vacant within three months of the end of the term for that seat, no by-election shall be called to fill the vacancy for the balance of the term.

No by-election shall be called or held in any constituency between 1 July and 15 September. In addition, no by-election shall be held in any undergraduate constituency between 1 April and 1 July.

3. Alumni representation

3.01 Each year the Alumni Council shall recommend the names of individual(s) for appointment to Senate. The university secretary shall be informed of such recommendations as they are made and shall so inform Senate.

4. Board of Governors Representation

4.01 Each year the university secretary shall request the Board of Governors to elect from among its community-at-large members as many as four individuals to serve as members of Senate pursuant to paragraph 18(b)(1) of *The University of Waterloo Act, 1972*. The university secretary shall be informed of the results of such election promptly following its completion, and shall so inform Senate.

Approved by Senate 15 June 1972.

Amended by Senate January 1973.

Amended by Senate April 1973.

Amended by Senate June 1975.

Amended by Senate in two readings, September and October 1975.

Amended by Senate in two readings, November and December 1982.

Amended by Senate in two readings, January and February 1983.

Amended by Senate in two readings, December 1984 and January 1985.

Amended by Senate in two readings, December 1989 and January 1990.

Amended by Senate in two readings, October and November 1990.

Amended by Senate in two readings, November and December 1991.

Amended by Senate September 1995.

Amended by Senate September 1999.

Amended by Senate in two readings, October and November 2013.

Amended from Bylaw 5 by Senate in two readings, September and October 2014.

Amended by Senate in two readings, January and February 2016.

Amended by Senate in two readings, November 2017 and January 2018.

¹See *The University of Waterloo Act*, section 25, for instances when graduating students may be exempt.

University of Waterloo
SENATE GRADUATE & RESEARCH COUNCIL
Report to Senate
18 November 2019

Senate Graduate & Research Council met on 7 October 2019 and agreed to forward the following items to Senate for approval as part of the regular agenda.

Further details are available at: <https://uwaterloo.ca/secretariat/committees-and-councils/senate-graduate-research-council>

FOR APPROVAL

PROGRAM CHANGE

Faculty of Engineering

1. **Motion:** To approve a Milestone name change from “Graduate Studies Practicum” to “Master’s Project” within the Conrad School of Business and Entrepreneurship’s Master of Business, Entrepreneurship and Technology (MBET), effective 1 January 2020, as presented at Attachment 1.

Rationale: The new name and description accurately describes the nature and expectations of the MBET milestone. The MBET program has never included a practicum requirement. The milestone has always been a project and the MBET program does not require students to secure work placements or complete work off-campus (such as an internship) in order to satisfy the requirements of the milestone.

2. **Motion:** To approve the removing of the Graduate Diploma (GDIP) in Management Sciences by the department of Electrical and Computer Engineering (ECE), effective 1 January 2020, as presented at Attachment 2.

Rationale: The ECE MEng programs will be offering “Specialization” in a given area, in place of the Graduate Diplomas (GDip). Consequently, the existing Graduate Diplomas offered with the MEng in ECE, will cease to exist. However, in the case of the GDip in Management Science, a specialization will not be proposed due to low enrolment numbers.

/kw Jeff Casello
Associate Vice-President, Graduate Studies and
Postdoctoral Affairs

Charmaine Dean
Vice President, Research & International



Graduate Studies Program Revision Template

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

Faculty: Engineering

Program: Master of Business, Entrepreneurship and Technology (MBET)

Program contact name(s): David Rose, Associate Director and Graduate Officer or Mark Weber, Director

Form completed by: Jeannette Friend

Description of proposed changes:

Note: changes to courses and milestones also require the completion/submission of the SGRC Course/Milestone-New/Revision/Inactivation form ([PC docx version](#) or [MAC docx version](#)).

Milestone name change from “Graduate Studies Practicum” to “Master’s Project”.

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

Rationale for change(s):

The new name and description accurately describes the nature and expectations of the MBET milestone. The MBET program has never included a practicum requirement as defined by IRCC. The milestone has always been a project and the MBET program does not require students to secure work placements or complete work off-campus (such as an internship) in order to satisfy the requirements of the milestone.

