

University of Waterloo
SENATE EXECUTIVE COMMITTEE
Notice of Meeting

Date: Tuesday 3 September 2019

Time: 3:30 p.m.

Place: Needles Hall, Room 3308

AGENDA	Action
1. Minutes of the 3 June 2019 Meeting	Decision
2. Business Arising from the Minutes	
3. Draft 16 September 2019 Senate Agenda	Decision
4. Other Business	

27 August 2019

Karen Jack
University Secretary

University of Waterloo
SENATE EXECUTIVE COMMITTEE
Minutes of the 3 June 2019 Meeting

Present: Michael Beauchemin, Paul Fieguth, Robert Gorbet, Feridun Hamdullahpur (chair), Karen Jack (secretary), Bill Power, Naima Samuel, Richard Staines, Bryan Tolson, Vivek Unnithan, Jeff Wilson

Regrets: Jeff Casello, Shannon Dea, Mark Giesbrecht, James Rush

1. MINUTES OF THE 6 MAY 2019 MEETING

Members approved the minutes of the 6 May 2019 meeting by consensus.

2. BUSINESS ARISING FROM THE MINUTES

There was no business arising.

3. DRAFT 17 JUNE 2019 SENATE AGENDA

Following notice by Jack that missing items will be ready for distribution of the Senate agenda, and, assuming approval at its 10 June meeting, that the regular report from Senate Graduate and Research Council will include a recommendation for the closure of the Propel Centre, members heard a motion to approve the agenda.

Beauchemin and Power.

In discussion: notice of a few potential typos on page 5 in the consent report from Undergraduate Council (UGC), on page 43 in the UGC regular report, a question about the value of the Faculty of Environment Student Engagement Award, and on page 44 in the UGC regular report, a suggestion that a comma is missing after “underrepresented” in the Raaflaub award. The secretary agreed to look into these before distribution of the agenda to Senate and advised that her office has implemented better processes with respect to accessibility reviews of PDF copies of agendas. Members heard from the chair that he will provide Senate with a brief update on his recent meeting with provincial leadership.

The question was called and the motion carried unanimously.

4. REPORT OF THE VICE PRESIDENT, ACADEMIC & PROVOST

Roster of Graduands. On behalf of Senate, the committee heard a motion to approve the lists of candidates for degrees, diplomas and certificates as recommended by the faculty councils and the associate provost, graduate studies, and to authorize the chair, the registrar and the associate vice-president, graduate studies and postdoctoral affairs to add to or change the lists as approved at this meeting. Staines and Power. Carried unanimously.

5. OTHER BUSINESS

There was no other business.

The committee convened in confidential session.

17 June 2019

Karen Jack
University Secretary

**University of Waterloo
SENATE
Notice of Meeting**

Date: Monday 16 September 2019
Time: 3:30 p.m.
Place: Needles Hall, room 3407

OPEN SESSION		
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 17 June 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. Report of the Vice-President, Academic & Provost <ol style="list-style-type: none"> a. Call for Nominations for University Professor 5. Reports from the Faculties 6. Committee Appointments 	Decision Information Decision/Information Information Information Decision
3:35	<p><u>Regular Agenda</u> 7. Business Arising from the Minutes</p>	
3:40	8. Teaching Presentation – TBD	Information
3:55	9. Reports from Committees and Councils	Decision
4:00	<ol style="list-style-type: none"> a. Graduate & Research Council b. Undergraduate Council 	Decision
4:10	10. Report of the President	Information
4:20	<ol style="list-style-type: none"> a. Strategic Plan Update 	
4:20	11. Q&A Period with the President	Information
4:30	12. Report of the Vice-President, Academic & Provost	Information
4:40	<ol style="list-style-type: none"> a. Course Evaluation Project – Phase 2 Update (Dave DeVidi) b. Student Review (Chris Read) 	Information Information
4:50	13. Report of the Vice-President, Research & International	Information
4:55	14. Other Business	
CONFIDENTIAL SESSION		
5:00	15. Minutes of the 17 June 2019 Meeting	Decision

5:05	16. Business Arising from the Minutes	
5:10	17. Report of the President	Information
5:15	18. Other Business	

KJJ/ejg
27 August 2019

Karen Jack
University Secretary
Secretary to Senate

University of Waterloo
SENATE
Minutes of the Monday 17 June 2019 Meeting

Present: Upkar Arora**, Michael Balogh, Sandra Banks, Michael Beauchemin, Katherine Bergman, Kankar Bhattacharya, Anne Bordeleau, Carmen Bruni, Claudio Canizares, David Clausi, Mario Coniglio, Joan Coutu, Shannon Dea, Charmaine Dean**, Peter Deadman, Fraser Easton, Lynette Eulette, George Freeman, Mark Giesbrecht, Rob Gorbet, Kelly Grindrod, David Ha, Feridun Hamdullahpur (chair), Craig Hardiman, Dennis Huber, Karen Jack (secretary), Martin Karsten, Sabrina Khandakar, Veronica Kitchen, Scott Kline, Alex Lee, Bob Lemieux, Kesen Ma, Teferi Mergo, Katie Misener, Zoran Miskovic, Barb Moffatt, Rick Myers, Cathy Newell Kelly, Troy Osborne, Doug Peers, Bill Power, Bill Pristanski, Neil Randall, Jim Rush, Max Salman, Naima Samuel, Mark Seasons, Marcus Shantz, Joanne Shoveller, Jason Small, Richard Staines, Paul Stolee, Bruno Tremblay, Vivek Unnithan, Maya Venters, Johanna Wandel, Nancy Worth

Guests: Lindsay Campbell, Aldo Caputo, Jana Carson, Amelia Clarke, Madison Cox, Wendy Cressman Zehr, Donna Ellis, Erin Gillespie, Kevin Hare, Bruce Hellinga, Danielle Jeanneault, Andrea Kelman, Derek Madge, Nick Manning, Andrew McAlorum, Kirsten Müller, Carol Murray, Diana Parry, Ian Rowlands, Emily Schroeder, Jeremy Steffler

Absent: Dominic Barton*, Chris Bauch*, Lisa Bauer-Leahy, Steven Bednarski*, Ashreena Bhangu, Kofi Campbell*, Jeff Casello*, Fred Cheresinski, Tara Collington*, Eric Croiset, Alexandria Se Sousa*, Mathieu Doucet*, Paul Fieguth*, Wendy Fletcher*, Cindy Forbes*, Shikha Gandhi, Julia Goyal*, John Haddock, Natalie Hutchings*, Ellen MacEachen, Ian Milligan*, Erin O'Connell*, Linda Ogechi Iheme, Beth Sandore Namachchivaya*, Siva Sivoththaman, Susan Tighe*, Hamid Tizhoosh*, Bryan Tolson*, June Xu, En-Hui Yang

*regrets

**telephone

OPEN SESSION

CHAIR'S REMARKS

The chair noted the revised and new reports at members' places and offered thanks to Katherine Bergman, Mario Coniglio, Doug Peers, and Paul Stolee for their service and for whom today's meeting is their last as a Senator.

Consent Agenda

Senate heard a motion to approve or receive for information the items on the consent agenda subject to the revisions to items 2.b., 5., and 6., as provided in the revised reports at members' places.

Dea and Coutu.

1. MINUTES OF THE 21 MAY 2019 MEETING

Senate approved the minutes of the meeting.

2. REPORTS FROM COMMITTEES AND COUNCILS

Graduate & Research Council. Senate received the report for information.

Undergraduate Council. Senate heard the following motions:

Faculty of Mathematics, Computer Science Option

Motion: That the Artificial Intelligence Option, Bioinformatics Option, Business Option, Computational Fine Arts Option, Digital Hardware Option, Human-Computer Interaction Option, Software Engineering Option be renamed as specializations, effective 1 September 2020.

Faculty of Mathematics, Computing Option

Motion: That the Computing Option be renamed the Computing Minor, effective 1 September 2020.

Registrar's Office, Scheduled Pauses in the Academic Term

Motion: That Senate approve clarifications to the regulations around scheduled pauses such that public holidays and statutory holidays are included in the definition of scheduled pauses, and that the definition of reading week includes the weekends on both ends, effective 1 September 2020.

Registrar's Office, Double counting of courses

Motion: That Senate approve harmonized rules around the double counting of courses as presented, effective 1 September 2020.

Registrar's Office, "Consent" in requisites or notes

Motion: That Senate approve a standardized approach for students who do not have the necessary prerequisite for a course to request permission from the instructor, effective 1 September 2020.

Senate received the remainder of the report for information.

3. REPORT OF THE PRESIDENT

Recognition and Commendation. Senate received the report for information.

4. REPORTS FROM THE FACULTIES

Senate received the reports for information.

5. COMMITTEE APPOINTMENTS

Senate heard the following motions:

Motion: To approve the following appointment: Senate Graduate & Research Council: Kareem Tarek Mostafa as graduate student representative from the Faculty of Engineering, term to 30 April 2021.

Motion: To approve the following appointment: University Committee on Student Appeals: Jeff Casello as chair, term to 30 April 2021.

6. REPORT OF THE VICE-PRESIDENT, ACADEMIC & PROVOST

Senate received the report for information.

The question was called, and the motion carried unanimously.

Regular Agenda

7. BUSINESS ARISING FROM THE MINUTES

The chair advised that the Senate Executive Committee approved the roster of graduands at its 3 June meeting.

8. RESEARCH PRESENTATION

Bob Lemieux introduced Avery Broderick, Associate Professor, Physics & Astronomy.

Broderick spoke to his work on the production of the first image of a black hole with the Event Horizon Telescope Collaboration. Members heard about: his work with the group to create the image of the event horizon of the black hole at the centre of the galaxy M87, 55 million light years away from earth; the wonderful public response; some of the complexities involved in the process of

production of such an image; data management realities. In response to questions, Broderick spoke to what comes next in this work and the potential for technological advancements moving forward.

9. REPORTS FROM COMMITTEES AND COUNCILS

Executive Committee

Senate heard a motion to approve the proposed bylaw changes at this, its second reading.

Randall and Peers. Carried unanimously.

Graduate & Research Council

Faculty of Applied Health Sciences. Senate heard a motion to approve curricular modifications and adjustments to the length of the Master of Public Health (MPH), effective 1 September 2019.

Staines and Stolee. Carried unanimously.

Graduate Studies Academic Calendar Changes. Senate heard a motion to approve Graduate Studies Academic Calendar changes pertaining to add / drop regulations for graduate students, effective 1 September 2019.

Staines and Coniglio.

In discussion: a question regarding reservations from one department in the Faculty of Engineering, and a response from Bruce Hellinga, associate dean, graduate studies for engineering that there is flexibility in what is proposed for a Faculty to set earlier deadlines; confirmation of this fact was provided by the assistant vice-president, graduate studies and postdoctoral affairs, Kirsten Müller; after another question, clarification re: the process by which the motion arrived at Senate, and agreement that some details re: implementing the change need to be worked out.

The question was called and the motion carried unanimously.

Propel Centre. Senate heard a motion to approve the dissolution of the Propel Centre for Population Health Impact, effective 28 June 2019.

Staines and Hare.

In response to questions: confirmation that there was more than one funding source for the centre; research by individuals associated with Propel will continue in line with research funding commitments; broad consultation following awareness of the loss of the main funder led to the conclusion that the centre is not sustainable in the long term.

The question was called and the motion carried with one abstention.

Undergraduate Council

Faculty of Mathematics, Mathematics/Chartered Professional Accountancy (Math/CPA). Senate heard a motion to approve the restructuring of the Mathematics/Chartered Professional Accountancy-Finance Option into a Plan 10, Mathematics/Chartered Professional Accountancy plan and a Plan 20, Finance Specialization, effective 1 September 2020

Coniglio and Hare. Carried unanimously.

10. REPORT OF THE PRESIDENT

The president highlighted key activities including: offering further kudos to Dr. Broderick on his

work on the production of the first image of a black hole; recent engagement with two impressive examples of the entrepreneurial experience at Waterloo; recent reunion, alumni, and years of service celebrations; last week's convocation ceremonies; federal and provincial government relations work. The president concluded these remarks with an expression of thanks to all members of the community who were involved in celebrating and executing last week's convocation activities.

Hamdullahpur next provided Senators with an update on the development of the strategic plan. Members heard about: the key questions being asked; the values being identified through consultations; the bold ideas being generated. He invited Senate to offer feedback, now or in the future, on the developing plan: does it resonate, does it enable the University's goal of providing both the best and a meaningful education for the future, is it transformative and true to "Waterloo".

11. Q&A PERIOD WITH THE PRESIDENT

There were no questions.

12. REPORT OF THE VICE-PRESIDENT, ACADEMIC & PROVOST

The vice-president, academic & provost spoke briefly to: his enjoyment of the recent convocation activities; advice that the University is awaiting information from MTCU re: the next strategic mandate agreement; the continuing work of the student services review; decanal searches.

13. REPORT OF THE VICE-PRESIDENT, UNIVERSITY RESEARCH & INTERNATIONAL

Senate received the report for information.

14. OTHER BUSINESS

There was no business arising.

Senate convened in confidential session.

12 July 2019

Karen Jack
University Secretary

CONFIDENTIAL SESSION

The confidential minutes have been removed.

University of Waterloo
SENATE GRADUATE & RESEARCH COUNCIL
Report to Senate
16 September 2019

Senate Graduate & Research Council met on 10 June 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, course revisions, and minor program revisions for the Faculties of Applied Health Sciences (school of public health and health systems), Arts (economics, English), and Engineering (conrad school of business and entrepreneurship).

OFFICE OF RESEARCH ETHICS

On behalf of Senate, council approved the following:

- Clinical Research Ethics Committee – new member, continuing member, and a role change.
- Human Research Ethics Committee – continuing member, and a role change.

GRADUATE AWARDS

On behalf of Senate, council approved the Master of Data Science and Artificial Intelligence (MDSAI) Graduate Scholarship (operating) and the Raymond Laflamme and Janice Gregson Graduate Scholarship for Women in Quantum Information Science (research).

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

Charmaine Dean
Vice President, Research & International

University of Waterloo
SENATE UNDERGRADUATE COUNCIL
Report to Senate
16 September 2019

Senate Undergraduate Council met on 18 June 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

INACTIVATION OF ACADEMIC PLANS

Faculty of Science
Honours Chemical Physics

1. **Motion:** That Senate approve the inactivation of the Honours Chemical Physics Regular and Co-op plans, effective 1 September 2020.

Background and Rationale: There has been relatively little interest from students in these joint plans. Inactivation is recommended by both Chemistry and Physics departments. This program is not a direct entry program accessible to students applying through the OUAC. The inactivation of these programs at this point in time will therefore not impact any 2020 recruitment material for Science.

ACADEMIC REGULATION CHANGES

Faculty of Arts
Breadth Requirements

2. **Motion:** That Senate approve the proposed addition to the Bachelor of Arts breadth requirements as outlined below, effective 1 September 2020.

Rationale and Background:

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

Bachelor of Arts Breadth Requirements

Calendar path: <http://ugradcalendar.uwaterloo.ca/page/ARTS-BA-Breadth-Requirements>

All Bachelor of Arts (BA) students must meet the BA Breadth Requirements:

Requirement	Units	Subjects
Fine, Performing, and Communication Arts	0.5 unit	DAC, FINE, MUSIC, SPCOM, THPERF, VCULT
Humanities	1.0 unit	CLAS, ENGL, HIST, MEDVL, PHIL, RS
Languages and Cultures	1.0 unit	ASL, ARABIC , CHINA, CI, CROAT, DUTCH, EASIA, FR, GER,

Requirement	Units	Subjects
		GRK, ITAL, ITALST, JAPAN, JS, KOREA, LAT, MOHAWK, PORT, REES, RUSS, SI, SPAN. See Note 4 below.
Social Sciences	2.0 units	ANTH, ECON, PSCI, PSYCH, SDS, SOC. See Note 2 below.
Transdisciplinary Studies	0.5 unit	AFM, APPLS, ARBUS, ARTS, BUS, CDNST, CMW, GBDA, GSJ, HRM, HRTS, HUMSC, INDG, INTST, LS, MENN, MGMT, PACS, SMF, SOCWK. Also any course taken in another University of Waterloo faculty. See Notes 1 and 5 below.

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Rationale: This amendment adds the new subject code, ARABIC (created for existing Arabic language courses currently under the SI code) to the Languages and Cultures breadth requirement.

FOR INFORMATION

MINOR PLAN & CURRICULAR MODIFICATIONS

Council approved the following on behalf of Senate:

- minor plan changes for the faculties of arts (peace and conflict studies, English language and literature, applied language studies, political science, speech communication, social development studies, accounting and financial management, German and Slavic studies, Spanish and Latin American studies, medieval studies); science (environmental science, biology, biomedical sciences, bioinformatics, biochemistry).
- new courses for the faculties of applied health sciences (mental health literacy); arts (peace and conflict studies, accounting and financial management, communication arts, political science, social development studies); science (biology).
- course changes for the faculties of arts (accounting and financial management, Arabic, communications arts, English, history, philosophy, political science, peace and conflict studies, German and Slavic studies, social development studies, social work, sociology and legal studies, Spanish and Latin American studies, religious studies); science (biology).
- course inactivations for the faculty of arts (economics).

/rmw

David DeVidi
 Associate Vice-President, Academic

University of Waterloo
SENATE
Report of the President
16 September 2019

FOR INFORMATION

Recognition and Commendation

In June, Vice-President, Academic & Provost James Rush announced the award recipients of the Outstanding Performance Fund which rewards faculty members for outstanding contributions in teaching and scholarship. The recipients are:

Applied Health Sciences

Jack Callaghan; David Hammond; John Hirdes; Heather Keller; Ellen MacEachen (Stothers); Katie Misener; and Zara Rafferty.

Arts

Steven J. Balaban; Ramona Bobocel; Gary Bruce; Tara Collington; Martin Cooke; Tara Cooper; Shannon Dea; James Diamond; Michael Dixon; Christopher Eliasmith; Anna Esselment; Myra Fernandes; Francisco Gonzalez; Daniel Gorman; Randy Harris; Eric Helleiner; Shelley Hulan; Margaret Insley; George Lamont; Emmett Macfarlane; Patricia Marino; Andrew McMurry; Christine McWebb; Timothy Paci; Barbara Schmenk; Abigail Scholer; Anindya Sen; James Skidmore; Daniel Smilek; S. Lynne Taylor; Nancy Vanden Bosch; and Christina Vester.

Engineering

Kankar Bhattacharya; Donald Burn; Clifford Butcher; Eric Croiset; Krzysztof Czarnecki; Samir Elhedhli; Ali Elkamel; Monica Emelko; Xianshe Feng; Bruce Hellinga; Jan Huissoon; Jane Hutton; Andrew Levitt; Shavin Malhotra; John McPhee; Kevin Musselman; Stephen Smith; Mark Smucker; Ehsan Toyserkani; Mihaela Luminita Vlasea; Derek Wright; Alfred Yu; and Weihua Zhuang.

Environment

Richard Kelly; Luna Khirfan; Brendon Larson; Markus Moos; Stephen Murphy; Andrew Trant; and Michael Wood.

Math

Christopher Batty; Daniel Brown; Steven Furino; Kevin Hare; Jesse Hoey; David Jao; Lila Kari; Achim Kempf; Jochen Koenemann; Lap Chi Lau; Anita Layton; Christiane Lemieux; Jimmy Lin; Xinzhi Liu; Wayne Oldford; Vern Paulsen; Stefan Steiner; David Tompkins; and Ruodu Wang.