Proposed effective date: Term: Winter Year: 2020

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/engineering/conrad-school-entrepreneurship-and-business/master-business-entrepreneurship-and-technology-mbet>

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
Degree requirements Coursework option: <ul style="list-style-type: none">Graduate Academic Integrity Module (Graduate AIM)Courses	Degree requirements Coursework option: <ul style="list-style-type: none">Graduate Academic Integrity Module (Graduate AIM)Courses

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> ○ Students must complete the following 9 graduate-level courses (0.50 unit weight): <ul style="list-style-type: none"> ▪ BET 600 Applied Business Leadership Skills for Entrepreneurs ▪ BET 601 Strategically Managing the Entrepreneurial Organization ▪ BET 602 Marketing Strategies for New Technology-based Ventures ▪ BET 603 Entrepreneurial Finance for the Technology-based Enterprise ▪ BET 604 New Technology-based Venture Creation ▪ BET 605 Essential Accounting for Entrepreneurs ▪ BET 607 Managing Technological Innovation ▪ BET 608 Business Model Validation ▪ BET 620 Social Entrepreneurship ● Link(s) to courses <ul style="list-style-type: none"> ○ Business, Entrepreneurship and Technology (BET) courses ○ Graduate course search ● Graduate Studies Practicum <ul style="list-style-type: none"> ○ Students must complete a commercialization practicum. 	<ul style="list-style-type: none"> ○ Students must complete the following 9 graduate-level courses (0.50 unit weight): <ul style="list-style-type: none"> ▪ BET 600 Applied Business Leadership Skills for Entrepreneurs ▪ BET 601 Strategically Managing the Entrepreneurial Organization ▪ BET 602 Marketing Strategies for New Technology-based Ventures ▪ BET 603 Entrepreneurial Finance for the Technology-based Enterprise ▪ BET 604 New Technology-based Venture Creation ▪ BET 605 Essential Accounting for Entrepreneurs ▪ BET 607 Managing Technological Innovation ▪ BET 608 Business Model Validation ▪ BET 620 Social Entrepreneurship ● Link(s) to courses <ul style="list-style-type: none"> ○ Business, Entrepreneurship and Technology (BET) courses ○ Graduate course search ● Master's Project <ul style="list-style-type: none"> ○ <u>Students must complete a Master's Project (also referred to as the Corporate Innovation Project) that will provide students with the opportunity to practice the consulting skills they have learned through the MBET program and to experience innovation in a corporate setting.</u>

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

Students are not impacted by this change. It is a change of name only. Learning outcomes and objectives remain the same. Students entering the MBET program in the fall of 2019 will be notified of the milestone name change during their orientation week.

Department/School approval date (mm/dd/yy): 03/21/19

Reviewed by GSPA (for GSPA use only) date (mm/dd/yy): 07/03/2019

Faculty approval date (mm/dd/yy):

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

Senate approval date (mm/dd/yy) (if applicable):

Faculty: Engineering

Effective term: Term/Year Winter 2020

Course New Revision Inactivation

Milestone New Revision Inactivation

New milestone title: Choose an item.

For course revisions, indicate the type(s) of changes:
(e.g. consent, description, title, requisites)

Change milestone title from “Graduate Studies Practicum” to new milestone title “Master’s Project”

Course Subject code: Choose an item. Course number:

Course Title (max. 100 characters incl. spaces):

Course Short Title (max. 30 characters incl. spaces):

Grading Basis: Choose an item.

Course Credit Weight: Choose an item.

Course Consent Required: Choose an item.

Course Description:

New course description (for revision only):

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

Primary Meet Type: Choose an item.

[Requisites:](#)

Special topics course: Yes No

Cross-listed: Yes No

Course Subject(s) to be cross-listed with and approval status:

Sections combined/heldwith:

Rationale for request:

The current title does not accurately reflect the nature and objectives of the milestone.

The milestone revision should be applied to the following program: Master of Business, Entrepreneurship and Technology (MBET)

Prepared by: Jeannette Friend

Date: 14-Jun-19

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 Office.

Faculty: Engineering

Program: Graduate Diploma (GDip) in Management Sciences

Program contact name(s): Jessica Rossi

Form completed by: Jessica Rossi

Description of proposed changes:

Note: changes to courses and milestones also require the completion/submission of the SGRC Course/Milestone-New/Revision/Inactivation form ([PC docx version](#) or [MAC docx version](#)).

Remove (type 2) Graduate Diploma (GDip) in Management Sciences.

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

Rationale for change(s):

The ECE MEng program will be offering “Graduate Specializations” in a given area, in place of the Graduate Diplomas (GDip). Consequently, the existing Graduate Diplomas offered with the MEng in ECE, will cease to exist. However, in the case of the GDip in Management Sciences, a Graduate Specialization will not be proposed due to low enrolment numbers.

Proposed effective date: Term: Winter Year: 2020

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/engineering/department-electrical-and-computer-engineering/graduate-diploma-gdip-management-sciences>

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
<p>GRADUATE DIPLOMA (GDIP) IN MANAGEMENT SCIENCES</p> <p>Program information</p> <ul style="list-style-type: none"> ● Delivery mode <ul style="list-style-type: none"> ○ On-campus ● Program type <ul style="list-style-type: none"> ○ Diploma ● Study option(s) <ul style="list-style-type: none"> ○ <u>Coursework</u> 	

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
<p>Admission requirements</p> <ul style="list-style-type: none"> • Minimum requirements <ul style="list-style-type: none"> ○ The GDip in Management Sciences (in collaboration with the Department of Management Sciences) is earned in conjunction with the Master of Engineering (MEng) in Electrical and Computer Engineering program. <p>Degree requirements</p> <p>Coursework option:</p> <ul style="list-style-type: none"> • Courses <ul style="list-style-type: none"> ○ Students can augment their technical knowledge gained from the courses in Electrical and Computer Engineering, with a broad perspective on technology management concepts. The students can learn about production and inventory management or economic concepts in management, organizational behaviour, or even senior management principles. ○ To receive the GDip in Management Sciences, students must successfully complete 1 compulsory course and 3 elective courses: <ul style="list-style-type: none"> * Compulsory course: <ul style="list-style-type: none"> * ECE 602 Introduction to Optimization * Elective courses (choose 3 from the following list): <ul style="list-style-type: none"> * MSCI 602 Strategic Management of Technological Innovation * MSCI 605 Organizational Theory & Behaviour * MSCI 607 Applied Economics for Management * MSCI 623 Big Data Analytics * MSCI 630 Human Computer Interaction * MSCI 633 Production and Inventory Management * MSCI 712 Decision Analysis Under Uncertainty 	

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> • MSCI 718 Statistical Methods for Data Analytics ○ Note: Electrical and Computer Engineering MEng requirements allow for only 3 courses to be taken outside the Department. • Link(s) to courses <ul style="list-style-type: none"> ○ Electrical and Computer Engineering (ECE) courses ○ Management Sciences (MSCI) courses ○ Graduate course search <p>Department of Electrical and Computer Engineering website</p>	

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

Students that enroll in or after Winter 2020 will no longer be able to receive this Graduate Diploma. However, those that are currently enrolled in this program will still be able to receive the Graduate Diploma.

Departmental approval date (mm/dd/yy): 05/17/19

Reviewed by GSO (for GSO use only) date (mm/dd/yy): 09/30/2019

Faculty approval date (mm/dd/yy):

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

Senate approval date (mm/dd/yy) (if applicable):

University of Waterloo
SENATE UNDERGRADUATE COUNCIL
Report to Senate
18 November 2019

Senate Undergraduate Council met on 8 October 2019 and agreed to forward the following items to Senate for approval in the regular agenda.

Further details are available: <https://uwaterloo.ca/secretariat/committees-and-councils/senate-undergraduate-council>

FOR APPROVAL

NEW ACADEMIC PLANS

Faculty of Engineering
Architectural, Civil, Environmental and Geological Engineering

1. **Motion:** To approve the creation of the following new specializations in architectural, civil, environmental and geological engineering, effective 1 September 2020.

Rationale and Background: In order to provide students with the opportunity to specialize in the upper years of their programs, architectural, civil, environmental and geological engineering have identified upper year courses with common themes and propose the following new specializations.

The descriptions of the new specializations are as follows:

Architectural Engineering

The Faculty of Engineering recognizes specializations with the Architectural Engineering BAsC degree. Students who satisfy the specialization requirements (courses and grades) will have the specialization designation shown on their transcript and diploma. Specializations are intended to recognize success in a concentration of electives within the Architectural Engineering degree specification. In other words, specializations focus the selection of electives required for the base degree and do not require extra courses.

The Architectural Engineering plan has two specializations recognized by the Faculty of Engineering:

- Building Structures Specialization
- Building Systems Specialization

Each specialization requires students to select technical electives with a common theme. Students are responsible for meeting the TE requirements of the Architectural Engineering degree when pursuing a specialization. Each specialization requires the successful completion of a minimum number of TEs specified by the specialization with an average of at least 60%. Students must declare a specialization for it to be recognized as part of their degree and appear on the transcript and diploma.