Science

Nandita Basu; Carey Bissonnette; Paul Craig; Jean Duhamel; Andrea Edginton; Heidi Engelhardt; Scott Hopkins; Patricia Hrynchak; Norbert Lutkenhaus; Roger Melko; Graham Murphy; Cynthia Richard; Rebecca Rooney; Donna Strickland; Benjamin Thompson; and Christopher Yakymchu.

(adapted from the *Daily Bulletin*, 6 June 2019)

Waterloo staff have earned special honours from the **CASE Circle of Excellence Awards** and the **CCAÉ Prix d'Excellence**. The Council for Advancement and Support of Education (CASE) is an international membership association serving educational institutions and professionals who work in alumni relations, communications, development, marketing and allied areas. The Canadian Council for the Advancement of Education (CCAÉ) is the equivalent association for Canada. Both organizations host annual awards programs to recognize creative ideas that advance our institutions. This year, the university received the following honours:

- Engineering Advancement's Waterloo Engineering 7 Building Official Opening and Campaign Closing won gold in the CASE category of Special Events: Single-Day Events.
- University Relations won silver from CASE for the video Women in STEM: From a Remote Village in India to a PhD in Engineering.
- At CCAÉ, Pharmacy Advancement's #Pharmacy5in5 Campaign with the Ontario College of Pharmacists (OCP) won gold for Best Use of Social Media.

(adapted from the *Daily Bulletin*, 25 June 2019)

A team of Global Business and Digital Arts students **Sylvia Bogdanowicz, Amirah Mahomed, Cindy Le, Kristen Fajardo, and Laura Kraehling**) developed Virtuous Waste, an alternative to plastic packaging made of seaweed that they pitched before a panel of industry experts and social entrepreneurs on June 19th in Toronto. Their winning solution will receive \$25,000 in funding for implementation during a 12-month incubation period. Virtuous Waste was selected from more than 60 different teams from across Canada who competed in the challenge.

(adapted from the *Daily Bulletin* 11 July 2019)

The 2019-2020 **HeForShe Faculty Advocates** have been named. The advocates are:

- Applied Health Sciences – **James Wallace**;
- Engineering – **Chris Bachmann**;
- Environment – **Jennifer Dean**;
- Arts – **Reimer Faber**;
- Science – **Marcel Pinheiro**;
- Math – **Joel Dubin**;
- St. Paul's – **Richard Myers**;
- St. Jerome's - **David Seljak**;
- Renison - **Krisitna Llewellyn**; and
- Conrad Grebel – **Paul Heidebrecht**.

The main role of the faculty advocate is to engage with students, faculty, staff and alumni regarding faculty-specific gender equity issues, work to address problematic areas, and foster a gender-equitable faculty and campus.

(adapted from the *Daily Bulletin*, 11 July 2019)

Five Waterloo employees have been selected to receive the Staff Enhancement Experience (SEE) Canada Grant for 2019. Committed to professional growth for employees, the University has developed opportunities for staff members to travel to peer institutions, nationally and globally to exchange ideas and advance learning with like-minded colleagues. Congratulations to the following recipients who have been selected for the 2019 award:

- **Kristen Deckert**, Undergraduate Administrative Coordinator and Academic Advisor
- **Joe Kwan**, Manager, Web Development
- **Fulu Mao**, Coordinator, International Education and Student Advisor

- **Danielle Vander Wekken**, Instructional Digital Media Developer
- **Susan Willsie**, Coordinator, Organizational & Human Development

(adapted from the *Daily Bulletin*, 15 July 2019)

Health tech companies captured the most interest and money at Waterloo's largest startup pitch competition yesterday. Among the 10 companies vying for the top prize, four companies persuaded the judges that their ideas had the best chance at commercial success. Winners included:

- **Insula Medical**, which is developing a compact and ergonomic insulin delivery system
- **WatFly**, which is developing an urban electric flight solution
- **Emergency Response Africa**, an EMS technology company that provides care to victims at the scene of an emergency
- **VOYHS**, a company that gives trans people the resources to train their voice to boost their confidence and improve their lives

(adapted from the *Daily Bulletin*, 19 July 2019)

Waterloo International announced this year's Staff International Experience Fund (SIEF) award recipients. The SIEF provides opportunities for staff members to travel to global peer institutions in order to exchange ideas and advance learnings with like-minded colleagues. This year's award recipients are:

- **Sarah Howard**, Graduate Student Experience Specialist, Graduate Studies & Postdoctoral Affairs
- **Chantal Vallis**, Communications Officer, Internationalization, Student Success Office

(adapted from the *Daily Bulletin*, 22 July 2019)

Five Waterloo students have won first place in the national student Innovative Designs for Accessibility (IDeA) competition held by Universities Canada. Mechanical engineering students **Jared Uramowski**, **Kristian VandeKemp**, **Evan McColl**, **Matthew Levy** and **Jon Cameron** designed the Enhanced Mobility Wheelchair, which took first place in the Architectural/industrial design barriers category.

(adapted from the *Daily Bulletin*, 26 July 2019)



MEMORANDUM

September 16, 2019

To: Members of Senate
Chairs of Departments and Directors of Schools

Copy: Daily Bulletin

From: James W.E. Rush, Vice-President Academic & Provost

Re: **Call for “University Professor” Nominations**

To date, Waterloo has awarded this distinction to twenty six individuals: Garry Rempel (chemical engineering), Mary Thompson (statistics & actuarial science) and Mark Zanna (psychology) in 2004; Terry McMahon (chemistry), Cam Stewart (pure mathematics) and Robert Jan van Pelt (architecture) in 2005; Phelim Boyle (accountancy) and Ian Munro (computer science) in 2006; Ken Davidson (pure mathematics), Keith Hipel (systems design engineering) and Jake Sivak (optometry) in 2007; Roy Cameron (health studies & gerontology) and Flora Ng (chemical engineering) in 2008; Ellsworth LeDrew (geography & environmental management) and Ming Li (computer science) in 2009; Stuart McGill (kinesiology) and Janusz Pawliszyn (chemistry) in 2010; Robert Le Roy (chemistry) in 2011; François Paré (french studies) in 2012; Doug Stinson (computer science) in 2013; William Coleman (political science), and William Cook (combinatorics and optimization) in 2015; Linda Nazar (chemistry) in 2016; Xuemin (Sherman) Shen (electrical and computer engineering) and Joanne Wood (psychology) in 2017; Tamer Ozsu (school of computer science) in 2018.

The selection process is reproduced below for your information. Please ensure that nomination material is submitted to my office before the December break.

UNIVERSITY PROFESSOR

The University of Waterloo owes much of its international reputation and stature to the quality of its eminent professors. University of Waterloo recognizes exceptional scholarly achievement and international pre-eminence through the designation “University Professor”. Once appointed, a faculty member retains the designation until retirement.

Not counting retirees, it is anticipated there will be one University Professor for approximately every 60 full-time regular faculty members, with at most two appointments each year. Such appointments are reported to Senate and the Board of Governors in March and April respectively, and are recognized at Convocation.

Selection Process

1. Annually, nominations will be sought from Faculty deans, directors of schools and department chairs, as well as from the university community generally. A nominee shall have demonstrated exceptional scholarly achievement and international pre-eminence in a particular field or fields of knowledge. The individual who nominates a colleague is responsible for gathering the documentation and submitting

it to the vice-president academic & provost before the December break. The University Tenure & Promotion Committee will act as the selection committee; its decisions are final.

2. A nomination must be supported by at least six signatures from at least two UW departments/schools and must be accompanied by a curriculum vitae and a short, non-technical description of the nominee's contributions.
3. A nomination must also be accompanied by letters from the nominee's Dean, and from at least two and no more than five scholars of international standing in the nominee's field from outside the University. The scholars are to be chosen by the nominee's Chair/Director in consultation with the Dean and the nominator. The letter of nomination should explain why these particular scholars were chosen.
4. Letters soliciting comments from scholars shall be sent by the Chair/Director. Scholars shall be asked to comment on the impact and specific nature of the nominee's most influential contributions, addressing their responses directly to the Vice-President, Academic & Provost.
5. The dossiers of unsuccessful nominees remain in the pool for two additional years. The appropriate Dean should provide updated information each year.

University of Waterloo
REPORT OF THE DEAN OF APPLIED HEALTH SCIENCES TO SENATE

September 16, 2019

FOR INFORMATION

A. APPOINTMENTS

Probationary Term Appointment

TATE NEUFELD, Hannah, Assistant Professor, School of Public Health and Health Systems, September 1, 2019. BAsc, University of Guelph, 1992, MSc, University of Manitoba, 2003, PhD, University of Manitoba, 2010, Banting Postdoctoral Research Fellow, Western University, 2015. Dr. Neufeld's research focusses on Indigenous maternal and child health, Indigenous food sovereignty, applied human nutrition, public health, and international development. Dr. Neufeld's teaching and research experience is a good fit within the School of Public Health and Health Systems.

Research Reappointment

RILEY, Barbara, Research Associate Professor, Faculty of Applied Health Sciences, July 1, 2019 – December 31, 2020 at 50% salary.

Adjunct Appointments

Graduate Supervision

HUMPHRIES, Sally, Professor, School of Public Health and Health Systems, June 15, 2019 – December 31, 2020.

Adjunct Re-appointment

Research

SEHL, Michael, Assistant Professor, Department of Kinesiology, July 1, 2019 – June 30, 2022.

Graduate Supervision

JOHNSTON, Terra, Lecturer, School of Public Health and Health Systems, July 1, 2019 – June 30, 2020.

WELLS, Richard, Professor Emeritus, Department of Kinesiology, January 1, 2019 – June 30, 2021.

Special Appointments

Undergraduate Instruction

FERRO, Annalise, Lecturer, School of Public Health and Health Systems, September 1, 2019 – December 31, 2019.

Postdoctoral Reappointment

BEYER, Kit, Department of Kinesiology, July 1, 2019 – April 30, 2021.

Postdoctoral Appointment

GOHARI, Mahmood, School of Public Health and Health Systems, September 1, 2019 – August 31, 2021.

FERNANDES, Maria Fernanda, Department of Kinesiology, extended appointment until June 30, 2020.

WIGGINS, Tobias, Department of Recreation and Leisure Studies, August 6, 2019 – August 6, 2020.

Cross Reappointment

BOGER, Jennifer, Assistant Professor, Department of Systems Design Engineering, Faculty of Engineering to School of Public Health and Health Systems, Faculty of Applied Health Sciences, July 1, 2019 – June 30, 2022.

HOULE, Sherilyn, Assistant Professor, School of Pharmacy, Faculty of Science to School of Public Health and Health Systems, Faculty of Applied Health Sciences, August 1, 2019 – June 30, 2024.

B. CANADA RESEARCH CHAIR REAPPOINTMENT

CALLAGHAN, Jack, Professor, Canada Research Chair, Tier 1 in Spine Biomechanics and Injury Prevention, Department of Kinesiology, May 1, 2019 – April 30, 2026.

HUGHSON, Richard, Schlegel Chair in Vascular Aging, Department of Kinesiology, July 1, 2020 – June 30, 2025.

HECKMAN, George, Schlegel Chair in Geriatric Medicine, School of Public Health and Health Systems, January 1, 2020 – December 31, 2021.

C. ADMINISTRATIVE APPOINTMENTS

TUPLING, Russell, Professor and Chair, Department of Kinesiology, July 1, 2020 – June 30, 2024.

FOR APPROVAL BY THE BOARD OF GOVERNORS

D. SABBATICAL LEAVES

HANNING, Rhona, Professor, School of Public Health and Health Systems, September 1, 2020 – December 31, 2021.



**Lili Liu, Dean
Applied Health Sciences**

UNIVERSITY OF WATERLOO
REPORT OF THE DEAN OF THE FACULTY OF ARTS TO SENATE
September 16, 2019

FOR INFORMATION

A. APPOINTMENTS

Tenure

DEMERS, Elizabeth, (BA 1989, MAcc 1990 University of Waterloo, PhD 2000 Stanford University), Professor, School of Accounting and Finance, August 1, 2019. Her financial research has been published in *The Review of Accounting Studies*, *the Journal of Financial Economics*, *the Journal of Accounting Research*, and *Contemporary Accounting Research*. Elizabeth is the current editor of the *Journal of Business Finance and Accounting*. She received the Tsinghua-INSTEAD EMBA Program Teaching Award (one of the Top-3 INSEAD Professors). Elizabeth will contribute to the School of Accounting and Finance by strengthening research and teaching in our financial accounting area.

Probationary Term Appointments

KADIR, Aynur, (BE 2008, MA Xinjiang Normal University, PhD 2018 Simon Fraser University), Assistant Professor, Department of Communication Arts, July 1, 2019 to June 30, 2022. Aynur's research focuses on the theories and practices of design and the study of interactive multimedia. She uses participatory design practices to create and curate ethnographic media art with the aim of using technology to produce greater social justice. She teaches hands-on digital arts courses that focus on using digital media technology for project-based learning.

Probationary Term Reappointments

DOLPHIN, Alexis, (BA 1998 McMaster University, MA 2000 University of Western Ontario, PhD 2006 University of Massachusetts), Assistant Professor, Department of Anthropology, July 1, 2019 to June 30, 2022.

DRAKE, Anna, (BA 2001 University of Waterloo, MA 2003 University of Victoria, PhD 2009 Queen's University), Assistant Professor, Department of Political Science, July 1, 2019 to June 30, 2022.

FULFER, Katy, (BA 2006 Freed-Hardeman University, MA 2008 Georgia State University, PhD 2012 University of Western Ontario), Assistant Professor, Department of Philosophy, July 1, 2019 to June 30, 2022.

HENNE, Kathryn, (BA 2004 Temple University, MA 2009 California State University, Long Beach, PhD 2011 University of California, Irvine), Assistant Professor, Department of Sociology and Legal Studies, July 1, 2019 to June 30, 2022.

Definite Term Reappointments

ARNASON, Mark, Lecturer, School of Accounting and Finance, September 1, 2019 to June 30, 2021.

BALABAN, Steve, Lecturer, School of Accounting and Finance, July 1, 2019 to June 30, 2020.

BERBERICH, Greg, Lecturer, School of Accounting and Finance, July 1, 2019 to June 30, 2020.

BLAIR, Gavin, Lecturer, School of Accounting and Finance, July 1, 2019 to June 30, 2020.

CARTY, Lynn, Lecturer, School of Accounting and Finance, July 1, 2019 to June 30, 2020.

DELAMERE, D'Arcy, Lecturer, School of Accounting and Finance, July 1, 2019 to June 30, 2020.

DOMINGUEZ, Tabatha, Lecturer, Stratford School of Interaction Design and Business, August 1, 2019 to July 31, 2021.

ECCLESTONE, Andrew, Lecturer, School of Accounting and Finance, July 1, 2019 to June 30, 2020.

FORRESTER, Clive, Lecturer, Department of English Language and Literature, August 1, 2019 to July 31, 2020.

HA, David, Lecturer, School of Accounting and Finance, July 1, 2019 to June 30, 2020.

HAYES, Frank, Lecturer, School of Accounting and Finance, July 1, 2019 to June 30, 2020.

HILPERT, Tracy, Lecturer, School of Accounting and Finance, July 1, 2019 to June 30, 2020.

MANN, Shari, Lecturer, School of Accounting and Finance, July 1, 2020 to June 30, 2020.

ROGOZYNSKI, Dan, Lecturer, School of Accounting and Finance, September 1, 2019 to June 30, 2021.

SCHMIDLIN, Karin, Lecturer, Stratford School of Interaction Design and Business, August 1, 2019 to July 31, 2021.

SIEBEL-ACHENBACH, Sebastian, Lecturer, Stratford School of Interaction Design and Business, September 1, 2019 to August 31, 2021.

Adjunct Appointments – Instruction

TROIT, Anne-Sophie, Lecturer, Department of French Studies, September 1, 2019 to December 31, 2019.

Adjunct Appointments – Graduate Supervision

HANNAH-MOFFAT, Kelly, Professor, Department of Sociology and Legal Studies, June 17, 2019 to June 16, 2020.

Adjunct Reappointments – Instruction

ALEKBEROV, Elshan, Lecturer, Department of Economics, September 1, 2019 to December 31, 2019.

BALTRUSAITIS, Jonathan, Lecturer, Stratford School of Interaction Design and Business, September 1, 2019 to December 31, 2019.

BARICHELLO, Steve, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

BASHIR, Mohsin, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

BRAZIER, Brenda, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

BUCHENAUER, Cody, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

CALERON, Jesus, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

CARTER, Veronica, Lecturer, Department of Fine Arts, September 1, 2019 to December 31, 2019.

CARVER, Matthew, Lecturer, Department of Fine Arts, September 1, 2019 to December 31, 2019.

CHANG, Wayne, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

CLARK, Greg, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

COREY, Dylan, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

CYR, Dylan, Lecturer, Department of History, September 1, 2019 to December 31, 2019.

DEHGHANI, Morteza, Lecturer, Department of English Language and Literature, September 1, 2019 to December 31, 2019.

DOLSON, Mark, Lecturer, Department of Anthropology, September 1, 2019 to December 31, 2019.

EVERINGHAM, Scott, Department of Fine Arts, September 1, 2019 to December 31, 2019.

EVERITT, Bruce, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

FATIMA, Nafeez, Lecturer, Department of Economics, September 1, 2019 to December 31, 2019.

FERNANDEZ, Stephen, Lecturer Department of English Language and Literature, September 1, 2019 to December 31, 2019.

FEUER, Matthew, Lecturer, Department of Religious Studies, September 1, 2019 to December 31, 2019.

GAMEZ-ABULLARADE, Hector, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

GAZZOLA, Lynn, Lecturer, Faculty of Arts, September 1, 2019 to December 31, 2019.

HANCOCK, Michael, Lecturer, Department of English Language and Literature, September 1, 2019 to December 31, 2019.

HUNTER, Natalie, Lecturer, Department of Fine Arts, September 1, 2019 to December 31, 2019.

JOHAL, Jasdeep, Lecturer, School of Accounting and Finance, May 1, 2019 to August 31, 2019.

KERNOHAN, Sarah, Lecturer, Department of Fine Arts, September 1, 2019 to December 31, 2019.

KHOLDI, Amir-Shahram, Lecturer, Department of History, September 1, 2019 to December 31, 2019.

KLANN, Julia, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

LEWIS, McKenzie, Lecturer, Department of Classical Studies, September 1, 2019 to April 30, 2020.

LIAQAT, Zara, Lecturer, Department of Economics, September 1, 2019 to December 31, 2019.

LIN, David, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

MCGOWAN, Rosemary, Lecturer, Master of Public Service, Department of Political Science, September 1, 2019 to December 31, 2019.

MILLOY, John, Lecturer, Master of Public Service, Department of Political Science, July 1, 2019 to June 30, 2020.

OLDHAM, Andrew, Lecturer, School of Accounting and Finance, May 1, 2019 to August 31, 2019.

OZKARDAS, Ahmet, Lecturer, Department of Economics, September 1, 2019 to December 31, 2019.

PACEY, Dean, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

PARK, Justin, Lecturer, School of Accounting and Finance, May 1, 2019 to August 31, 2019.

PAWLAK, Konrad, Lecturer School of Accounting and Finance, September 1, 2019 to April 30, 2020.

PETRESCU, Maria, Lecturer, Department of French Studies, September 1, 2019 to December 31, 2019.

RAJSIC, Predrag, Lecturer, Department of Economics, September 1, 2019 to December 31, 2019.