The specialization course requirements are provided below. Exceptions to the listed courses require the approval of the CEE Department.

Building Structures Specialization

The Building Structures Specialization course requirements are:

1. At least five TEs from the list below.
2. At least one of CIVE 413 or CIVE 414 must be taken in the five TEs.

Course	Title	Term	TE List
CIVE 413	Structural Steel Design	S	B
CIVE 414	Structural Concrete Design	S	B
CIVE 415	Structural System Design	W	B
CIVE 422	Finite Element Analysis	W	C
CIVE 460	Engineering Biomechanics	W	B
CIVE 505	Structural Dynamics	S	C
CIVE 512	Rehabilitation of Structures	W	B
CIVE 596	Construction Engineering	S	B

Building Systems Specialization

The Building Systems Specialization requires a minimum of four TEs from the list below.

Course	Title	Term	TE List
AE 301	Building Enclosure Systems	W	A
AE 315	Building Structural Systems	W	A
AE 405	Building Performance Measurement Lab	S	A
AE 450	Building Service Systems	S	A
AE 495	Design Intensive Special Topics in Architectural Engineering Topic: Building Energy Analysis	F,S	A
AE 495	Design Intensive Special Topics in Architectural Engineering Topic: HVAC Energy Efficiency (Low-Energy Building Systems)	W	A
ME 452	Energy Transfer in Buildings	W	A

Civil Engineering

The Faculty of Engineering recognizes specializations with the Civil Engineering BAsC degree. Students who satisfy the specialization requirements (courses and grades) will have the specialization designation shown on their transcript and diploma. Specializations are intended to recognize success in a concentration of electives within the Civil Engineering degree specification. In other words, specializations focus the selection of electives required for the base degree and do not require extra courses.

The Civil Engineering plan has four specializations recognized by the Faculty of Engineering:

- Geotechnical Specialization
- Structural Specialization
- Transportation Specialization
- Water Resources Specialization

Each specialization requires students to select technical electives with a common theme. Students are responsible for meeting the TE requirements of the Civil Engineering degree when pursuing a specialization. Each specialization requires the successful completion of a minimum number of TEs specified by the specialization with an average of at least 60%. Students must declare a specialization for it to be recognized as part of their degree and appear on the transcript and diploma.

The specialization course requirements are provided below. Exceptions to the listed courses require the approval of the CEE associate chair, undergraduate studies.

Geotechnical Specialization

The Geotechnical Specialization course requirements are:

1. CIVE 354 Geotechnical Engineering 2 (F, TE List A) and CIVE 554 Geotechnical Engineering 3 (W, TE List A).
2. At least two additional TEs from the list below.

Course	Title	Term	TE List
CIVE 414	Structural Concrete Design	S	A
CIVE 422 or ME 559	Finite Element Analysis or Finite Element Method	W F,S	B B
CIVE 542	Pavement Structural Design	W	A
EARTH 438	Engineering Geology	W	B

Structural Specialization

The Structural Specialization course requirements are:

1. At least five TEs from the list below.
2. At least one of CIVE 413 or CIVE 414 must be taken in the five TEs.

Course	Title	Term	TE List
CIVE 306	Mechanics of Solids 3	F	B
CIVE 413	Structural Steel Design	S	A
CIVE 414	Structural Concrete Design	S	A
CIVE 415	Structural System Design	W	A
CIVE 422	Finite Element Analysis	W	B
CIVE 460	Engineering Biomechanics	W	A
CIVE 505	Structural Dynamics	S	B
CIVE 507	Building Science and Technology	W	B
CIVE 512	Rehabilitation of Structures	W	A
CIVE 596	Construction Engineering	S	A

Transportation Specialization

The Transportation Specialization course requirements are:

1. At least four TEs from the list below.
2. At least three of the four TEs must be CIVE courses.

Course	Title	Term	TE List
CIVE 343	Traffic Simulation Modelling and Applications	F	A
CIVE 440	Transit Planning and Operations	W	B
CIVE 484	Physical Infrastructure Planning	S	B
CIVE 542	Pavement Structural Design	W	A
GEOG 381	Advanced Geographic Information Systems	F,S	B
PLAN 416	Modelling the City	W	B
PLAN 477	Freight Planning and Policy	W	B

Water Resources Specialization

The Water Resources Specialization course requirements are:

1. ENVE 383 Advanced Hydrology and Hydraulics (W, TE List B).
2. At least three TEs from the list below.

Course	Title	Term	TE List
CIVE 583	Design of Urban Water Systems	W	A
EARTH 444	Applied Wetland Science	F	B
EARTH 458	Physical Hydrogeology	F,S	B
ENVE 376	Biological Processes	W	B
ENVE 573	Contaminant Transport	W	B
GEOG 209	Hydroclimatology	W,S	B
GEOG 305	Fluvial Geomorphology	F	B
GEOG 371	Advanced Remote Sensing Techniques	F	B
GEOG 381	Advanced Geographic Information Systems	F,S	B
SYDE 533	Conflict Resolution	F	A

Environmental Engineering

The Faculty of Engineering recognizes specializations with the Environmental Engineering BAsC degree. Students who satisfy the specialization requirements (courses and grades) will have the specialization designation shown on their transcript and diploma. Specializations are intended to recognize success in a concentration of electives within the Environmental Engineering degree specification. In other words, specializations focus the selection of electives required for the base degree and do not require extra courses.

The Environmental Engineering plan has three specializations recognized by the Faculty of Engineering:

- Energy Specialization
- Hydrology Specialization
- Pollution Treatment and Control Specialization

Each specialization requires students to select technical electives with a common theme. Students are responsible for meeting the TE requirements of the Environmental Engineering degree when pursuing a specialization. Each specialization requires the successful completion of a minimum number of TEs specified by the specialization with an average of at least 60%. Students must declare a specialization for it to be recognized as part of their degree and appear on the transcript and diploma.

The specialization course requirements are provided below. Exceptions to the listed courses require the approval of the CEE associate chair, undergraduate studies.

Energy Specialization

The Energy Specialization requires a minimum of four TEs from the list below.

Course	Title	Term	TE List
CHE 516	Energy Systems Engineering	F	A
CIVE 495	Design Intensive Special Topics in Civil Engineering Topic: Building Energy Analysis	F,S	A
CIVE 495	Design Intensive Special Topics in Civil Engineering Topic: HVAC Energy Efficiency (Low-Energy Building System)	W	A
CIVE 507	Building Science and Technology	W	B
GEOG 409	Energy Balance Climatology	W	B
ME 354	Thermodynamics 2	W,S	B
ME 452	Energy Transfer in Buildings	W	A
ME 459	Energy Conversion	F,S	B

Hydrology Specialization

The Hydrology Specialization requires a minimum of four TEs from the list below.

Course	Title	Term	TE List
BIOL 470	Methods of Aquatic Ecology	F	B
EARTH 439	Flow and Transport Through Fractured Rocks	W	B
EARTH 444	Applied Wetland Science	F	B
EARTH 459	Chemical Hydrogeology	W	B
ENVE 573	Contaminant Transport	W	B

ENVE 583	Design of Urban Water Systems	W	A
GEOG 209	Hydroclimatology	W,S	B
GEOG 305	Fluvial Geomorphology	F	B
GEOG 371	Advanced Remote Sensing Techniques	F	B
GEOG 381	Advanced Geographic Information Systems	F,S	B
SYDE 532	Introduction to Complex Systems	W	A
SYDE 533	Conflict Resolution	F	A

Pollution Treatment and Control Specialization

The Pollution Treatment and Control Specialization requires a minimum of four TEs from the list below.

Course	Title	Term	TE List
CHE 361	Bioprocess Engineering	F,W	A
CHE 420	Introduction to Process Control	F,S	A
CHE 571	Industrial Ecology	F	A
CHE 572	Air Pollution Control	W	A
CHE 574	Industrial Wastewater Pollution Control	W	A
ENVE 573	Contaminant Transport	W	B
ENVE 577	Engineering for Solid Waste Management	W	A
ME 571	Air Pollution	W	A

Geological Engineering

The Faculty of Engineering recognizes specializations with the Geological Engineering BAsc degree. Students who satisfy the specialization requirements (courses and grades) will have the specialization designation shown on their transcript and diploma. Specializations are intended to recognize success in a concentration of electives within the Geological Engineering degree specification. In other words, specializations focus the selection of electives required for the base degree and do not require extra courses.