RUFFUDEEN, Zamal, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

SHAKESPEARE, Robert, Lecturer, Department of Communication Arts, September 1, 2019 to December 31, 2019.

SIMEONI, Laura, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

TALWAR, Sanjiv, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

TIMBERG, Robert, Lecturer, School of Accounting and Finance, September 1, 2019 to December 31, 2019.

VLAD, Ruxandra, Lecturer, Department of Political Science, September 1, 2019 to December 31, 2019.

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

JACKES, Mary, Professor, Department of Anthropology, August 1, 2019 to August 31, 2021.

JOHNSTONE, Rachael, Assistant Professor, Department of Political Science, June 1, 2019 to May 31, 2022.

LUBELL, David, Professor, Department of Anthropology, August 1, 2019 to August 31, 2021.

SMITH, Larry, Associate Professor, Department of Economics, January 1, 2019 to December 31, 2020.

Adjunct Reappointments – Graduate Supervision

BEHARRY, Edward, Assistant Professor, Department of Psychology, September 1, 2019 to August 31, 2020.

BEHARRY, Pamela, Assistant Professor, Department of Psychology, September 1, 2019 to August 31, 2020.

BOYD, Jennifer, Clinical Supervision, Department of Psychology, September 1, 2019 to August 31, 2020.

BREAM, Linda, Clinical Supervision, Department of Psychology, September 1, 2019 to August 31, 2020.

COUPLAND, Richard, Clinical Supervision, Department of Psychology, September 1, 2019 to August 31, 2020.

COLEMAN, Beth, Associate Professor, Department of English Language and Literature, July 1, 2019 to June 30, 2022.

DODGSON, Philip, Clinical Supervision, Department of Psychology, September 1, 2019 to August 31, 2020.

ETTINGER, Aaron, Assistant Professor, Department of Political Science, July 1, 2019 to June 30, 2022.

HOLMES, John, Professor, (Professor Emeritus), Department of Psychology, September 1, 2019 to August 31, 2021.

MAINLAND, Brian, Clinical Supervision, Department of Psychology, September 1, 2019 to August 31, 2020.

MIKAIL, Samuel, Clinical Supervision, Department of Psychology, September 1, 2019 to August 31, 2020.

SLATER, Ruth, Clinical Supervision, Department of Psychology, September 1, 2019 to August 31, 2020.

SPERE, Katherine, Assistant Professor, Department of Psychology, September 1, 2019 to August 31, 2020.

TORRANCE-PERKS, Julie, Clinical Supervision, Department of Psychology, September 1, 2019 to August 31, 2020.

VORSTENBOSCH, Valerie, Clinical Supervision, Department of Psychology, September 1, 2019 to August 31, 2020.

WAUGH, Robin, Professor, Department of English Language and Literature, September 1, 2019 to May 31, 2022.

ZANNA, Mark, Professor, (Distinguished Professor Emeritus), Department of Psychology, September 1, 2019 to August 31, 2021.

Graduate Students Appointed as Part-Time Lecturers

ANDERSON, Rebecca, Department of English Language and Literature, September 1, 2019 to December 31, 2019.

ARCILA-VASQUEZ, Andres, Master of Public Service, September 1, 2019 to December 31, 2019.

ARENS, Preston, Department of History, September 1, 2019 to December 31, 2019.

GALLAGHER, Sara, Department of English Language and Literature, September 1, 2019 to December 31, 2019.

GIANNAKOPOULOS, Christopher, Department of English Language and Literature, September 1, 2019 to December 31, 2019.

GIBSON, Ian, Department of English Language and Literature, September 1, 2019 to December 31, 2019.

GOULDING, Brandon, Department of Psychology, September 1, 2019 to December 31, 2019.

KARKI, Chitra, Department of English Language and Literature, September 1, 2019 to December 31, 2019.

MAYBERRY, Tommy, Department of English Language and Literature, September 1, 2019 to December 31, 2019.

MEANING, Lindsay, Department of English Language and Literature, September 1, 2019 to December 31, 2019.

MEHRABIAN, Houman, Department of English Language and Literature, September 1, 2019 to December 31, 2019.

MORENO OJEDA, Diana, Department of English Language and Literature, September 1, 2019 to December 31, 2019.

PABLA, Manjit, Department of Sociology and Legal Studies, September 1, 2019 to December 31, 2019.

SYCZ, Damian, Department of Sociology and Legal Studies, September 1, 2019 to December 31, 2019.

TAYLOR, Christin, Department of English Language and Literature, September 1, 2019 to December 31, 2019.

WANG, Victor (Xiaoqi), School of Accounting and Finance, September 1, 2019 to December 31, 2019.

WILSON, McLennon, Department of Psychology, September 1, 2019 to December 31, 2019.

WOJCIECHOWSKI, Christine, Department of Sociology and Legal Studies, September 1, 2019 to December 31, 2019.

Staff Appointments to Faculty

NUNEZ, Camelia, Lecturer, Faculty of Arts, September 1, 2019 to December 31, 2019.

B. ADMINISTRATIVE APPOINTMENTS

CURRY, Phil, Associate Chair, Graduate Studies, Department of Economics, September 1, 2019 to June 30, 2021.

FRICK, Peter, Associate Chair, Undergraduate Studies, Department of Religious Studies, September 1, 2019 to August 31, 2020.

JAKOBESH, Doris, Associate Chair, Graduate Studies, Department of Religious Studies, July 1, 2019 to June 30, 2020.

SINGH, Rashmee, Associate Chair, Graduate Studies, Department of Sociology and Legal Studies, July 1, 2019 to June 30, 2021.

SBARDELLATI, John, Associate Chair, Undergraduate Studies, Department of History, July 1, 2019 to December 31, 2020.

SIEBEL-ACHENBACH, Sebastian, Associate Director, Undergraduate, Stratford School of Interaction Design and Business, July 1, 2019 to June 30, 2020.

Administrative Reappointment

AURINI, Janice, Associate Chair, Undergraduate Studies (Sociology), Department of Sociology and Legal Studies, July 1, 2019 to June 30, 2021.

DOLMAGE, Jay, Associate Chair, Undergraduate Communications Outcomes Initiative (UCOI), Department of English Language and Literature, July 1, 2019 to June 30, 2021.

SCHULENBERG, Jennifer, Associate Chair, Undergraduate Studies (Legal Studies) Department of Sociology and Legal Studies, July 1, 2019 to June 30, 2021.

CHANGE in DATES

XU, Dinghai, Associate Chair, Graduate Studies, Department of Economics, **from** September 1, 2018 to June 30, 2020 **to** September 1, 2018 to August 31, 2019.

C. RESIGNATION

IAFOLLA, Vanessa, Lecturer, Department of Sociology & Legal Studies, effective August 31, 2019.

D. SABBATICAL LEAVES**For approval by the Board of Governors:**

ANDERSON, Britt, Associate Professor, Department of Psychology, January 1, 2020 to June 30, 2020, six months at 85% salary.

BOYCHUK, Gerard, Professor, Department of Political Science, January 1, 2020 to June 30, 2020, six months at full salary.

COUTU, Joan, Professor, Department of Fine Arts, January 1 to June 30, 2020, six months at 85% salary.

DOLPHIN, Alexis, Assistant Professor, Department of Anthropology, January 1, 2020 to June 30, 2020, six months at full salary.

HELLEINER, Eric, Professor, Department of Political Science, January 1, 2020 to June 30, 2020, six months at 85% salary.

KOEHLER, Derek, Professor, Department of Psychology, January 1, 2020 to June 30, 2020, six months at 85% salary.

PARKER, Thomas, Assistant Professor, Department of Economics, January 1, 2020 to June 30, 2020, six months at 85% salary.

PORRECA, David, Associate Professor, Department of Classical Studies, January 1, 2020 to December 31, 2020, twelve months at 94.7% salary.

ROZOTTO, David, Assistant Professor, Department of Spanish and Latin American Studies, January 1, 2020 to June 30, 2020, six months at full salary.

SCHMENK, Barbara, Professor, Department of Germanic and Slavic Studies, January 1, 2020 to June 30, 2020, six months at 85% salary.

TINGLEY, Jane, Associate Professor, Stratford School of Interaction Design and Business, January 1, 2020 to June 30, 2020, six months at 85% salary.

WANG, Hongying, Associate Professor, Department of Political Science, January 1, 2020 to June 30, 2020, six months at 85% salary.

WARLEY, Linda, Associate Professor, Department of English Language & Literature, January 1, 2020 to June 30, 2020, six months at full salary.

E. UNPAID LEAVE

WALKER, James, Professor, Department of History, September 1, 2019 to December 31, 2019.



Sheila Ager
Dean, Faculty of Arts

UNIVERSITY OF WATERLOO
REPORT OF THE DEAN OF ENGINEERING TO SENATE
September 16, 2019

FOR INFORMATION

A. *APPOINTMENTS*
Probationary Term

KAPSIS, Konstantinos (Costa), Assistant Professor, Department of Civil & Environmental Engineering, January 1, 2020 – June 30, 2023. PhD, Concordia University, Quebec, 2016; MSc, Concordia University, Quebec, 2009; BSc, University of Athens, Greece, 2005. Dr. Kapsis received his M.A.Sc. and Ph.D. degrees from Concordia University in 2009 and 2016 respectively. The title of his Ph.D. thesis was: “Building integrated photovoltaics and advanced building envelope systems”. Since completing his Ph.D., he has worked as a post-doctoral fellow at Concordia University from April 2016 to May 2017, and as a post-doctoral fellow at Natural Resources Canada since May 2017. In these roles, his research has focused in the areas of: “Net Zero Energy Buildings (NZEB) and Communities (NSEC)” and “Building Integrated Photovoltaics (BIPV) and advanced envelope systems”.

KIM, Joyce, Assistant Professor, Department of Civil & Environmental Engineering, May 1, 2020, June 30, 2023. PhD, Architecture, University of California, Berkeley, CA, 2018; MS in Sustainable Design, Thomas Jefferson University, Philadelphia, PA, 2011; BAS, Civil Engineering, University of Waterloo, Waterloo, ON, 2006. Dr. Kim received her M.A.Sc. degree from Thomas Jefferson University and her Ph.D. degree in Architecture from UC Berkeley in 2011 and 2018 respectively. Her Ph.D. thesis was entitled: “Advancing comfort technology and analytics to personalize thermal experience in the built environment”. Her research seminar was entitled: “Intelligent Building Design and Operation with Technology and Data Analytics”. It presented research she has undertaken on applying the IoT and AI to: increase visibility into occupant behaviour and perception, personalize heating and cooling experience using connected systems, and enable buildings to interface with the smart grid and automate demand response.

PENG, Peng, Assistant Professor, Department of Mechanical & Mechatronics Engineering, January 1, 2020 – June 30, 2023. PhD, University of Waterloo, Waterloo, ON, 2014; MSc, China University of Geosciences (CUGB), Wuhan, PR China, 2010; BSc, China University of Geosciences, (GUGB), Wuhan, PR China, 2007. Dr. Peng Peng’s research focuses on brazing, laser processing, micro/nano-joining, and functional nanomaterials. He received his PhD in Mechanical Engineering from the University of Waterloo in 2014, after which he spent 16 months as post-doctoral fellow with the Centre for Advanced Materials Joining at UWaterloo. He is currently an associate professor in the Department of Materials Processing and Control Engineering, and International Research Institute for Multidisciplinary Science at Beihang University, China. He joins the Materials research group following the retirement of Prof. David Weckman.

QUILTY, John, Assistant Professor, Department of Civil & Environmental Engineering, July 1, 2019 – June 30, 2022. PhD, McGill University, Montreal, QC, 2018, B.Eng, Carleton University, Ottawa, ON, 2011. Dr. Quilty received his PhD in Bioresource Engineering from McGill University in 2018 while working full-time at the City of Ottawa. He currently is an Automated Metering Infrastructure Network Analyst at the City of Ottawa where he is responsible for numerous water resources engineering designs, analyses, and management tasks. He also is an active Research Associate in the Department of Bioresource Engineering at McGill University. He will augment our university strategic research area of water, as well as supporting our commitment to addressing regional environmental concerns.

ZHU, Qinqin, Assistant Professor, Department of Chemical Engineering, September 1, 2019 – June 30, 2022. PhD, University of Southern California, 2017; MS, University of Southern California, 2016; BS, Zhejiang University, 2013. “Dr. Zhu has a unique set of experience combining expertise in process control through her education up to PhD, and expertise in data analytics and deep learning through her experience at Facebook Inc. She will help strengthening and complementing current Process System Engineering expertise in the Department, as well as revitalize strength in advanced statistics that was lost when Tom Duever left the Department.”

Probationary Term Reappointment

BORJI, Amir, Assistant Professor, Department of Electrical & Computer Engineering, May 1, 2019 – June 30, 2019. PhD, University of Waterloo, ON, 2004; MSc, Isfahan University of Technology, Isfahan, Iran, 1998; BSc Isfahan University of Technology, Isfahan, Iran, 1994.

GURFINKEL, Arie, Associate Professor, Department of Electrical & Computer Engineering, July 1, 2019 – June 30, 2022. PhD, University of Toronto, Toronto, ON, 2007; MSc, University of Toronto, Toronto, ON, 2003; BSc, University of Toronto, Toronto, ON, 2000.

HICKEY, Jean-Pierre, Assistant Professor, Department of Mechanical & Mechatronics Engineering, July 1, 2019 – June 30, 2022. PhD, Royal Military College of Canada, Kingston, ON, 2012; MSc, Technische Universität Darmstadt, Darmstadt Germany, 2007; B.Eng., Ecole Polytechnique de Montreal, Montreal, QC, 2004.

HUTTON, Jane, Assistant Professor, School of Architecture, July 1, 2019 – June 30, 2022. Master of Landscape Architecture, University of Toronto, ON, 2004; BSc, McGill University, 1999.

MAHMOUDZADEH, Houra, Assistant Professor, Department of Management Sciences, July 1, 2019 – June 30, 2022. PhD, University of Toronto, Toronto, ON, 2015; MSc, Sharif University of Technology, Tehran, Iran, 2006; BSc, Sharif University of Technology, Tehran Iran, 2003.

SAARI, Rebecca, Assistant Professor, Department of Civil & Environmental Engineering, July 1, 2019 – June 30, 2022. PhD, Massachusetts Institute of Technology, Cambridge, MA, 2015; MSc, University of Toronto, Toronto, ON, 2007; BSc, University of Toronto, Toronto, ON, 2005.

SIMPSON-PORCO, John, Assistant Professor, Department of Electrical & Computer Engineering, July 1, 2019 – June 30, 2022. PhD, Mechanical Engineering, University of California, Santa Barbara, CA, 2015; BSc, Engineering Physics, Queen’s University, Kingston, ON, 2010.

VLASEA, Mihaela, Assistant Professor, Department of Mechanical & Mechatronics Engineering, July 1, 2019 – June 30, 2022. PhD, University of Waterloo, Waterloo, ON; Diploma, Space Studies Program, International Space University, Graz University of Technology, Graz, Austria; Certificate in University Teaching, Centre for Teaching Excellence, University of Waterloo, Waterloo, ON; Honours BSc, Mechatronics Engineering Coop, University of Waterloo, Waterloo, ON.

New Definite Term- full-time

ATKINS, Andrea, Lecturer, Department of Civil & Environmental Engineering, August 1, 2019 – July 31, 2022. Master of Engineering, University of Toronto, Toronto, ON, 2018; Master of Architecture, University of Waterloo, Waterloo, ON, 2013; Bachelor of Architectural Studies, Honours, Co-op, University of Waterloo, School of Architecture, Cambridge, ON, 2010. Ms. Andrea Atkins received her Bachelor of Architectural Studies, Honours, Co-op in 2010 and Master of Architecture with Structural Certificate in 2013, both from the School of Architecture, University of Waterloo. From 2013 to 2014, she was self-employed as a consultant on obtaining building permit and construction of a private home. Since 2013, she has been working as a project engineer at Blackwell Structural Engineers in Toronto. During this period, she obtained her Master of Engineering (Specializing in Structural Engineering) from University of Toronto in 2018. She has been teaching sessional courses at the UW School of Architecture for several years.

HOLT, Christopher, Lecturer, Conrad School of Entrepreneurship & Business, September 1, 2019 – August 31, 2022. PhD Candidate, University of Toronto, ON; MBA; Duke University Durham, NC 1996; Bachelor of Commerce, Queen's University, Kingston, ON, 1992. Chris is completing his PhD in entrepreneurship education at the University of Toronto and has a special interest in entrepreneurial identity. With extensive professional and consulting experience, Chris will be overseeing MBET experiential consulting projects, teaching Conrad's new 500-level Management Consulting course that is open to both graduate and undergraduate students, and other undergraduate electives in entrepreneurship.

HUANG, Ziqiang (Patrick), Assistant Professor, Department of Electrical & Computer Engineering, June 1, 2019 – May 31, 2022. PhD, Duke University, Durham, NC, 2019; MSc, Duke University, Durham, NC, 2014, BSc, East China University of Science and Technology, (ECUST), 2012. Ziqiang (Patrick) Huang is being hired by the ECE department to help support the work of Prof. Sebastian Fischmeister on embedded computing. Dr. Huang brings to us his prior experience in computer architecture.

SHAVANDI, Hassan, Lecturer, Department of Management Sciences, September 1, 2019 – August 31, 2020. PhD Sharif University of Technology, Tehran, Iran, 2005; MSc, Sharif University of Technology, Tehran, Iran, 1998; BSc, Azad University of Qazvin, Qazvin, Iran, 1996. The field of interest for Hassan will be Operations Research and Industrial Engineering; Hassan will teach four courses for our graduate program and one course for our graduate program.

TAHERKHANI, Gita, Lecturer, Department of Management Sciences, September 1, 2019 – August 31, 2020. PhD, University of Waterloo, Waterloo, ON, 2019; MSc Koc University, Istanbul, Turkey, 2015; BSc, Sharif University of Technology, Tehran, Iran, 2013. Field of interest: Operations Research; Gita will teach five courses for our undergraduate program and one course for our graduate program.

New Definite Term Reappointment-full-time

BORJI, Amir, Assistant Professor, Department of Electrical & Computer Engineering, July 1, 2019 – December 1, 2019. PhD, University of Waterloo, Waterloo, ON, 2004; MSc, Isfahan University of Technology, Isfahan Iran, 1998; BSc Isfahan University of Technology, Isfahan Iran, 1994.

BORLAND, Matthew, Lecturer, Department of Systems Design Engineering, September 1, 2019 – August 31, 2022. PhD, University of Waterloo, Waterloo, ON, 2014; MSc, University of Waterloo, Waterloo, ON, 2009; BSc, University of Waterloo, Waterloo, ON, 2006.

BUTCHER, Cliff, Assistant Professor, Department of Mechanical & Mechatronics Engineering, July 1, 2019 – June 30, 2022. PhD, University of New Brunswick, Fredericton, NB, 2011; MScE, University of New Brunswick, Fredericton, NB, 2007; BSc, University of New Brunswick, Fredericton, NB, 2006.

EL-HAG, Ayman, Lecturer, Department of Electrical & Computer Engineering, September 1, 2019 – August 31, 2020. PhD, University of Waterloo, Waterloo, ON, 2003; MSc, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, 1998; BSc, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, 1993.

NEZHAD-AHMADI, Mohammad-Reza, Assistant Professor, Department of Electrical & Computer Engineering, May 1, 2019 – December 31, 2022. PhD, University of Waterloo, Waterloo ON, 2010; MSc, Sharif University of Technology, Tehran, Iran, 2000; BSc, Isfahan University of Technology, Tehran, Iran, 1998.

POURMOHAMMADALI, Homeyra, Lecturer, Department of Mechanical & Mechatronics Engineering, August 31, 2019 – December 31, 2019. (Fractional load, FTE 50% with 100% teaching weighting).

SCHMIDT, Philip, Assistant Professor, Department of Civil & Environmental Engineering, July 1, 2019 – June 30, 2021. PhD, University of Waterloo, Waterloo, ON, 2011; BSc, Honours Environmental Engineering, Co-operative Program, Civil Specialization, University of Waterloo, Waterloo, ON, 2005.

Visiting Appointments

ABDELRAHMAN ABDELNABI, Mohamed Ashraf Mohamed, Scholar, Department of Systems Design Engineering, June 21, 2019 – September 21, 2019.

ABOUELMAKAREM, Aya, Researcher, Department of Mechanical & Mechatronics Engineering, September 21, 2019 – January 17, 2020.

AHMED, Abdelrahman, Researcher, Department of Mechanical & Mechatronics Engineering, September 21, 2019 – January 17, 2020.

AMINI, Jalal, Professor, Department of Electrical & Computer Engineering, August 15, 2019 – September 30, 2020.

CHEN, Qiping, Scholar, Department of Mechanical & Mechatronics Engineering, August 25, 2019 – August 24, 2020.

DAGSUYU, Cansu, Researcher, Department of Management Sciences, September 23, 2019 – September 22, 2020.

DWIVEDI, Ashutosh Dhar, Researcher, Department of Electrical & Computer Engineering, May 7, 2019 – September 3, 2019.

DYKAAR, Douglas, Scientist, Department of Electrical & Computer Engineering, May 15, 2019 – May 14, 2021.

FATHI, Ehsanollah, Researcher, Department of Electrical & Computer Engineering, June 1, 2019 – May 31, 2020.

FEREIDAN, Kaveh, Scientist, Department of Electrical & Computer Engineering, February 1, 2019 – January 31, 2020.

FISCHER, Katrin, Researcher, Department of Electrical & Computer Engineering, September 3, 2019 – December 16, 2019.

HAMDY, Youssef Hossam, Researcher, Department of Mechanical & Mechatronics Engineering, September 21, 2019 – January 17, 2020.

HAN, Xiao Xia, Scholar, Department of Chemical Engineering, August 1, 2019 – December 31, 2019.

HAN, Yunshi, Researcher, Department of Mechanical & Mechatronics Engineering, September 2, 2019 – February 14, 2019.

HU, Linlin, Scholar, Department of Chemical Engineering, September 1, 2019 – August 31, 2020.

LI, Guofa, Scholar, Department of Mechanical & Mechatronics Engineering, August 15, 2019 – August 14, 2020.

MA, Xiaofeng, Researcher, Department of Civil & Environmental Engineering, January 3, 2020 – December 31, 2020.

MODARRESI ALAM, Ali Reza, Professor, Department of Chemical Engineering, November 1, 2019 – October 31, 2020.

MOHAMMADI, Maryam, Scholar, Department of Mechanical & Mechatronics Engineering, September 1, 2019 – August 31, 2020.

MOUSAVI, Seyed Jamshid, Researcher, Department of Electrical & Computer Engineering, November 1, 2019 – June 30, 2020.

QASIM, Khan, Scholar, Department of Mechanical & Mechatronics Engineering, September 15, 2019 – September 14, 2021.

QI, Ronghui, Scholar, Department of Mechanical & Mechatronics Engineering, May 28, 2019 – October 15, 2019.

SALIB, Gina Jemy, Researcher, Department of Mechanical & Mechatronics Engineering, September 21, 2019 – January 17, 2020.

SCOTT, Christopher Charles, Scientist, Department of Electrical & Computer Engineering, June 1, 2019 – June 1, 2021.

SILVA, Catherine, Scholar, Department of Chemical Engineering, May 1, 2019 – April 30, 2020.

SINGH, Rajani, Researcher, Department of Electrical & Computer Engineering, June 10, 2019 – September 9, 2019.

SU, Limei, Scholar, Department of Systems Design Engineering, September 1, 2019 – August 31, 2020.

TALUKDER, Byomkesh, Scholar, Department of Systems Design Engineering, May 1, 2019 – September 30, 2019.

VAN DEN BOSCH, Alain Emiel Cornelis, Researcher, Electrical & Computer Engineering, May 15, 2019 – August 15, 2019.

WANG, Jitong, Scholar, Department of Chemical Engineering, October 1, 2019 – September 30, 2020.

WANG, Jun, Scholar, Department of Electrical & Computer Engineering, July 1, 2019 – June 30, 2020.

WEI, Shuhua, Scholar, Department of Electrical & Computer Engineering, August 1, 2019 – July 31, 2020.

YU, Huanan, Researcher, Department of Civil & Environmental Engineering, September 1, 2019 – August 31, 2020.

YU, Suling, Scholar, Department of Electrical & Computer Engineering, April 1, 2019 – March 31, 2020.

ZENG, Delu, Scholar, Department of Electrical & Computer Engineering, September 1, 2019 – February 29, 2020.

ZHANG, Xiaorong, Scholar, Department of Chemical Engineering, July 15, 2019 – July 14, 2020.

ZHAO, Ruiyang, Scholar, Department of Chemical Engineering, November 1, 2019 – October 31, 2020.

Visiting Reappointments

ZAMANI, SIBONI, Hossein, Scholar, Department of Electrical & Computer Engineering, May 1, 2019 – April 30, 2020.

Special Appointments

Undergraduate Instruction

ABBASVANDI, Niloofar, Lecturer, Department of Electrical & Computer Engineering, June 17, 2019 – August 31, 2019.

AHMED, Mohammad, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2019 – August 31, 2019.

ALZAYAT, Ayman, Lecturer, Department of Management Sciences, September 1, 2019 – December 31, 2019.

BYSKAL, Daniel, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2019 - August 31, 2019.

GHAVAMI, Ahmed, Lecturer, Department of Electrical & Computer Engineering, September 1, 2019 – December 31, 2019.

GOLAB, Lukasz, Lecturer, Department of Management Sciences, May 1, 2019 – August 31, 2019.

HADWIN, Paul, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2019 – August 31, 2019.

HAZLETT, Melanie, Lecturer, Department of Chemical Engineering, September 1, 2019 – December 31, 2019.

MATHER, David, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2019 – August 31, 2019.

MCCLOSKEY, Pierce, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2019 - August 31, 2019.

NGUYEN, Tam, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2019 – August 31, 2019.

RENNICK, Chris, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2019 – August 31, 2019.

SABISTON, Trevor, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2019 – August 31, 2019.

TEERTSTRA, Peter, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2019 – August 31, 2019.

WANG, Jiaming (James), Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2019 – August 31, 2019.

Special Appointments

Graduation Instruction

ALLARAKHIA, Minna, Lecturer, Department of Management Sciences, September 1, 2019 – December 31, 2019.

AZAD, Sahar Pirooz, Lecturer, Department of Electrical & Computer Engineering, May 1, 2019 – August 31, 2019.

BHATTACHARYA, Kankar, Lecturer, Department of Electrical & Computer Engineering, May 1, 2019 – August 31, 2019.

CARR, Peter, Lecturer, Department of Management Sciences, May 1, 2019 – August 31, 2019.

FADER, Christina, Associate Professor, Department of Management Sciences, September 1, 2019 – December 31, 2019.

FGAIER, Hedia, Lecturer, Department of Management Sciences, September 1, 2019 – December 31, 2019.

HIASSAT, Abdelhalim, Lecturer, Department of Management Sciences, September 1, 2019 – December 31, 2019.

HUANG, Ziqiang (Patrick), Lecturer, Department of Electrical & Computer Engineering, September 1, 2019 – December 31, 2019.

JOMAAS, Grunde, Lecturer, Department of Mechanical & Mechatronics Engineering, June 3, 2019 – June 7, 2019.

KOOYMANS, John, Lecturer, Department of Civil & Environmental Engineering, September 1, 2019 – December 31, 2019.

NISHIJIMA, Kazuyoshi, Lecturer, Department of Mechanical & Mechatronics Engineering, June 3, 2019 – June 7, 2019.

ROHANI-TABATABAI, Lecturer, Department of Management Sciences, September 1, 2019 – December 31, 2019.

TORVI, David, Lecturer, Department of Mechanical & Mechatronics Engineering, May 6, 2019 – May 10, 2019.

Special Reappointments

Undergraduate Instruction

MCCARTHY, Phillip, Lecturer, Department of Electrical & Computer Engineering, May 1, 2019 – August 31, 2019.

Adjunct Appointments

Graduate Supervision

DENG, Jian, Associate Professor, Department of Civil & Environmental Engineering, May 1, 2019 – April 30, 2021.

ELTANTAWY, Ayman, Assistant Professor, Department of Electrical & Computer Engineering, June 1, 2019 – June 30, 2022.

Adjunct Appointments

Graduate Supervision and Research

CHEN, Guohua, Professor, Department of Chemical Engineering, May 1, 2019 – April 30, 2021.

ESMAILZADEH, Ebrahim, Professor, Department of Mechanical & Mechatronics Engineering, May 1, 2019 – April 30, 2022.

LEMAIRE, Edward, Professor, Department of Systems Design Engineering, May 1, 2019 – April 30, 2022.

LEYENS, Christoph, Professor, Department of Mechanical & Mechatronics Engineering, July 1, 2019 – June 30, 2022.

SEDRA, Adel, (Distinguished Professor Emeritus), Professor, Department of Electrical & Computer Engineering, July 1, 2019 – June 30, 2022.

SEVIORA, Rudolph, Associate Professor, Department of Electrical & Computer Engineering, June 1, 2019 – June 30, 2022.

SINGH, Ajit, Associate Professor, Department of Electrical & Computer Engineering, September 1, 2018 – June 30, 2022.

Adjunct Appointments

Research

DERBENTSEVA, Natalia, Assistant Professor, Department of Management Sciences, September 1, 2019 – August 31, 2022.

YAN, Andrew, Assistant Professor, School of Architecture, May 1, 2019 – August 31, 2019.

Adjunct Reappointments

Graduate Supervision and Research

ABDEL GALIL, Tarek, Assistant Professor, Department of Electrical & Computer Engineering, May 1, 2019 – June 30, 2022.

CHAMBERLAIN, Savvas, (Distinguished Professor Emeritus), Professor, Department of Electrical & Computer Engineering, November 1, 2017 – June 30, 2022.

FADER, Christina, A., Associate Professor, Department of Management Sciences, September 1, 2019 – August 31, 2022.

GINZEL, Edward, Assistant Professor, Department of Civil & Environmental Engineering, September 1, 2019 – August 31, 2021.

MADHURANTHAKAM, Chandra Mouli, Assistant Professor, Department of Chemical Engineering, May 1, 2019 – April 30, 2021.

MOSHIRI, Behzad, Professor, Department of Electrical & Computer Engineering, May 1, 2019

– April 30, 2022.

MUMFORD, Kevin, Associate Professor, Department of Civil & Environmental Engineering, July 1, 2019 – June 30, 2022.

NINGYUAN, Li, Assistant Professor, Department of Civil & Environmental Engineering, January 1, 2019 – December 31, 2021.

TAYLOR, Graham, Associate Professor, Department of Systems Design Engineering, September 1, 2019 – August 31, 2022.

WANG, Xiao Yu (Shelley), Assistant Professor, Department of Systems Design Engineering, May 1, 2019 – April 30, 2022.

Adjunct Reappointments

Research

OBEIDI, Amer, Assistant Professor, Department of Management Sciences, July 1, 2019 – June 30, 2022.

SEGLENIIEKS, Frank, Assistant Professor, Department of Civil & Environmental Engineering, July 1, 2019 – June 30, 2021.

Cross ReAppointments

DALZIEL, Margaret, Associate Professor, Conrad School Entrepreneurship & Business to Department of Management Sciences, September 1, 2019 – August 31, 2022.

MALHOTRA, SHAVIN, Associate Professor, Conrad School of Entrepreneurship & Business to Department of Management Sciences, July 1, 2019 – June 30, 2022.

Changes in Appointments

ROSE, David, Associate Director, MBET Program, August 1, 2018 to September 15, 2019. (Change in end date from July 31, 2019)

CHANG, Wayne, Continuing Lecturer, Conrad Business Entrepreneurship and Technology Centre, Changed from Definite Term Lecturer to Continuing Lecturer, commencing on January 1, 2020. PhD, Western University, London, ON, 1993; MEsc, Western University, London, ON, 1990; BSc, University of Waterloo, Waterloo, ON, 1987.

B. ADMINISTRATIVE APPOINTMENTS

CULHAM, Richard, J. Associate Dean, Administration, Faculty of Engineering, September 1, 2019 – December 31, 2019.

FIGGUTH, Paul, Associate Dean, Policies and Resources, Faculty of Engineering, March 1, 2019 – February 28, 2021.

GRACIE, Robert, Associate Chair, Graduate Studies, Civil & Environmental Engineering, July 1, 2020 – April 30, 2022.

HEGAZI, Tarek, Associate Chair, Graduate Studies, Civil & Environmental Engineering, January 1, 2020 – June 30, 2020.

HOLT, Christopher, Associate Director, MBET Program, Conrad School of Entrepreneurship & Business, September 16, 2019 – July 31, 2020.

ADMINISTRATIVE REAPPOINTMENTS

AZIZ, Hany, Associate Director, Nano Engineering, Department of Electrical & Computer Engineering, November 1, 2019 – December 31, 2019.

HURWITZ, Marc, Associate Director, Undergraduate and Non-Degree Programs, August 1, 2019 – July 31, 2020.

KENNINGS, Andrew, Associate Chair Undergraduate Studies, Department of Electrical & Computer Engineering, July 1, 2019 to June 30, 2021.

PATEL, Hiren, Undergraduate Studies Committee (USC) Chair, Department of Electrical & Computer Engineering, July 1, 2019 – August 31, 2020.

SMUCKER, Mark, Associate Chair for Undergraduate Studies, Department of Management Sciences, September 1, 2019 – August 31,


C. SABBATICALS

DOUGLAS, Peter, L. Professor, Department of Chemical Engineering, July 1, 2020 to June 30, 2022, 24 months at 100% salary.

ALREADY APPROVED BY THE BOARD OF GOVERNORS

D. SPECIAL LEAVE

YEUM, Chul Min, Assistant Professor, Department of Civil & Environmental Engineering, unpaid leave for the period of September 1, 2019 – October 31, 2019.



Paul Fieguth
Associate Dean, Policies and Resources

for
Pearl Sullivan
Dean, Faculty of Engineering

University of Waterloo
REPORT OF THE DEAN OF ENVIRONMENT TO SENATE
September 16, 2019

FOR INFORMATION

A. APPOINTMENTS

Probationary Term Appointment

VAN WYCHEN, Wesley, Assistant Professor, Department of Geography and Environmental Management, August 1, 2019 to June 30, 2022: PhD, University of Ottawa, 2015; MSc, University of Ottawa, 2010; BA, University of Ottawa, 2007. Wesley joined the department in August 1, 2019 as Assistant Professor in physical geography, after leading the Canadian Cryospheric Information Network and Polar Data Catalogue at the University of Waterloo. Prior to this, he worked as a Research Scientist within the Public Service of Canada (2016-2018). His research interests are largely related to remote sensing of the cryosphere (in particular glaciers and glacier dynamics) and oceans (currents and oil spills), geospatial data management and historical climate data rescue.

Adjunct Appointment

Instruction and Research

CRAIG, Brian, School of Environment, Resources and Sustainability, January 1, 2020 to December 31, 2022.

PURIC-MLADENOVIC, Danijela, School of Environment, Resources and Sustainability, August 1, 2019 to July 30, 2022.

Graduate Supervision

CORRY, Robert, School of Environment, Resources and Sustainability, July 1, 2019 to June 30, 2022.

NWAISHI, Felix, Department of Geography and Environmental Management, August 1, 2019 to August 31, 2023.

Graduate Supervision and Research

ANDRACHUK, Mark, School of Environment, Resources and Sustainability, June 1, 2019 to May 31, 2022.

HENNEBRY, Jenna, School of Environment, Resources and Sustainability, December 1, 2018 to December 31, 2021.

PARKER, Scott, School of Environment, Resources and Sustainability, June 1, 2019 to May 31, 2022.

SPARLING, Heather, School of Environment, Resources and Sustainability, June 1, 2019 to May 31, 2022.

Special Appointments

Instruction

CARDWELL, Francesca, Lecturer, Department of Geography and Environmental Management, September 1, 2019 to December 31, 2019.

CARTER, Natalie, Lecturer, Department of Geography and Environmental Management, September 1, 2019 to December 31, 2019.

KELLY, Janya, Lecturer, Department of Geography and Environmental Management, September 1, 2019 to December 31, 2019.

KNAFELC, Paul, Lecturer, School of Environment, Enterprise and Development, September 1, 2019 to December 31, 2019.

LESNIKOWSKI, Alexandra, Lecturer, Department of Geography and Environmental Management, September 1, 2019 to December 31, 2019.

SCHUMILAS, Theresa, Lecturer, School of Environment, Enterprise and Development, September 1, 2019 to December 31, 2019.

STEWART, Doug, Lecturer, School of Environment, Resources and Sustainability, September 1, 2019 to December 31, 2019.

TAYLOR, Camille, Lecturer, Department of Geography and Environmental management, September 1, 2019 to December 31, 2019.

Cross Appointments

BURCH, Sarah, Associate Professor, Department of Geography and Environmental Management to the School of Planning, May 1, 2019 to April 30, 2022.

DOBERSTEIN, Brent, Associate Professor, Department of Geography and Environmental Management to the School of Planning, September 1, 2019 to August 31, 2022.

MCLEVEY, John, Associate Professor, Department of Knowledge Integration to the Department of Geography and Environmental Management, July 1, 2019 to June 30, 2022

MURPHY, Stephen, Professor, School of Environment, Resources and Sustainability to the School of Planning, May 1, 2019 to August 31, 2022.

PARKER, Paul, Professor, Department of Geography and Environmental Management/School of Environment, Enterprise and Development to the School of Planning, September 1, 2019 to August 31, 2022.

ROBINSON, Derek, Associate Professor, Department of Geography and Environmental Management to the School of Planning, September 1, 2019 to August 31, 2022.

OELBERMANN, Maren, Professor, School of Environment, Resources and Sustainability to the Department of Geography and Environmental Management, September 1, 2019 to August 31, 2022.

SCOTT, Daniel, Professor, Department of Geography and Environmental Management to the School of Planning, October 1, 2019 to September 30, 2022.

SCOTT, Steffanie, Professor, Department of Geography and Environmental Management to the School of Planning, September 1, 2019 to August 31, 2022.

Graduate Students appointed as Part-time Lecturers

ANDREWS, Evan, School of Environment, Resources and Sustainability, September 1, 2019 to December 31, 2019.

DYSON, Matthew, School of Environment, Resources and Sustainability, September 1, 2019 to December 31, 2019.

EIALFY, Amr, School of Environment, Enterprise and Development, September 1, 2019 to December 31, 2019.

KORSAH, Percy, Lecturer, Department of Geography and Environmental Management, September 1, 2019 to December 31, 2019.

MATTHEWS, Lindsay, Lecturer, Department of Geography and Environmental Management, September 1, 2019 to December 31, 2019.

STEPHENS, Phoebe, Lecturer, School of Environment, Resources, and Sustainability, September 1, 2019 to December 31, 2019.