The Geological Engineering plan has three specializations recognized by the Faculty of Engineering:

- Geology Specialization
- Hydrogeology Specialization
- Soil, Rock and Structures Specialization

Each specialization requires students to select technical electives with a common theme. Students are responsible for meeting the TE requirements of the Geological Engineering degree when pursuing a specialization. Each specialization requires the successful completion of a minimum number of TEs specified by the specialization with an average of at least 60%. Students must declare a specialization for it to be recognized as part of their degree and appear on the transcript and diploma.

The specialization course requirements are provided below. Exceptions to the listed courses require the approval of the CEE associate chair, undergraduate studies.

Geology Specialization

The Geology Specialization course requirements are:

1. EARTH 221 Geochemistry 1 (3A TE) and EARTH 471 Mineral Deposits (4B TE)
2. At least two TEs from the list below.

Course	Title	Term	TE List
EARTH 331	Volcanology and Igneous Petrology	F	4A
EARTH 332	Metamorphic Petrology	F	4A
EARTH 342	Geomorphology and GIS Applications	F	4A
EARTH 421	Geochemistry 2	F	4A
EARTH 435	Advanced Structural Geology	W	4B

Hydrogeology Specialization

The Hydrogeology Specialization course requirements are:

1. EARTH 221 Geochemistry 1 (3A TE)
2. At least three TEs from the list below.

Course	Title	Term	TE List
EARTH 342	Geomorphology and GIS Applications	F	4A
EARTH 421	Geochemistry 2	F	4A
EARTH 439	Flow and Transport Through Fractured Rocks	W	4B
EARTH 440	Quaternary Geology	F	4A
EARTH 444	Applied Wetland Science	F	4A
EARTH 456	Numerical Methods in Hydrogeology	W	4B
EARTH 459	Chemical Hydrogeology	W	4B
EARTH 460	Applied Geophysics 2	W	4B
EARTH 461	Applied Geophysics 3	F	4A
ENVE 383	Advanced Hydrology and Hydraulics	W	4B

Soil, Rock and Structures Specialization

The Soil, Rock and Structures Specialization course requirements are:

1. CIVE 205 Solid Mechanics 2 (3A TE)
2. At least three TEs from the list below.

Course	Title	Term	TE List
CIVE 303	Structural Analysis	W	4B
CIVE 306	Mechanics of Solids 3	F	4A
CIVE 310	Introduction to Structural Design	F	4A
CIVE 422 or ME 559	Finite Element Analysis or Finite Element Methods	W F,S	4B 4A
CIVE 542	Pavement Structural Design	W	4B
EARTH 435	Advanced Structural Geology	W	4B

Faculty of Environment

Geography and Environmental Management: Aviation Specialization

2. **Motion:** To approve the creation of the following new aviation specialization, effective 1 September 2020.

Rationale and Background: This academic foundation in Geography and Environmental Management and Aviation will establish a pathway into ground-based aviation careers (such as airline dispatcher, air traffic controller, airport operations/environmental management, and airline carbon offsetting). Previous flight training is an asset within the specialization, but not a requirement. The Aviation Specialization would allow students who withdraw from an Aviation program to graduate with an ‘aviation’ designation on their Geography and Environmental Management degree. The Aviation specialization is available to the 3 yr. Geography and Environmental Management BES. This provides opportunities for students that may have previous aviation industry experience and want to upgrade their credentials to a university degree.

See: 2020/2021 calendar: <http://ugradcalendar.uwaterloo.ca/page/ENV-Bachelor-Environmental-Stds-Specializations>

Students majoring in Honours Geography and Environmental Management, Geography and Aviation, Geomatics, or who are pursuing a Geography and Environmental Management joint degree, may choose to graduate with one specialization. Specializations are not available to students pursuing a Geomatics joint degree. Refer below for the requirements listed for each specialization. Upper-year courses may not be taken without the appropriate prerequisites. Upon completion of the requirements of both the degree and the specialization, students must indicate their area of specialization on their Application to Graduate.

Courses Offered by Specialization

Legend

*To count [GEOG 490A/GEOG 490B](#) toward the specialization, the thesis topic must focus on an area relevant to the specialization.

Proposed new calendar text:

Aviation Specialization

The Aviation Specialization is also available to Geography and Environmental Three Year General students; however, it is not available to Honours Geography and Aviation students

Legend:

± Up to 1.0 unit will be waived from the List A elective requirement (not including the capstone course requirement) based on prior successful completion of 'Professional Pilot Program' flight courses, or if a student has held a Transport Canada Private Pilot Licence. Proof of Transport Canada Private Pilot Licence must be provided and be approved by the Geography and Aviation associate chair undergraduate studies prior to declaring this Specialization.

Required Courses:

AVIA 100 Introduction to Aviation
GEOG 207 Climate Change Fundamentals
GEOG 281 Introduction to Geographic Information Systems (GIS)

Elective Courses:

At least 3.0 units from List A, including at least one capstone course
At least 1.0 unit from List B

List A[±]:

AVIA 270/GEOG 270 Remotely Piloted Aircraft Systems (RPAS) Knowledge Requirements
AVIA 310 Human Factors in Aviation
AVIA 374 Special Topics in Aviation
AVIA 474 Special Topics in Aviation
AVIA 475 Independent Studies of Selected Topics
GEOG 202 Geography of the Global Economy
GEOG 233 Geography of Tourism
GEOG 309 Physical Climatology

Capstone Courses:

GEOG 416/AVIA 416 Aviation Sustainability (1.0 unit)
GEOG 490A/GEOG 490B Honours Thesis Preparation/ Thesis Completion* (1.5 unit)

List B:

GEOG 306 Human Dimensions of Natural Hazards
GEOG 307 Societal Adaptation to Climate Change
GEOG 323 Perspectives on International Tourism
GEOG 325 Geographies of Health
GEOG 351 Geography of Transportation
GEOG 423 Sustainable Tourism

One of:

GEOG 316 Multivariate Statistics
GEOG 318 Spatial Analysis

PLAN INACTIVATIONS

Faculty of Engineering

Mathematics Option, Water Resources Option, Computer Engineering Option

3. **Motion:** To approve the inactivation of the following options, effective 1 September 2020.

Rationale and Background: Engineering proposes the inactivation of the following options for the following reasons:

Mathematics Option	https://uwaterloo.ca/electrical-computer-engineering/current-undergraduate-students/academic-planning-and-support-0/options-and-minors/mathematics-option	Low enrolment
Water Resources Option	http://ugradcalendar.uwaterloo.ca/page/ENG-Water-Resources-Option	To be replaced by the Water Resources Specialization proposed above.
Computer Engineering Option	http://ugradcalendar.uwaterloo.ca/page/ENG-Systems-Design-Engineering	Currently only available to SYDE students; a new option in computing is being developed.

/rmw

David DeVidi
Associate Vice-President, Academic

University of Waterloo
UNIVERSITY COMMITTEE ON STUDENT APPEALS (UCSA)
REPORT TO SENATE
18 November 2019

FOR INFORMATION

In accordance with Policy 72 – Student Discipline, the UCSA is to provide an annual report to Senate on the number of student discipline cases heard at the University and faculty levels, their nature and such recommendations as it sees fit to make with respect to matters under its jurisdiction. Provided in this report is the required information for 1 September 2018 to 31 August 2019, as well as the required information for the two years prior.

The numbers reported in the chart below include findings of guilt for graduate and undergraduate students at the University and faculty levels.

In an attempt to preserve confidentiality, cases are not reported by faculty, unit or program. Annual summaries (with identifying student and faculty names removed) of discipline cases, grievances and appeals are posted to the Secretariat’s website: [link to the UCSA website will be added prior to Senate meeting].

Summary of Student Discipline Cases – Guilty Findings

DISCIPLINE OFFENCE	2016-2017	2017-2018	2018-2019
ACADEMIC			
Academic or admission fraud	88	14	14
Altering or falsifying a relevant document	19	13	26
Cheating	257	324	544
Contravention of statute	0	0	0
Impersonation	22	38	25
Misrepresentation	92	125	92
Obtaining confidential academic materials	0	0	0
Plagiarism	1441	1477	1625
Theft of intellectual property	11	53	26
Unauthorized aids or assistance	32	56	93
Unauthorized co-operation or collaboration	740	821	1464
Unauthorized resubmission of work	20	75	49
Violation of examination regulations	11	40	27
Other	12	12	12
NON-ACADEMIC			
Contravention of a statute	3	0	0
Disruptive, dangerous, aggressive or threatening behaviour	16	31	21
Infringing unreasonably on the work of others	8	9	0
Mischief	39	0	1
Misuse of University resources	27	1	21
Theft	0	0	0
Unauthorized use of equipment	3	4	0
Unethical behaviour	74	61	5
Other	13	10	37

23 October 2019
 /ns

Jeff Casello
 Chair