Postdoctoral Fellow Appointed as Part-Time Lecturer

EPSTEIN, Graham, School of Environment, Resources and Sustainability, September 1, 2019 to December 31, 2019.

B. ADMINISTRATIVE RE-APPOINTMENTS

KELLY, Richard, Chair, Department of Geography and Environmental Management, January 1, 2020, to June 30, 2022.

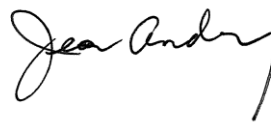
MCKENZIE, Ian, Director, Aviation Program (Geography and Science), July 1, 2019 to June 30, 2020.

C. SABBATICAL LEAVES

For Approval by the Board of Governors

MITCHELL, Claire, Associate Professor, Department of Geography and Environmental Management, January 1, 2020 to June 30, 2020, at 85% salary.

PLAISANCE, Kathryn, Department of Knowledge Integration, January 1, 2020 to June 30, 2020 at 85% salary.



Jean Andrey
Dean

University of Waterloo
REPORT OF THE DEAN OF MATHEMATICS TO SENATE
September 16, 2019

FOR INFORMATION

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

Tenured

HACHISUKA, Toshiya (BEng, 2006, University of Tokyo; PhD, 2011, University of California, San Diego), Associate Professor, David R. Cheriton School of Computer Science, September 1, 2020. Dr. Hachisuka is currently a tenured Associate Professor in the Dept. of Computer Science at the University of Tokyo. Dr. Hachisuka's research area is in computer graphics, where he is a recognized leader, with well-known contributions to light transport simulation, density estimation, and computer graphics more broadly. This is clearly reflected in his outstanding publication record. He has collaborated widely with major industrial partners including Autodesk, Disney, Facebook, Nikon and Samsung, and algorithms he has developed are critical to many commercial rendering packages, including Pixar's industry-leading RenderMan software. His excellent research record coupled with being an experienced and talented instructor made him an excellent addition to the School.

Probationary-Term Appointments

OLIVEIRA, Rafael (BSc, 2011; MSc, 2012, both from the Massachusetts Institute of Technology, PhD, 2017, Princeton University), Assistant Professor, David R. Cheriton School of Computer Science, January 1, 2020 – June 30, 2023. Dr. Oliveira is currently a Postdoctoral Fellow at the University of Toronto. His research addresses the interaction of optimization, complexity theory and invariant theory. Dr. Oliveira has an outstanding research record publishing his work in top-tier international research conferences. In 2017, he was named a Siebel Scholar at Princeton, which "rewards excellence among the top students at the most prestigious business, bioengineering, computer science and energy science graduate programs". He will complement the excellent hires we have made in the Algorithms & Complexity group in the last few years.

WALLMAN, Joel (BSc, 2008; PhD, 2013, both from the University of Sydney), Assistant Professor, Dept. of Applied Mathematics, July 1, 2019 – June 30, 2022. Dr. Wallman came to us as a Research Assistant Professor with the Institute of Quantum Computing at the University of Waterloo. His research straddles both theoretical and experimental aspects of Quantum Computing. He is one of the leaders in methods that characterize and mitigate errors and inaccuracies that occur in implementations of quantum systems.

ZHANG, Yizhou (BS, 2012, Shanghai Jiao Tong University; MS, 2016; PhD, 2019 (exp), both from Cornell University, David R. Cheriton School of Computer Science, August 1, 2020 - June 30, 2023. Mr. Zhang is currently completing his PhD from Cornell University. His research is in the area of programming language design. His research record is outstanding, consistently publishing first-authored papers in the very top international programming languages conferences. Mr. Zhang is a creative researcher with strong potential for scientific impact, and will be a valuable addition to our programming languages group.

Continuing Appointments

RICHARDS, Gregor (BSc, 2008, Portland State University; PhD, 2014, Purdue University), Lecturer, David R. Cheriton School of Computer Science, July 1, 2019. Dr. Richards will teach six courses per year, conduct independent research and conduct service duties as assigned.

Definite Term - Appointments

ABEDI, Ali (BSc, 2008, Sharif University of Technology; MSc, 2010, University of Calgary; PhD, 2017, University of Waterloo), Lecturer, David R. Cheriton School of Computer Science, August 1, 2019 – August 31, 2022. Dr. Abedi's duties will be to teach six courses per year, supervise graduate students and conduct service duties as assigned.

ALIAKBARI, Shahla (BSc, 2000, Teacher Training University; MSc, 2003; PhD, 2012 both from the University of Waterloo), Lecturer, Office of the Dean, December 31, 2019 – August 31, 2021. Dr. Aliakbari's duties will be to teach three to six courses per year, both in the classroom and online. Service activity will consist in the creation, review, revision and assessment of digital assets and review of the literature into teaching and learning online.

CASTENADA SANTOS, Diana (BMath, 2012, Universidad Nacional de Colombia; MMath, 2014, Universidad de Los Andes, PhD, 2019 (exp), University of Waterloo), Lecturer, Office of the Dean, August 12, 2019 – August 31, 2020. Ms. Castenada will teach four courses per year, participate in the leadership of workshops for students, school visits and contest preparation.

CRAMER, Zachary (BMath (hons), 2014, University of Windsor; MMath, 2015; PhD, 2019 (exp), both from the University of Waterloo), Lecturer, Office of the Dean, January 1, 2020 – August 31, 2021. Mr. Cramer's duties include teaching six courses per year, course coordination, and academic advising of students in Math.

GARCIA, Amanda (BA (hons), 2013, University of Ottawa; PhD, 2018; MMath, 2019 (exp), both from the University of Waterloo), Lecturer, Office of the Dean, September 1, 2019 – August 31, 2022. Dr. Garcia will teach three to six courses per year, both in the classroom and online. Service activity will consist primarily in the creation, review, revision and assessment of digital assets, participation in curricular discussions with groups across the University, and review of the literature into teaching and learning online.

HIDEG, Valentina (BMath, 2012, University of Waterloo; BEd, 2012, Queen's University), Lecturer, Office of the Dean, September 1, 2019 – August 31, 2020. Ms. Hideg will participate and lead in workshops for students, school visits, contest preparation and also teach undergraduate courses.

KARABINA, M. Burcu Tuncer (BSc, 2006, Bogazici University; MMath, 2012, University of Waterloo), Lecturer, Office of the Dean, September 1, 2019 – August 31, 2022. Ms. Karabina's duties include teaching six courses per year, both in the classroom and online. As well, she will assist in the creation, review, revision and assessment of digital assets as well as review of the literature into teaching and online learning.

MOSUNOV, Anton (BSc, 2011; MSc, 2013, St. Petersburg National Research University of Information Technologies, Mechanics and Optics; PhD, 2019, University of Waterloo), Lecturer, Office of the Dean. Dr. Mosunov's duties include teaching three to six courses per year, both in the classroom and online. As well, he will assist in the creation, review, revision and assessment of digital assets as well as review of the literature into teaching and online learning.

ROLLICK, Nickolas (BSc (Hons), 2015, University of Calgary; MMath, 2016; PhD, 2019 (exp), both from the University of Waterloo), Lecturer, Office of the Dean, August 1, 2019 – August 31, 2022. Mr. Rollick will teach four courses per year as well as participate and lead in workshops for students, school visits and contest preparation.

TRAN, Hieu (BSc, 2008, Moscow State University; PhD, 2013, National University of Singapore), Research Assistant Professor, David R. Cheriton School of Computer Science, August 1, 2019 – July 31, 2020.

Definite Term - Reappointments

BRUNI, Carmen, Lecturer, David R. Cheriton School of Computer Science, August 31, 2019 – August 31, 2021.

HAMILTON, Jordan, Lecturer, Office of the Dean, September 1, 2019 – August 31, 2022.

PETRICK, Mark, Lecturer, David R. Cheriton School of Computer Science, July 1, 2019 – August 31, 2020.

TRELFORD, Ryan, Lecturer, Office of the Dean, September 1, 2019 – August 31, 2022.

WOODY, Owen, Lecturer, Office of the Dean, January 1, 2020 – August 31, 2022.

Visiting Appointments

FARWELL, Daniel (Cardiff University), Researcher, Dept. of Statistics and Actuarial Science, September 1, 2019 – August 31, 2020.

GUANG, Ling (Wuhan University of Technology), Professor, Dept. of Applied Mathematics, September 1, 2019 – August 31, 2020.

KHAN, Sheikh Irfanullah (COMSTATS University), Scientist, Dept. of Applied Mathematics, November 1, 2019 – October 31, 2020.

LI, Yang (Liaoning University), Professor, Dept. of Applied Mathematics, December 20, 2019 – December 19, 2020.

LIU, Yan (Harbin Institute of Technology), Scholar, Dept. of Applied Mathematics, September 1, 2019 – September 20, 2020.

LUCENA, Marcia (Universidade Federal do Rio Grande), Associate Professor, David R. Cheriton School of Computer Sciences, September 1, 2019 – August 31, 2020.

QIANG, Xi (Shandong University of Finance and Economics), Professor, Dept. of Applied Mathematics, September 1, 2019 – August 31, 2020.

Adjunct Appointments

Instructor

BOHLOULI-ZANJANI, Parissa, Lecturer, Office of the Dean, September 1, 2019 – December 31, 2019.

KALANTAROVA, Nargiz, Lecturer, Dept. of Combinatorics and Optimization, September 1, 2019 – December 31, 2019.

RIELLO, Aldo, Lecturer, Office of the Dean, September 1, 2019 – December 31, 2019.

Research

NEKRICH, Yakov, Associate Professor, David R. Cheriton School of Computer Science, September 1, 2019 – June 30, 2023.

Grad Committee

DELCOURT, Michelle, Assistant Research Professor, Dept. of Combinatorics & Optimization, July 1, 2019 – June 30, 2020.

Adjunct Reappointments

Instructor

BRADLEY, Kirsten, Lecturer, David R. Cheriton School of Computer Science, September 1, 2019 – December 31, 2019.

BROGLY, Chris, Lecturer, David R. Cheriton School of Computer Science, September 1, 2019 – December 31, 2019.

CRAWFORD-BROWN, Jessica, Lecturer, Office of the Dean, September 1, 2019 – December 31, 2019.

HOLTBY, Dan, Lecturer, David R. Cheriton School of Computer Science, September 1, 2019 – December 31, 2019.

GHASEMI, Maryam, Lecturer, Dept. of Applied Mathematics, September 1, 2019 – December 31, 2019.

KHARAL, Rosina, Lecturer, David R. Cheriton School of Computer Science, September 1, 2019 – December 31, 2019.

KOHLER, Dave, Lecturer, Dept. of Statistics and Actuarial Science, September 1, 2019 – December 31, 2019.

LANCTOT, Kevin, Lecturer, David R. Cheriton School of Computer Science, September 1, 2019 – December 31, 2019.

LANCTOT, Kevin, Lecturer, David R. Cheriton School of Computer Science, January 1, 2020 – April 30, 2020.

LENNOX, Scott, Lecturer, Dept. of Statistics and Actuarial Science, September 1, 2019 – December 31, 2019.

McLEISH, Don, Professor Emeritus, Dept. of Statistics and Actuarial Science, September 1, 2019 – December 31, 2019.

MOLKARAIE, MEHDI, Lecturer, Dept. of Statistics and Actuarial Science, September 1, 2019 – December 31, 2019.

ROH, Patrick, Lecturer, Office of the Dean, September 1, 2019 – December 31, 2019.

SHARMA, Puneet, Lecturer, Dept. of Applied Mathematics, September 1, 2019 – December 31, 2019.

STRUTHERS, Cynthia, Associate Professor Emeritus, Dept. of Statistics and Actuarial Science, September 1, 2019 – December 31, 2019.

TURNER, Graeme, Lecturer, Office of the Dean, September 1, 2019 – December 31, 2019.

VICENTE-COLMENARES, Alejandra, Lecturer, Office of the Dean, September 1, 2019 – December 31, 2019.

VISHWANTHA, Sowmya, Lecturer, Office of the Dean, September 1, 2019 – December 31, 2019.

WANG, Xiaojing, Lecturer, Office of the Dean, September 1, 2019 – December 31, 2019.

WEHBE, Rina, Lecturer, David R. Cheriton School of Computer Science, September 1, 2019 – December 31, 2019.

Research

ANDREWS, Douglas, Professor, Dept. of Statistics and Actuarial Science, September 1, 2019 – August 31, 2020.

ABRAHAM, Bovas, Professor Emeritus, Dept. of Statistics and Actuarial Science, July 1, 2019 – June 30, 2022.

BROWN, Stephen, Professor Emeritus, Dept. of Statistics and Actuarial Science, September 1, 2019 – August 31, 2022.

MATTHEWS, David, Professor Emeritus, Dept. of Statistics and Actuarial Science, September 1, 2019 – August 31, 2022.

McLENAGHAN, Raymond, Professor Emeritus, Dept. of Applied Mathematics, September 1, 2019 – August 31, 2022.

METZLER, Adam (Wilfrid Laurier University), Associate Professor, Dept. of Statistics and Actuarial Science, August 1, 2019 – July 31, 2022.

Cross Appointments

DIETL, Werner (Assistant Professor, Dept. of Electrical and Computer Engineering), in the David R. Cheriton School of Computer Science, June 1, 2019 – June 30, 2022.

JAGANNATH, Aukosh (Assistant Professor, Dept. of Statistics and Actuarial Science), in the Dept. of Applied Mathematics, July 1, 2019 – June 30, 2021.

Cross Reappointments

DOXEY, Andrew (Assistant Professor, Dept. of Biology), in the David R. Cheriton School of Computer Science, June 1, 2019 – June 30, 2024.

HANCOCK, Mark (Professor, Dept. of Management Sciences), in the David R. Cheriton School of Computer Science, July 1, 2019 – June 30, 2022.

LAM, Patrick (Professor, Dept. of Electrical & Computer Engineering), in the David R. Cheriton School of Computer Science, June 1, 2019 – June 30, 2022.

SMUCKER, Mark (Associate Professor, Dept. of Management Sciences), in the David R. Cheriton School of Computer Science, June 1, 2019 – June 30, 2022.

Graduate Students appointed as Part-time Lecturers

EASTMAN, Brydon, Dept. of Applied Mathematics, September 1, 2019 – December 31, 2019.

FUNAI, Nicholas, Dept. of Applied Mathematics, September 1, 2019 – December 31, 2019.

GRANVILLE, Kevin, Dept. of Statistics and Actuarial Science, September 1, 2019 – December 31, 2019.

HINTZ, Erik, Dept. of Statistics and Actuarial Science, September 1, 2019 – December 31, 2019.

LOVITZ, Benjamin, Dept. of Applied Mathematics, September 1, 2019 – December 31, 2019.

LYON, Keenan, Dept. of Applied Mathematics, September 1, 2019 – December 31, 2019.

MAHMOUD, Ali, Dept. of Combinatorics & Optimization, September 1, 2019 – December 31, 2019.

NOMOTO, Kazuhiro, Dept. of Combinatorics and Optimization, September 1, 2019 – December 31, 2019.

SHAW, Justin, Dept. of Applied Mathematics, September 1, 2019 – December 31, 2019.

SOSA Jones, Giselle, Dept. of Applied Mathematics, September 1, 2019 – December 31, 2019.

Graduate Students reappointed as Part-time Lecturers

RESCH, Janelle, Dept. of Applied Mathematics, September 1, 2019 – December 31, 2019.

Postdoctoral Fellows appointed as Part-time Lecturers

ISLAMBOULI, Gabriel, Dept. of Pure Mathematics, July 1, 2019 – June 30, 2021.

PENNEY, Mark, Dept. of Pure Mathematics, September 1, 2019 – August 31, 2021.

STAAL, Andrew, Dept. of Pure Mathematics, November 1, 2019 – October 31, 2020.

VAVRA, Tomas, Dept. of Pure Mathematics, January 1, 2020 – December 31, 2021.

ZHANG, Aoqian, David R. Cheriton School of Computer Science, September 1, 2019 – August 31, 2020.

ZHANG, Xiaohong, Dept. of Combinatorics and Optimization, September 1, 2019 – August 31, 2020.

A.1 Change in Appointments

SUN, Chengnian (BSc, 2007, Northeastern University; PhD, 2013, National University of Singapore), Assistant Professor, David R. Cheriton School of Computer Science, (*ref. Dean's Report, September, 2018*)

From: July 1, 2019 – June 30, 2022

To: August 15, 2019 – June 30, 2022

WOODY, Owen, Lecturer, Office of the Dean (*ref. Dean's Report, June 2018*)

From: August 31, 2018 – August 30, 2019

To: August 31, 2018 – January 10, 2020

ZHAO, Jian (BEng, 2009, Zhejiang University; PhD, 2015, University of Toronto), Assistant Professor, David R. Cheriton School of Computer Science, (*ref. Dean's Report, June, 2019*)

From: November 1, 2019 – June 30, 2023

To: October 1, 2019 – June 30, 2023

B. ADMINISTRATIVE APPOINTMENTS

BOUTABA, Raouf, Associate Dean, Innovation and Entrepreneurship, Office of the Dean, July 1, 2019 – December 31, 2019.

CHARBONNEAU, Benoit, Associate Dean, Undergraduate Studies, Office of the Dean, July 1, 2019 – June 30, 2022.

KOLKIEWICZ, Adam, Associate Dean, Graduate Studies, Office of the Dean, January 1, 2019 – June 30, 2021.

LAYTON, Anita, Associate Dean, Research and International, Office of the Dean, July 1, 2019 – June 30, 2022.

WAITE, Michael, Associate Chair, Graduate Studies, Dept. of Applied Mathematics, July 1, 2019 – June 30, 2021.

WOOD, Peter, Interim Director, Math Business & Accounting Programs, Office of the Dean, July 1, 2019 – June 30, 2020.

ADMINISTRATIVE REAPPOINTMENTS

BROWN, Daniel, Director of Undergraduate Studies, David R. Cheriton School of Computer Science, July 1, 2019 – August 31, 2019.

GEELEN, James, Associate Chair, Graduate Studies, Dept. of Combinatorics and Optimization, September 1, 2019 – June 30, 2020.

KOENEMANN, Jochen, Chair, Dept. of Combinatorics & Optimization, July 1, 2020 – June 30, 2022.

WOOD, Peter, Manager, Digital Asset Development, Office of the Dean, July 1, 2019 – June 30, 2021.

Change in Administrative Appointments

POULIN, Francis, Associate Dean, Undergraduate Studies, Office of the Dean (*ref. Report to Senate, April 2017*)

From: July 1, 2017 – June 30, 2020 (*ref. Report to Senate, April 2017*)

To: July 1, 2017 – June 30, 2019

C. RETIREMENT

GOULDEN, Ian, Professor, Dept. of Combinatorics & Optimization, effective December 1, 2019.

STINSON, Douglas, Professor, David R. Cheriton School of Computer Science, effective September 1, 2019.

D. SABBATICALS (to be approved by the Board of Governors)

BROWN, Daniel, Professor, David R. Cheriton School of Computer Science, March 1, 2020 – August 31, 2020, with 93.3% salary. This is an early sabbatical.

LEUNG, Debbie, Professor, Dept. of Combinatorics and Optimization, January 1, 2020 – June 30, 2020, with 85% salary. This is an early sabbatical.

VRSCAY, Edward, Professor, Dept. of Applied Mathematics, July 1, 2020 – June 30, 2021, with 89.2% salary.

WATT, Stephen, Professor, David R. Cheriton School of Computer Science, September 1, 2020 – August 31, 2021, with 85% salary.

(already approval by the Board of Governors)

GHODSI, Ali, Professor, Dept. of Statistics and Actuarial Science, September 1, 2019 – February 29, 2020, at 85% salary. This is an early sabbatical.

Change in Sabbatical

LANK, Edward, Professor, David R. Cheriton School of Computer Science, with 85% salary (*ref. Dean's Report, March 2019*)

From: January 1, 2020 – June 30, 2020

To: November 1, 2020 – April 31, 2021

E. SPECIAL LEAVE

COOK, William, Professor, Dept. of Combinatorics & Optimization, September 1, 2019 – August 31, 2020. This is an unpaid leave.

LANK, Edward, Professor, David R. Cheriton School of Computer Science, November 1, 2019 – April 30, 2020. This is an unpaid leave.

LI, Johnny, Professor, Dept. of Statistics and Actuarial Science, July 1, 2019 – June 30, 2020. This is an unpaid leave.

SALEM, Kenneth, Professor, David R. Cheriton School of Computer Science, September 1, 2019 – August 31, 2020. This is an unpaid leave.

WATT, Stephen, Professor, David R. Cheriton School of Computer Science, September 1, 2021 – May 31, 2022, with 100% salary. This is an administrative leave.

A handwritten signature in black ink that reads "Stephen Watt". The signature is written in a cursive style with a large, stylized 'W'.

Stephen M. Watt
Dean

UNIVERSITY OF WATERLOO
REPORT OF THE DEAN OF SCIENCE TO SENATE
September 16, 2019

For information:

A. APPOINTMENTS

New Probationary Term

BROOKFIELD, Andrea, Assistant Professor, Department of Earth and Environmental Sciences, January 1, 2020 to June 30, 2023. [B.A.Sc., Civil (Environmental) Engineering, University of Waterloo, (2000); M.Sc., Earth and Environmental Sciences, University of Waterloo, (2003); Ph.D., Earth and Environmental Sciences, University of Waterloo, (2009).] Dr. Andrea Brookfield is a hydrogeologist and numerical modeller specializing in advanced simulation of integrated groundwater and surface water systems from a local to regional scale. She will bring skills in predictive hydrosystem modelling that will both support field research within many different areas of current activity within the Department and will fill a critical void in our collective research expertise that will strengthen the training and scientific core of our group.

JAMISON, Alan O., Assistant Professor, Department of Physics and Astronomy (Institute for Quantum Computing), January 1, 2020 to June 30, 2023. [B.S., Mathematics, University of Central Florida, (2007); M.S., Physics, University of Washington, (2008); Ph.D., Physics, University of Washington, (2014).] Dr. Jamison is currently a Research Scientist in Nobel laureate Wolfgang Ketterle's group at MIT, Alan is pioneering a technique using ultracold molecules to create qubits. Alan and collaborators cool atoms and catch them with microscopic "tweezers" bringing them together to create molecules that can be tuned for use in quantum simulation and controlled chemical reactions. Alan is an extraordinarily talented experimentalist and an outstanding teacher.

McCUTCHEON, Jenine, Assistant Professor, Department of Earth and Environmental Sciences, May 1, 2020 to June 30, 2023. [B.Sc., Geology and Biology, University of Western Ontario, (2011); M.Sc., Geology, Western University (2013); Ph.D., Geomicrobiology, The University of Queensland (2017).] Dr. Jenine McCutcheon is a geomicrobiologist whose research focuses on interactions between minerals, microorganisms and aqueous geochemistry in natural and industrial settings. Her research experience has focused on a wide range of environmental microbial processes including mineral dynamics within mine wastes and tailings stabilization. Her research aligns with much of the work currently taking place within the Department of Earth and Environmental Sciences and specifically that related to responsible resource exploration and biogeochemical cycles in the Anthropocene. Dr. McCutcheon will replace a recent resignation in the area of Geomicrobiology.

McGUIRE, Liam, Associate Professor, Department of Biology, January 1, 2020 to June 30, 2023. [B.Sc., Biology, Carleton University (2005); Ph.D., Biology, University of Western Ontario (2012).] Dr. McGuire is a physiological ecologist with an integrative research program that seeks to understand the ecology of energetically challenged animals. He works on broad questions related to the evolution of migration and hibernation from a variety of perspectives including ecology, evolutionary and environmental physiology, behavioural ecology, molecular biology and biochemistry, and natural history.

NISSIMOV, Jozef, Assistant Professor, Department of Biology, February 1, 2020 to June 30, 2023. [B.Sc., Marine Biology, University of Plymouth (2008); M.Sc., Marine Biology, University of Plymouth (2009); Ph.D., Biosciences, Plymouth Marine Laboratory and University of Nottingham (2013).] Dr. Jozef Nissimov is a biologist with expertise in the area of environmental virology. Specifically, his work uses interdisciplinary approaches to study the ecological interactions of aquatic viruses with their single celled host organisms. Within the Department of Biology, and University of Waterloo in general, Jozef has an area of expertise that

is a significant gap in each of our research and teaching. We are excited for Jozef to join us as there are lots of collaborative opportunities both within and outside the Department of Biology.

Probationary Term

KHAN, Shamrozé, Assistant Clinical Professor, School of Optometry and Vision Science, July 1, 2020 to June 30, 2023. [B.Sc., University of Waterloo (2007); OD, University of Waterloo (2007).]

KLINKOVA, Anna, Assistant Professor, Department of Chemistry, July 1, 2020 to June 30, 2023. [B.Sc., Chemistry, Saint Petersburg State University (2009); M.Sc., Chemistry, Bowling Green State University (2011); Ph.D., Chemistry, University of Toronto (2015).]

PUSHIN, Dmitry, Assistant Professor, Department of Physics and Astronomy (Institute for Quantum Computing), July 1, 2020 to June 30, 2023. [B.S., Physics, Moscow Institute of Physics and Technology (1995); M.S., Physics, Moscow Institute of Physics and Technology (1997); Ph.D., Physics, Massachusetts Institute of Technology (2006).]

SMITH, Rodney, Assistant Professor, Department of Chemistry, July 1, 2020 to June 30, 2023. [B.Sc., Chemistry, University of Manitoba (2007); Ph.D., Chemistry, Memorial University of Newfoundland (2012).]

Definite Term Appointment – Full-time

INGRAM, Laura, Lecturer, Department of Chemistry, August 1, 2019 to July 30, 2021. [B.Sc., Biochemistry, University of Waterloo (2004); M.Sc., Organic Chemistry, University of Waterloo (2006); Ph.D., Organic Chemistry, University of Waterloo (2010).] Dr. Ingram has fulfilled a number of teaching positions at institutions of higher education, including Sheridan College from 2011-2012, and since 2013 at the University of Waterloo, including lecturer and laboratory settings at all levels of the undergraduate curriculum. She has been instrumental in the development of online tools and resources for both high school and first-year university students, and has used novel approaches to learning based on the latest pedagogical research. She will be engaged in first-year instruction and student advising in her role as Definite-Term Lecturer in Chemistry.

STOTLER, Randy, Associate Professor, Earth and Environmental Sciences, January 1, 2020 to December 31, 2022. [B.S., Water Science, University of Nebraska-Lincoln (2000); M.Sc., Hydrogeology, University of Waterloo (2003); Ph.D., Earth Sciences, University of Waterloo (2009).] Dr. Randy Stotler is a geochemist, isotope hydrologist and hydrogeologist who specializes in the use of inorganic geochemical and environmental isotopic tracers (including novel non-traditional isotope systems) to assess the origin and evolution of natural groundwaters in many different environments. He has expertise in water-rock interactions and has worked with very highly concentrated brine waters in mines and evaporative lake environments. His work is immediately complementary to the work being undertaken by our geochemical/isotope researchers and in many ways is a replacement for the research capacity we lost following the recent resignation of Dr. Ramon Aravena and the previous resignation of Dr. Tom Edwards.

Adjunct Appointments**Graduate Supervision**

BUENO, Juan, Professor, Department of Physics and Astronomy, July 1, 2019 to June 30, 2024.

Graduate Supervision and Research

MALY, Kenneth, Associate Professor, Department of Chemistry, June 15, 2019 to August 31, 2022.

Research and Other

PROZOROV, Tanya, Assistant Professor, Department of Chemistry, May 1, 2019 to August 31, 2022.

Graduate Instruction, Graduate Supervision and Research

PEEL, Alexandra, Assistant Professor, School of Pharmacy, June 1, 2019 to May 31, 2022.

Adjunct Reappointments**Graduate Supervision**

BUHEL, Alex, Professor, Department of Physics and Astronomy, May 1, 2019 to April 30, 2022.

Research

CACHAZO, Freddy, Professor, Department of Physics and Astronomy, July 1, 2019 to June 30, 2024.

DOLOVICH, Lisa, Associate Professor, School of Pharmacy, August 1, 2019 to July 31, 2022.

Undergraduate Instruction

LING, Jane, Assistant Professor, School of Pharmacy, August 1, 2019 to July 31, 2022.

Graduate Supervision and Research

ARVANITAKI, Asimina, Assistant Professor, Department of Physics and Astronomy, March 1, 2019 to February 28, 2023.

COOMBER, Brenda, Professor, School of Pharmacy, September 1, 2019 to August 31, 2022.

COSTELLO, Kevin, Professor, Department of Physics and Astronomy, September 1, 2019 to August 31, 2024.

FONN, Desmond, (Distinguished Professor Emeritus), Professor, School of Optometry and Vision Science, July 1, 2019 to June 30, 2022.

HEWITT, Mark, Assistant Professor, Department of Biology, June 1, 2019 to May 31, 2022.

TETREAULT, Gerald, Assistant Professor, Department of Biology, May 31, 2019 to May 30, 2022.

WILKIE, Michael, Professor, Department of Biology, August 1, 2019 to July 31, 2022.

ZAKON, Harold, Professor, Department of Biology, May 1, 2019 to April 30, 2022.

ZHANG, Xu (Shine), Assistant Professor, Department of Biology, September 1, 2019 to August 31, 2022.

Graduate Instruction, Graduate Supervision and Research

DULEY, Walter, (Professor Emeritus) Professor, Department of Physics and Astronomy, September 1, 2019 to August 31, 2024.

SMOLIN, Lee, Professor, Department of Physics and Astronomy, September 1, 2019 to August 31, 2024.

Cross Reappointments

CORY, David, Professor, Department of Chemistry cross appointed to Department of Physics and Astronomy, June 1, 2019 to May 31, 2022.

WASILEWSKI, Zbigniew, Professor, Department of Electrical and Computer Engineering cross appointed to Department of Physics and Astronomy, May 1, 2019 to April 30, 2022.

Changes in Appointment

WITT, Jonathan, Associate Chair Undergraduate Studies, Department of Biology, end date changed from December 31, 2020 to August 31, 2019.

Special Appointments
Undergraduate Instruction

ABBASVANDI, Niloofar, Lecturer, Department of Physics and Astronomy, June 13, 2019 to August 31, 2019.

BUCKLEY, Kathleen, Lecturer, Department of Biology, September 1, 2019 to December 31, 2019.

CARR, Patrick J.J., Lecturer, Department of Chemistry, September 1, 2019 to December 31, 2019.

HRYCYSHYN, Matthew, Lecturer, Department of Biology, September 1, 2019 to December 31, 2019.

KARIMI, Reza, Lecturer, Department of Physics and Astronomy, September 1, 2019 to December 31, 2019.

SILVA, Andrew E., Lecturer, School of Optometry and Vision Science, September 1, 2019 to December 31, 2019.

Special Reappointments
Undergraduate Instruction

AHMAD, Jauher, Lecturer, School of Pharmacy, September 1, 2019 to December 31, 2019.

BARNES, Derek, Lecturer, School of Optometry and Vision Science, September 1, 2019 to December 31, 2019.

BRETZ, Kim, Lecturer, School of Pharmacy, September 1, 2019 to December 31, 2019.

FENG, Lucy, Lecturer, School of Pharmacy, September 1, 2019 to December 31, 2019

LIU, Wing-Ki, (Professor Emeritus), Lecturer, Department of Physics and Astronomy, October 1, 2019 to November 30, 2019.

McARTHUR, Robyn, Lecturer, School of Pharmacy, September 1, 2019 to December 31, 2019.

MICHAUD, Wendy, Lecturer, Department of Biology, September 1, 2019 to December 31, 2019.

REZANEZHAD, Fereidoun, Lecturer, Department of Earth and Environmental Sciences, May 1, 2019 to August 31, 2019.

Postdoctoral Fellow Reappointed as Part-Time Lecturer

RACICOT, Leanne, Lecturer, Department of Chemistry, September 1, 2019 to October 31, 2019.

B. ADMINISTRATIVE APPOINTMENTS

BUTLER, Barbara, Associate Chair, Undergraduate Studies, Department of Biology, September 1, 2019 to December 31, 2019.

HAWTHORN, David, Associate Chair, Graduate Studies, Department of Physics and Astronomy, June 1, 2019 to May 31, 2022.

WITT, Jonathan, Associate Dean, International, Faculty of Science, January 1, 2020 to December 31, 2022.

ADMINISTRATIVE REAPPOINTMENTS

IDZIAK, Stefan, Associate Dean, Co-operative Education and Experiential Education and Computing, Faculty of Science, September 1, 2019 to August 31, 2022.

McKENZIE, Ian, Director, Aviation Program (joint Geography and Science), July 1, 2019 to June 30, 2020.

RICHARD, Cynthia, Associate Director, Curriculum, School of Pharmacy, September 1, 2019 to August 31, 2022.

C. RESIGNATION

PARSONS, Chris, Research Assistant Professor, Department of Earth and Environmental Sciences, effective September 1, 2019.

D. DEATH

BISSONNETTE, Carey, Continuing Lecturer, Department of Chemistry, May 29, 2019.

APPROVED BY THE BOARD OF GOVERNORS

E. SABBATICAL

McMAHON, Terrance, Professor, Department of Chemistry, sabbatical September 1, 2019 to August 31, 2020 and administrative 4 for 4 exchange, September 1, 2020 to December 31, 2020, 100% salary arrangements.

FOR APPROVAL BY THE BOARD OF GOVERNORS

F. SABBATICAL

CHARLES, Trevor, Professor, Department of Biology, sabbatical January 1, 2020 to June 30, 2020, 100% salary arrangements.



R.P. Lemieux
Dean

University of Waterloo
SENATE
16 September 2019

FOR APPROVAL

Committee and Appointments

Motion: To approve the following appointment:

- **Senate Undergraduate Council:** Alysia Kolentsis as faculty representative from a federated university college (St. Jerome's), replacing Veronica Austen, 1 September 2019 to 31 December 2019.

University of Waterloo
SENATE GRADUATE & RESEARCH COUNCIL
Report to Senate
16 September 2019

Senate Graduate & Research Council met on 10 June 2019 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 Applied Health Sciences

1. **Motion:** To approve the creation of six fields in the PhD program in the School of Public Health and Health systems, effective 1 January 2020, as presented at Attachment 1.

Rationale: The School of Public Health and Health Systems is diverse and highly multi-disciplinary. The six fields are proposed to recognize existing areas of strength within the graduate programs. Fields will allow PhD students to appropriately represent their academic and research focus to both academic and professional audiences. These study path options stitch together already existing courses and milestones into a comprehensive learning experience for students who wish to not only receive a PhD but also benefit from a certain level of course and research concentration.

Faculty of Engineering

2. **Motion:** To approve the addition of 3 specializations to the Master of Engineering (MEng) within the department of Electrical and Computer Engineering (ECE) effective 1 January 2020, as presented at Attachment 2. These specializations include: (a) biomedical engineering, (b) nanoelectronic devices and materials, and (c) software.

Rationale: The MEng in ECE program will be offering “Graduate Specializations” in a given area, in place of the currently offered Graduate Diplomas. The change from Graduate Diplomas to Graduate Specializations is to better reflect the nature of the course packaging and also to bring the credentialization of focused course selection into line with Faculty of Engineering objectives. Consequently, ECE will be discontinuing the existing Graduate Diplomas offered with the MEng. In their place, Graduate Specializations have been proposed.

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

Charmaine Dean
Vice President, Research & International

from pg 13 - 10 June 2019 SGRC agenda package

3. ACADEMIC PLAN CHANGES

3.1 School of Public Health and Health Systems* effective ~~Fall 2019~~ Winter 2020

- 3.1.1 ~~To create six fields in the SPHHS that are formally recognized by the Ontario Universities Council on Quality Assurance. The fields are composed of bundles of existing courses within existing SPHHS graduate degree programs. Effective Fall 2019.~~

Rationale: ~~The Ontario Universities Council on Quality Assurance defines fields as an area of specialization or concentration (in multi/interdisciplinary programs a clustered area of specialization) that is related to the demonstrable and collective strengths of the program's faculty. SPHHS has identified a particular need to further specify and recognize existing areas of strength within its graduate programs. For example, student feedback indicates that individuals considering applications to MSc and PhD programs are unaware they can study epidemiology and biostatistics as part of their degree path. This perception exists despite the range of related graduate level courses presently offered in the School.~~

~~The School proposes to launch the following six course-based fields in September 2019:~~

- ~~1. **Epidemiology & Biostatistics**~~
- ~~2. **Health Evaluation**~~
- ~~3. **Health Informatics**~~
- ~~4. **Health and Environment**~~
- ~~5. **Global Health**~~
- ~~6. **Aging and Health**~~

3.1.1 To create six Fields in the PhD program in The School of Public Health and Health Systems effective Winter 2020:

- a) **Epidemiology and biostatistics**
- b) **Health evaluation**
- c) **Health informatics**
- d) **Health and environment**
- e) **Global health**
- f) **Aging and health**

Rationale:

The School of Public Health and Health Systems is diverse and highly multi-disciplinary. The six fields are proposed to recognize existing areas of strength within the graduate programs. Fields will allow PhD students to appropriately represent their academic and research focus to both academic and professional audiences. These study path options stitch together already existing courses and milestones into a comprehensive learning experience for students who wish to not only receive a PhD but also benefit from a certain level of course and research concentration.

The creation of graduate fields will allow SPPHS to better promote its current courses and attract more high-quality students into its graduate programs. The creation of create fields also responds to comments made in the External Review of the School's academic programs in Spring 2014. The review suggested that the School consider identifying tracks of concentration from within our wide range of courses.

The fields do not require any changes to SPHHS degree programs or admissions. The fields will be nested within our existing course requirements. A field may be declared by a student on completion of their program, if they have met the requirements.

from pg 21 to 30 - 10 June 2019 SGRC agenda package

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.

Faculty: Applied Health Sciences

Program: Doctor of Philosophy (PhD) in Public Health and Health Systems

Program contact name(s): Ellen MacEachen

Form completed by: Ellen MacEachen

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](#)).

Update of PhD degree requirements to include 6 new Graduate Research Fields.

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

Rationale for change(s):

The proposed Graduate Research Fields will add structure to the PhD program by allowing students to demonstrate depth of knowledge in certain areas of study and receive recognition for that Graduate Research Field from the School, which is highly valued when searching for a job in industry. These study path options stitch together already existing courses into a comprehensive learning experience for students who wish to, not only receive a thesis based PhD, but also benefit from a certain level of focus in their course selection.

Proposed effective date: Term: ~~Fall~~ **Winter** Year: 2019 **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/applied-health-sciences/school-public-health-and-health-systems/doctor-philosophy-phd-public-health-and-health-systems>

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
<p>Graduate research fields</p> <ul style="list-style-type: none"> • Population Health <p>Program information</p> <ul style="list-style-type: none"> • Admit term(s) <ul style="list-style-type: none"> ○ Fall • Delivery mode <ul style="list-style-type: none"> ○ On-campus • Program type <ul style="list-style-type: none"> ○ Doctoral 	<p>Graduate research fields</p> <ul style="list-style-type: none"> • Epidemiology and Biostatistics • Health Evaluation • Health Informatics • Health and Environment • Global Health • Aging and Health <p>Program information</p> <ul style="list-style-type: none"> • Admit term(s)

- Research
- Registration option(s)
 - Full-time
 - Part-time
- Study option(s)
 - Thesis

Admission requirements

- Minimum requirements
 - Students applying to the program should have completed a Master's degree (or its equivalent) with content related to ongoing faculty research in areas such as health, public health, health systems, gerontology, health informatics, global health, occupational health, and evaluation.
 - A minimum 75% average in Master's level coursework.
 - Completion of a Master's degree and evidence of prior research achievements (e.g., Master's thesis, first author peer-reviewed publication, adjudicated research report).
 - Before applying to the program, students are strongly advised to establish contact with potential supervisors.
 - Students may be allowed to transfer into the PhD program directly from the SPHHS Master's programs. Such students must have completed all Master's coursework requirements, have demonstrated a superior academic record, and have evidence of prior research achievements (e.g., adjudicated research report, significant documented contribution as a co-author to a peer-reviewed publication, first author peer-reviewed publication).
 - Students are sometimes accepted for direct admission to the PhD in the SPHHS program if they have an Honours Bachelor of Science degree or the equivalent and have exceptional academic and research performance, including evidence of prior research achievements (e.g., adjudicated research report, significant documented contribution as a co-author to a peer-reviewed publication, first author peer-reviewed publication). Directly admitted students will be required to complete 9 (required and elective) graduate courses, graduate milestones and a doctoral thesis.

- Fall
- Delivery mode
 - On-campus
- Program type
 - Doctoral
 - Research
- Registration option(s)
 - Full-time
 - Part-time
- Study option(s)
 - Thesis

Admission requirements

- Minimum requirements
 - Students applying to the program should have completed a Master's degree (or its equivalent) with content related to ongoing faculty research in areas such as health, public health, health systems, gerontology, health informatics, global health, occupational health, and evaluation.
 - A minimum 75% average in Master's level coursework.
 - Completion of a Master's degree and evidence of prior research achievements (e.g., Master's thesis, first author peer-reviewed publication, adjudicated research report).
 - Before applying to the program, students are strongly advised to establish contact with potential supervisors.
 - Students may be allowed to transfer into the PhD program directly from the SPHHS Master's programs. Such students must have completed all Master's coursework requirements, have demonstrated a superior academic record, and have evidence of prior research achievements (e.g., adjudicated research report, significant documented contribution as a co-author to a peer-reviewed publication, first author peer-reviewed publication).
 - Students are sometimes accepted for direct admission to the PhD in the SPHHS program if they have an Honours Bachelor of Science degree or the equivalent and have exceptional academic and research performance, including evidence of prior research achievements (e.g., adjudicated research report, significant documented contribution as a co-author to a peer-reviewed publication, first author peer-reviewed publication). Directly admitted

- Application materials
 - Résumé/Curriculum vitae
 - Supplementary information form
 - Indicating reasons for pursuing graduate studies (e.g., discuss how a graduate degree maps onto your career plans) and outlining research interests.
 - Transcript(s)
 - Writing sample
 - Students must submit a copy of previous academic work, such as copies of preprints, reprints, or master's thesis, or other evidence of written scholarly work.
- References
 - Number of references: 3
 - Type of references: academic
- English language proficiency (ELP) (if applicable)

Degree requirements

Thesis option:

- Graduate Academic Integrity Module (Graduate AIM)
- Courses
 - 9 one-term graduate courses beyond the Bachelor's degree, including at least 4 courses (2 required and 2 electives) beyond the Master's degree, is the normal minimum requirement.
 - Required courses (2)
 - HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems
 - 1 of the following required methods courses:
 - HLTH 704 Advanced Qualitative Methods for Health Research
 - HLTH 705 Advanced Statistical Methods for Analyzing Public Health and Health Systems Data
 - HLTH 706 Advanced Epidemiological Methods
 - HLTH 719 Advanced Research Methods in Health Informatics
 - Elective courses (2)
 - 1 methods elective course at the 600-or 700-level, selected in consultation with the supervisor (may include courses outside the School of Public Health and Health Systems (SPHHS), or courses offered by SPHHS, including

students will be required to complete 9 (required and elective) graduate courses, graduate milestones and a doctoral thesis.

- Application materials
 - Résumé/Curriculum vitae
 - Supplementary information form
 - Indicating reasons for pursuing graduate studies (e.g., discuss how a graduate degree maps onto your career plans) and outlining research interests.
 - Transcript(s)
 - Writing sample
 - Students must submit a copy of previous academic work, such as copies of preprints, reprints, or master's thesis, or other evidence of written scholarly work.
- References
 - Number of references: 3
 - Type of references: academic
- English language proficiency (ELP) (if applicable)

Degree requirements

Thesis option:

- Graduate Academic Integrity Module (Graduate AIM)
- Courses
 - 9 one-term graduate courses beyond the Bachelor's degree, including at least 4 courses (2 required and 2 electives) beyond the Master's degree, is the normal minimum requirement.
 - Required courses (2)
 - HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems
 - 1 of the following required methods courses:
 - HLTH 704 Advanced Qualitative Methods for Health Research
 - HLTH 705 Advanced Statistical Methods for Analyzing Public Health and Health Systems Data
 - HLTH 706 Advanced Epidemiological Methods
 - HLTH 719 Advanced Research Methods in Health Informatics
 - Elective courses (2)
 - 1 methods elective course at the 600-or 700-level, selected in consultation with the supervisor (may include courses outside the School of Public Health and Health Systems (SPHHS), or courses offered by SPHHS, including additional courses from the required course list.

additional courses from the required course list.

- 1 additional elective, selected in consultation with the supervisor. Students without a background in public health and health systems, and focusing in research areas other than Health Informatics, should take HLTH 601 Lifespan Approaches to Disease Prevention and Health Promotion. Students focusing in Health Informatics may choose to take HLTH 611 The Health Care System or an equivalent course approved by the SPHHS Graduate Officer.
- Plus other free electives as may be required
 - It is important to keep in mind that these are minimum requirements. Many students complete at least three courses within their area of research interest, which may require the addition of one or more extra courses to the minimum coursework requirement.
- At a minimum, students must obtain an average of 75% or higher in aggregate on the courses presented in fulfillment of the degree requirements. Grades on all courses presented to fulfill the degree requirements must be 70% or higher. A grade below 70% in any course or failing to maintain an average of 75% will necessitate a review of the student's status by the School and may result in a student being required to complete additional coursework or being required to withdraw from the program. The School reserves the right to stipulate additional coursework if it is necessary for the student's preparation.
- Link(s) to courses
 - Health Studies (HLTH) courses
 - Graduate course search
- Academic Integrity Workshop
- PhD Comprehensive Examination
 - Candidates must complete a PhD Comprehensive Examination within seven terms of first registration. The comprehensive examination requirement is based on providing written responses to three questions and successfully completing an oral defense. The purpose of the comprehensive examination is to test the breadth and depth of the candidate's comprehension of the methodological and theoretical aspects of their field of study.

- 1 additional elective, selected in consultation with the supervisor. Students without a background in public health and health systems, and focusing in research areas other than Health Informatics, should take HLTH 601 Lifespan Approaches to Disease Prevention and Health Promotion. Students focusing in Health Informatics may choose to take HLTH 611 The Health Care System or an equivalent course approved by the SPHHS Graduate Officer.
- Plus other free electives as may be required
 - It is important to keep in mind that these are minimum requirements. Many students complete at least three courses within their area of research interest, which may require the addition of one or more extra courses to the minimum coursework requirement.
- At a minimum, students must obtain an average of 75% or higher in aggregate on the courses presented in fulfillment of the degree requirements. Grades on all courses presented to fulfill the degree requirements must be 70% or higher. A grade below 70% in any course or failing to maintain an average of 75% will necessitate a review of the student's status by the School and may result in a student being required to complete additional coursework or being required to withdraw from the program. The School reserves the right to stipulate additional coursework if it is necessary for the student's preparation.

Students in the SPHHS PhD program may also wish to pursue one of the following Graduate Research Fields:

1. Epidemiology and Biostatistics
2. Health Evaluation
3. Health Informatics
4. Health and Environment
5. Global Health
6. Aging and Health

A Graduate Research Field is a University credential that is recognized on the student's transcript and is intended to reflect that a student has successfully completed research and a set of courses that together provide an in-depth study in the area of the Graduate Research Field. A student will only obtain the Graduate Research Field on their transcript if they have completed the requirements associated with the PhD degree and the

The process is designed to enable candidates to acquire a solid grounding in their core area of public health research that will provide a foundation for undertaking dissertation research. The examination will also test the candidate's ability to critically evaluate the literature and synthesize information from sources to identify knowledge gaps and recommend solutions.

- PhD Thesis
 - A PhD thesis on an approved topic is required, which is to be defended in an oral examination. The research is to be conducted under the supervision of the student's supervisor and the advisory committee. The PhD thesis advisory committee consists of at least three members, with the supervisor and at least one other committee member being faculty from within the School of Public Health and Health Systems. The proposal will be defended before the thesis committee; however, upon completion of the thesis, the final document will be defended before a five person Examination Board.

requirements associated with the Graduate Research Field.

All PhD Graduate Research Fields in the School of Public Health and Health Systems (SPHHS) consist of a Comprehensive Examination, a PhD Thesis that is confirmed by the SPHHS to be in the chosen Graduate Research Field, and a set of 4 graduate (0.50 weight) level courses. This set of courses is comprised of a mix of required and elective courses. Required courses are those that are prescribed as part of the Graduate Research Field. Elective courses are those that are on a list of courses designated as electives for a given Graduate Research Field.

Students who have completed the MSc in SPHHS and obtained a Graduate Research Field can obtain the same or another Field or (by taking the applicable required/elective courses) as part of their PhD program.

For any of the Graduate Research Fields below, a directed studies course (HLTH 620 or HLTH 720) focused on the Graduate Research Field or an appropriate alternate course may replace a required or elective course, with the approval of the Associate Director, Research Graduate Program, School of Public Health and Health Systems.

The course requirements for the Graduate Research Fields are described below.

1. Graduate Research Field in Epidemiology and Biostatistics

Students must successfully complete 3 required courses and 1 elective course. An assessment of whether or not the student's thesis warrants the Epidemiology and Biostatistics Graduate Research Field designation will be completed by the SPHHS.

Required courses:

- HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems
- HLTH 705 Advanced Statistical Methods for Analyzing PHHS Data
- HLTH 706 Advanced Epidemiological Methods

Elective courses: select 1 from the following list:

- HLTH 634 Environmental Epidemiology
- HLTH 672 Epidemiological Methods in Aging

2. Graduate Research Field in Health Evaluation

Students must successfully complete 1 required course and 3 elective courses. An assessment of whether or not the student's thesis warrants the Health Evaluation Graduate Research Field designation will be completed by the SPHHS.

Required course:

- HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems

Elective courses:

Select 1 from the following list:

- HLTH 705 Advanced Statistical Methods for Analyzing Public Health and Health Systems
- HLTH 704 Advanced Qualitative Methods for Health Research
- HLTH 655 Health Measurement and Survey Methods

Select 1 or 2 from the following list:

- HLTH 614 Foundations of Program Evaluation
- HLTH 651 Theory and Applications in Program Evaluation
- HLTH 653 Evaluation Practice and Management
- HLTH 654 Systems Thinking and Analysis in Health Program Planning and Evaluation

Select 1 from the following list if only 1 course was selected above:

- HLTH 603 Health Policy
- HLTH 626 Analysis and Management of Health Information
- HLTH 620 Experiential Learning in Evaluation

3. Graduate Research Field in Health Informatics

Students must successfully complete 2 required courses and 2 elective courses. An assessment of whether or not the student's thesis warrants the Health Informatics Graduate Research Field designation will be completed by the SPHHS.

Required courses:

- HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems

- HLTH 719 Advanced Research Methods in Health Informatics OR Equivalent

Elective courses:

Select 1 from the following list:

- HLTH 633 Digital Health
- HLTH 629 Information Visualization
- HLTH 626 Analysis and Management of Health Information in Aging Populations
- HLTH 615 Requirements Specification and Analysis in Health Systems
- HLTH 616 Decision Making and Systems Thinking in Health Informatics
- HLTH 637 Public Health Informatics

Select 1 from the following list:

- CS 634 Security and Privacy for Health Systems
- CS 792 Data Structures and Standards in Health Informatics
- COGSCI 600 Cognitive Science
- SYDE 642 Cognitive Engineering Methods
- SYDE 644 Human Factors Testing
- CS 846 Software Engineering for Big Data

4. Graduate Research Field in Health and Environment

Students must successfully complete 2 required courses and 2 elective courses. An assessment of whether or not the student's thesis warrants the Health and Environment Graduate Research Field designation will be completed by the SPHHS.

Required courses:

- HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems
- HLTH 604 Public Health and the Environment (or equivalent)

Elective courses:

Select 1 from the following list:

- HLTH 704 Advanced Qualitative Methods for Health Research

- HLTH 705 Advanced Statistical Methods for Analyzing Public Health and Health Systems Data
- HLTH 706 Advanced Epidemiological Methods

Select 1 from the following list:

- HLTH 623 Risk and Exposure Assessment in Public Health
- HLTH 624 Environmental Toxicology in Public Health
- HLTH 634 Environmental Epidemiology
- HLTH 631 Public Health Surveillance
- HLTH 661 GIS and Public Health
- HLTH 662 Global Health

5. Graduate Research Field in Global Health

Students must successfully complete 2 required courses and 2 elective courses. An assessment of whether or not the student's thesis warrants the Global Health Graduate Research Field designation will be completed by the SPHHS.

Required courses:

- HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems
- HLTH 662 Global Health (or equivalent)

Elective courses:

Select 1 from the following list:

- HLTH 704 Advanced Qualitative Methods for Health Research
- HLTH 705 Advanced Statistical Methods for Analyzing Public Health and Health Systems Data
- HLTH 706 Advanced Epidemiological Methods
- HLTH 719 Advanced Research Methods in Health Informatics

Select 1 from the following list (these courses are global-health focused in all examples and assignments):

- HLTH 632 Health Economics and Public Health
- HLTH 654 Systems Thinking and Analysis in Health Program Planning and Evaluation

6. Graduate Research Field in Aging and Health

Students must successfully complete 2 required courses and 2 elective courses. An assessment of whether or not the student's thesis warrants the Aging and Health Graduate Research Field designation will be completed by the SPHHS.

Required courses:

- HLTH 701 Interdisciplinary Seminar in Public Health and Health Systems
- HLTH 750 Fundamentals of Aging, Health and Well Being (over two terms, parts A and B)

Elective courses:

Select 1 from the following list:

- HLTH 704 Advanced Qualitative Methods for Health Research
- HLTH 705 Advanced Statistical Methods for Analyzing Public Health and Health Systems Data
- HLTH 706 Advanced Epidemiological Methods

Select 1 from the following list:

- HLTH 751 Aging Health and Well Being Research Seminar
- HLTH 642 Interdisciplinary Perspectives on Aging
- HLTH 627 Dementia Care
- HLTH 630 Geriatric Medicine
- HLTH 626 Analysis Management of Health Informatics in Aging Population
- HLTH 672: Epidemiologic Methods in Aging Research
- Link(s) to courses
 - Health Studies (HLTH) courses
 - Graduate course search
- Academic Integrity Workshop
- PhD Comprehensive Examination
 - Candidates must complete a PhD Comprehensive Examination within seven terms of first registration. The comprehensive examination requirement is based on providing written responses to three questions and successfully completing an oral defense. The purpose of the comprehensive examination is to test the breadth and depth of the candidate's

	<p>comprehension of the methodological and theoretical aspects of their field of study. The process is designed to enable candidates to acquire a solid grounding in their core area of public health research that will provide a foundation for undertaking dissertation research. The examination will also test the candidate's ability to critically evaluate the literature and synthesize information from sources to identify knowledge gaps and recommend solutions.</p> <ul style="list-style-type: none"> • PhD Thesis <ul style="list-style-type: none"> ○ A PhD thesis on an approved topic is required, which is to be defended in an oral examination. The research is to be conducted under the supervision of the student's supervisor and the advisory committee. The PhD thesis advisory committee consists of at least three members, with the supervisor and at least one other committee member being faculty from within the School of Public Health and Health Systems. The proposal will be defended before the thesis committee; however, upon completion of the thesis, the final document will be defended before a five person Examination Board.
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How will students currently registered in the program be impacted by these changes?

Students who are already in the program will have the option to declare these Graduate Research Fields before graduation, if they have taken the required courses.

- Departmental approval date** (mm/dd/yy): 02/13/19
- Reviewed by GSPA** (for GSPA use only) date (mm/dd/yy): 04/16/2019
- Faculty approval date** (mm/dd/yy): 03/07/19
- Senate Graduate & Research Council (SGRC) approval date** (mm/dd/yy):
- Senate approval date** (mm/dd/yy) (if applicable):



M E M O

TO: Kathy Winter

FROM: B. Hellinga, Associate Dean, Graduate Studies
Faculty of Engineering

RE: Senate Graduate and Research Council Agenda

DATE: May 24, 2019

Please place the following motions forward for approval at the next meeting of EFC. They were approved by EFC on May 21, 2019.

1. The department of **Electrical and Computer Engineering** would like to propose the following motions:
 - a. A new Specialization in Biomedical Engineering effective Winter 2020.
 - b. A new Specialization in Nanoelectronic Devices and Materials effective Winter 2020.
 - c. A new Specialization in Software effective Winter 2020.

Rationale for Request:

- a. The MEng in ECE program will be offering “Graduate Specializations” in a given area, in place of the currently offered Graduate Diplomas. The change from Graduate Diplomas to Graduate Specializations is to better reflect the nature of the course packaging and also to bring the credentialization of focused course selection into line with Faculty of Engineering objectives. Consequently, ECE will be discontinuing the existing Graduate Diplomas offered with the MEng. In their place, Graduate Specializations have been proposed.
2. The **Conrad School of Business and Entrepreneurship** would like to propose that BET 580 be included as part of their GDip in Business and Entrepreneurship.

Rationale for Request:

- a. The BET 580 course was designed to meet the needs of both our senior undergraduate and Graduate Diploma requirements.

Your attention to these matters is kindly appreciated.

A handwritten signature in black ink, appearing to read 'Bruce Hellinga', with a long horizontal stroke extending to the right.

Bruce Hellinga

BH/bm

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.

Faculty: Engineering

Program: Master of Engineering (MEng) in Electrical and Computer Engineering

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](#)).

Update of MEng degree requirements to include 3 new specializations.

*Note: the content in the "Current Graduate Studies Academic Calendar content" column includes material that was approved by SGRC on April 8, 2019 which also takes effect ~~Winter 2020~~. **Spring 2019***

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

Rationale for change(s):

The MEng in ECE program will be offering "Graduate Specializations" in a given area, in place of the currently offered Graduate Diplomas. The change from Graduate Diplomas to Graduate Specializations is to better reflect the nature of the course packaging and also to bri

ng the credentialization of focused course selection into line with Faculty of Engineering objectives.

Consequently, ECE will be discontinuing the existing Graduate Diplomas offered with the MEng. In their place, Graduate Specializations have been proposed.

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/master-engineering-meng-electrical-and-computer-engineering>

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
<p>Graduate specializations</p> <ul style="list-style-type: none"> • Artificial Intelligence and Machine Learning • Computer Networking and Security • Nanoelectronic Circuits and Systems • Sustainable Energy 	<p>Graduate specializations</p> <ul style="list-style-type: none"> • Artificial Intelligence and Machine Learning • <u>Biomedical Engineering</u> • Computer Networking and Security • Nanoelectronic Circuits and Systems

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
<p>Program information</p> <ul style="list-style-type: none"> • Admit term(s) <ul style="list-style-type: none"> ○ Fall ○ Winter ○ Spring • Delivery mode <ul style="list-style-type: none"> ○ On-campus • Length of program <ul style="list-style-type: none"> ○ The minimum period of full-time registration for the program is three terms and the maximum allowable time is six terms of active registration. For part-time students, the minimum period of registration for the program is six terms and the maximum allowable time is fifteen consecutive terms. • Program type <ul style="list-style-type: none"> ○ Master's ○ Professional • Registration option(s) <ul style="list-style-type: none"> ○ Full-time ○ Part-time • Study option(s) <ul style="list-style-type: none"> ○ Coursework <p>Admission requirements</p> <ul style="list-style-type: none"> • Minimum requirements <ul style="list-style-type: none"> ○ The Department of Electrical and Computer Engineering requires either (i) a 75% overall standing in the last two years, or equivalent, in a relevant four-year Honours Bachelor's degree or equivalent or (ii) a 75% overall standing or equivalent, in a relevant four-year Honours Bachelor's degree or equivalent, as the minimum requirement for admission to a Master's program for applicants educated at a Canadian institution. A 75% overall standing or equivalent, in a relevant four-year Honours Bachelor's degree or equivalent is the minimum requirement for admission to a Master's program for applicants educated outside of Canada. • Application materials <ul style="list-style-type: none"> ○ Résumé ○ Supplementary information form ○ Transcript(s) • References <ul style="list-style-type: none"> ○ Number of references: 2 ○ Type of references: at least 1 academic • English language proficiency (ELP) (if applicable) <p>Degree requirements</p>	<ul style="list-style-type: none"> • Nanoelectronic Devices and Materials • Software • Sustainable Energy <p>Program information</p> <ul style="list-style-type: none"> • Admit term(s) <ul style="list-style-type: none"> ○ Fall ○ Winter ○ Spring • Delivery mode <ul style="list-style-type: none"> ○ On-campus • Length of program <ul style="list-style-type: none"> ○ The minimum period of full-time registration for the program is three terms and the maximum allowable time is six terms of active registration. For part-time students, the minimum period of registration for the program is six terms and the maximum allowable time is fifteen consecutive terms. • Program type <ul style="list-style-type: none"> ○ Master's ○ Professional • Registration option(s) <ul style="list-style-type: none"> ○ Full-time ○ Part-time • Study option(s) <ul style="list-style-type: none"> ○ Coursework <p>Admission requirements</p> <ul style="list-style-type: none"> • Minimum requirements <ul style="list-style-type: none"> ○ The Department of Electrical and Computer Engineering requires either (i) a 75% overall standing in the last two years, or equivalent, in a relevant four-year Honours Bachelor's degree or equivalent or (ii) a 75% overall standing or equivalent, in a relevant four-year Honours Bachelor's degree or equivalent, as the minimum requirement for admission to a Master's program for applicants educated at a Canadian institution. A 75% overall standing or equivalent, in a relevant four-year Honours Bachelor's degree or equivalent is the minimum requirement for admission to a Master's program for applicants educated outside of Canada. • Application materials <ul style="list-style-type: none"> ○ Résumé ○ Supplementary information form ○ Transcript(s) • References <ul style="list-style-type: none"> ○ Number of references: 2 ○ Type of references: at least 1 academic • English language proficiency (ELP) (if applicable)

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> • Graduate Academic Integrity Module (Graduate AIM) • Courses <ul style="list-style-type: none"> • Students must successfully complete 8 one-term courses (0.50 unit weight) acceptable for credit by the Department. • Students may register for any ECE course at the 600 or 700 levels. • A minimum of 5 courses must be taken from within the ECE Department. A maximum of 3 courses may be taken from outside the Department but must be from the faculties of Engineering, Math and Science. • A minimum grade of 65% in each of the 8 courses and a minimum cumulative average of 70% are required to remain in the program. • Students wishing to complete a Graduate Specialization as part of their MEng program should consult the list of required courses for each Graduate Specialization before selecting courses. <p>Students in the MEng in Electrical and Computer Engineering program may choose to pursue one of the following Graduate Specializations:</p> <ol style="list-style-type: none"> 1. Artificial Intelligence and Machine Learning 2. Computer Networking and Security 3. Nanoelectronic Circuits and Systems 4. Sustainable Energy <p>A Graduate Specialization is a University credential that is recognized on the student's transcript but not on the diploma and is intended to reflect that a student has successfully completed a set of courses that together provide an in-depth study in the area of the Graduate Specialization. A student will only obtain the Graduate Specialization on their transcript if they have completed the requirements associated with the MEng degree and the requirements associated with the Graduate Specialization.</p> <p>All MEng Graduate Specializations in Electrical and Computer Engineering consist of a set of at least 5 graduate (0.50 weight) level courses and this set is comprised of a mix of <i>compulsory</i> and <i>elective</i> courses. <i>Compulsory</i> courses are those that are prescribed as part of the Graduate Specialization. <i>Elective</i> courses are those that are on a list of courses designated as electives for a given Graduate Specialization. The requirements for each of the Graduate Specializations are described below.</p> <ol style="list-style-type: none"> 1. Graduate Specialization in Artificial Intelligence and Machine Learning <ul style="list-style-type: none"> • To receive the Graduate Specialization in Artificial Intelligence and Machine Learning, students must successfully complete 2 compulsory courses and 3 elective courses: 	<h2 style="margin: 0;">Degree requirements</h2> <ul style="list-style-type: none"> • Graduate Academic Integrity Module (Graduate AIM) • Courses <ul style="list-style-type: none"> • Students must successfully complete 8 one-term courses (0.50 unit weight) acceptable for credit by the Department. • Students may register for any ECE course at the 600 or 700 levels. • A minimum of 5 courses must be taken from within the ECE Department. A maximum of 3 courses may be taken from outside the Department but must be from the faculties of Engineering, Math and Science. • A minimum grade of 65% in each of the 8 courses and a minimum cumulative average of 70% are required to remain in the program. • Students wishing to complete a Graduate Specialization as part of their MEng program should consult the list of required courses for each Graduate Specialization before selecting courses. <p>Students in the MEng in Electrical and Computer Engineering program may choose to pursue one of the following Graduate Specializations:</p> <ol style="list-style-type: none"> 1. Artificial Intelligence and Machine Learning 2. Biomedical Engineering 3. Computer Networking and Security 4. Nanoelectronic Circuits and Systems 5. Nanoelectronic Devices and Materials 6. Software 7. Sustainable Energy <p>A Graduate Specialization is a University credential that is recognized on the student's transcript but not on the diploma and is intended to reflect that a student has successfully completed a set of courses that together provide an in-depth study in the area of the Graduate Specialization. A student will only obtain the Graduate Specialization on their transcript if they have completed the requirements associated with the MEng degree and the requirements associated with the Graduate Specialization.</p> <p>All MEng Graduate Specializations in Electrical and Computer Engineering consist of a set of at least 5 graduate (0.50 weight) level courses and this set is comprised of a mix of <i>compulsory</i> and <i>elective</i> courses. <i>Compulsory</i> courses are those that are prescribed as part of the Graduate Specialization. <i>Elective</i> courses are those that are on a list of courses designated as electives for a given Graduate Specialization. The requirements for each of the Graduate Specializations are described below.</p> <ol style="list-style-type: none"> 1. Graduate Specialization in Artificial Intelligence and Machine Learning

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> ○ Compulsory courses: <ul style="list-style-type: none"> ▪ ECE 657: Tools of Intelligent Systems Design ▪ ECE 657A: Data and Knowledge Modelling and Analysis ○ Elective courses (choose 3 from the following list): <ul style="list-style-type: none"> ▪ ECE 602 Introduction to Optimization ▪ ECE 603 Statistical Signal Processing ▪ ECE 606 Algorithm Design and Analysis ▪ ECE 607 Fundamentals of Ultrasonics ▪ ECE 613 Image Processing and Visual Communication ▪ ECE 659 Intelligent Sensors and Sensor Networks ▪ ECE 700 Topic-7: Game Theory with Engineering Applications ▪ ECE 750 Topic-33: Artificial Life: Biology and Computation ▪ ECE 750 Topic-34: Artificial Life: Embodied Intelligence ▪ ECE 750 Topic-35: Applied Topics in Artificial Intelligence ▪ MSCI 718: Statistical Methods for Data Analytics <p>2. Graduate Specialization in Computer Networking and Security</p> <ul style="list-style-type: none"> • To receive the Graduate Specialization in Computer Networking and Security, students must successfully complete 3 compulsory courses and 2 elective courses: <ul style="list-style-type: none"> ○ Compulsory courses: <ul style="list-style-type: none"> ▪ ECE 610 Broadband Communication Networks ▪ ECE 628 Computer Network Security ▪ ECE 655 Protocols, Software, and Issues in Mobile Systems ○ Elective courses (choose 2 from the following list): <ul style="list-style-type: none"> ▪ ECE 606 Algorithm Design and Analysis ▪ ECE 611 Digital Communications ▪ ECE 612 Information Theory ▪ ECE 656 Database Systems ▪ ECE 657 Tools of Intelligent Systems Design ▪ ECE 659 Intelligent Sensors & Wireless Sensor Network ▪ ECE 715 Wireless Communication Networks ▪ ECE 716 Communication Security <p>3. Graduate Specialization in Nanoelectronic Circuits and Systems</p> <ul style="list-style-type: none"> • To receive the Graduate Specialization in Nanoelectronic Circuits and Systems students, must 	<ul style="list-style-type: none"> • To receive the Graduate Specialization in Artificial Intelligence and Machine Learning, students must successfully complete 2 compulsory courses and 3 elective courses: <ul style="list-style-type: none"> ○ Compulsory courses: <ul style="list-style-type: none"> ▪ ECE 657: Tools of Intelligent Systems Design ▪ ECE 657A: Data and Knowledge Modelling and Analysis ○ Elective courses (choose 3 from the following list): <ul style="list-style-type: none"> ▪ ECE 602 Introduction to Optimization ▪ ECE 603 Statistical Signal Processing ▪ ECE 606 Algorithm Design and Analysis ▪ ECE 607 Fundamentals of Ultrasonics ▪ ECE 613 Image Processing and Visual Communication ▪ ECE 659 Intelligent Sensors and Sensor Networks ▪ ECE 700 Topic-7: Game Theory with Engineering Applications ▪ ECE 750 Topic-33: Artificial Life: Biology and Computation ▪ ECE 750 Topic-34: Artificial Life: Embodied Intelligence ▪ ECE 750 Topic-35: Applied Topics in Artificial Intelligence ▪ MSCI 718: Statistical Methods for Data Analytics <p>2. Graduate Specialization in Biomedical Engineering</p> <ul style="list-style-type: none"> • <u>To receive the Graduate Specialization in Biomedical Engineering, students must successfully complete 3 compulsory courses and 2 elective courses:</u> <ul style="list-style-type: none"> ○ <u>Compulsory courses:</u> <ul style="list-style-type: none"> ▪ <u>ECE 601 Foundations of Biology in Engineering</u> ▪ <u>ECE 608 Quantitative Methods in Biomedical Engineering</u> ▪ <u>ECE 609 Engineering Analysis of Living Cells</u> ○ <u>Elective courses (choose 2 from the following list):</u> <ul style="list-style-type: none"> ▪ <u>ECE 607 Fundamentals of Ultrasonics</u> ▪ <u>ECE 613 Image Processing and Visual Communications</u> ▪ <u>ECE 675 Radiation and Propagation of Electromagnetic Fields</u> ▪ <u>ECE 750 T33 Artificial Life: Biology and Computation</u> ▪ <u>ECE 750 T34 Artificial Life: Embodied Intelligence</u> ▪ <u>SYDE 677 Medical Imaging</u> <p>3. Graduate Specialization in Computer Networking and Security</p>

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
<p>successfully complete 1 compulsory project course (1.0 unit), and 5 elective courses:</p> <ul style="list-style-type: none"> ○ Compulsory course: <ul style="list-style-type: none"> ▪ ECE 740 Topic-5: Nanoelectronic Circuits and Systems Project (1.0 unit) ○ Elective courses Set-A (choose 2 from the following list): <ul style="list-style-type: none"> ▪ ECE 621 Computer Organization ▪ ECE 627 Register-transfer-level Digital Systems ▪ ECE 630 Physics & Models Semiconductor Devices ▪ ECE 631 Microelectronic Processing Technology ▪ ECE 636 Advanced Analog Integrated Circuits ▪ ECE 637 Digital Integrated Circuits ▪ ECE 642 Radio Frequency IC Design ▪ ECE 671 Microwave & RF Engineering ○ Elective courses Set-B (choose 3 from the following list): <ul style="list-style-type: none"> ▪ ECE 606 Algorithm Design and Analysis ▪ ECE 638 CMOS Sensor Integrated Circuits ▪ ECE 730 Topic 9: VLSI Quality, Reliability and Yield Engineering ▪ ECE 730 Topic 16: Semiconductor Memories ▪ ECE 730 Topic 30: Advanced VLSI Devices ▪ ECE 738 VLSI Circuits for Wireless Communication ▪ ECE 740 Topic 3: CMOS Data Converters ▪ ECE 770 Topic 22: Wireless Radio Systems <p>4. Graduate Specialization in Sustainable Energy</p> <ul style="list-style-type: none"> • To receive the Graduate Specialization in Sustainable Energy, students must successfully complete 2 compulsory courses and 3 elective courses: <ul style="list-style-type: none"> ○ Compulsory courses: <ul style="list-style-type: none"> ▪ ECE 663 Energy Processing ▪ ECE 760 Topic-10: Operation and Control of Future Integrated Energy Systems ○ Elective courses (choose 3 from the following list): Note: not all elective courses may be offered each year. <ul style="list-style-type: none"> ▪ ECE 661 HVDC and FACTS ▪ ECE 662 Power System Analysis and Control ▪ ECE 664 Power System Components and Modelling 	<ul style="list-style-type: none"> • To receive the Graduate Specialization in Computer Networking and Security, students must successfully complete 3 compulsory courses and 2 elective courses: <ul style="list-style-type: none"> ○ Compulsory courses: <ul style="list-style-type: none"> ▪ ECE 610 Broadband Communication Networks ▪ ECE 628 Computer Network Security ▪ ECE 655 Protocols, Software, and Issues in Mobile Systems ○ Elective courses (choose 2 from the following list): <ul style="list-style-type: none"> ▪ ECE 606 Algorithm Design and Analysis ▪ ECE 611 Digital Communications ▪ ECE 612 Information Theory ▪ ECE 656 Database Systems ▪ ECE 657 Tools of Intelligent Systems Design ▪ ECE 659 Intelligent Sensors & Wireless Sensor Network ▪ ECE 715 Wireless Communication Networks ▪ ECE 716 Communication Security <p>4. Graduate Specialization in Nanoelectronic Circuits and Systems</p> <ul style="list-style-type: none"> • To receive the Graduate Specialization in Nanoelectronic Circuits and Systems students, must successfully complete 1 compulsory project course (1.0 unit), and 5 elective courses: <ul style="list-style-type: none"> ○ Compulsory course: <ul style="list-style-type: none"> ▪ ECE 740 Topic-5: Nanoelectronic Circuits and Systems Project (1.0 unit) ○ Elective courses Set-A (choose 2 from the following list): <ul style="list-style-type: none"> ▪ ECE 621 Computer Organization ▪ ECE 627 Register-transfer-level Digital Systems ▪ ECE 630 Physics & Models Semiconductor Devices ▪ ECE 631 Microelectronic Processing Technology ▪ ECE 636 Advanced Analog Integrated Circuits ▪ ECE 637 Digital Integrated Circuits ▪ ECE 642 Radio Frequency IC Design ▪ ECE 671 Microwave & RF Engineering ○ Elective courses Set-B (choose 3 from Set A + Set B lists): <ul style="list-style-type: none"> ▪ ECE 606 Algorithm Design and Analysis ▪ ECE 638 CMOS Sensor Integrated Circuits ▪ ECE 730 Topic 9: VLSI Quality, Reliability and Yield Engineering

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
<ul style="list-style-type: none"> ▪ ECE 665 High Voltage Engineering Applications ▪ ECE 666 Power Systems Operation ▪ ECE 667 Sustainable Distributed Power Generation ▪ ECE 668 Distribution System Engineering ▪ ECE 669 Dielectric Materials ▪ ECE 768 Power System Quality ▪ ECE 765 Power System Protection and Relaying 	<ul style="list-style-type: none"> ▪ ECE 730 Topic 16: Semiconductor Memories ▪ ECE 730 Topic 30: Advanced VLSI Devices ▪ ECE 738 VLSI Circuits for Wireless Communication ▪ ECE 740 Topic 3: CMOS Data Converters ▪ ECE 770 Topic 22: Wireless Radio Systems <p>5. <u>Graduate Specialization in Nanoelectronic Devices and Materials</u></p> <ul style="list-style-type: none"> • <u>To receive the Graduate Specialization in Nanoelectronic Devices and Materials, students must successfully complete 2 compulsory courses and 3 elective courses:</u> <ul style="list-style-type: none"> ○ <u>Compulsory course:</u> <ul style="list-style-type: none"> ▪ <u>ECE 630 Physics and Models of Semiconductor Devices</u> ▪ <u>ECE 631 Microelectronic Processing Technology</u> ○ <u>Elective courses (choose 3 from the following list):</u> <ul style="list-style-type: none"> ▪ <u>ECE 632 Photovoltaic Energy Conversion</u> ▪ <u>ECE 633 Nanoelectronics</u> ▪ <u>ECE 634 Organic Electronics</u> ▪ <u>ECE 635 Fabrication in the Nanoscale: Technology and Applications</u> ▪ <u>ECE 672 Optoelectronic Devices</u> ▪ <u>NANO 600 Introduction to Nanotechnology</u> <p>6. <u>Graduate Specialization in Software</u></p> <ul style="list-style-type: none"> • <u>To receive the Graduate Specialization in Software, students must successfully complete 3 compulsory courses and 2 elective courses:</u> <ul style="list-style-type: none"> ○ <u>Compulsory courses:</u> <ul style="list-style-type: none"> ▪ <u>ECE 650 Methods and Tools for Software Engineering</u> ▪ <u>ECE 651 Foundations of Software Engineering</u> ▪ <u>ECE 653 Software Testing, Quality Assurance and Maintenance</u> ○ <u>Elective courses (choose 2 from the following list):</u> <ul style="list-style-type: none"> ▪ <u>ECE 606 Algorithm Design and Analysis</u> ▪ <u>ECE 655 Protocols, Software, Issues in Mobile Systems</u> ▪ <u>ECE 656 Database Systems</u> ▪ <u>ECE 657 Tools of Intelligent Systems Design</u> ▪ <u>ECE 658 Component Based Software</u>

Current Graduate Studies Academic Calendar content:	Proposed Graduate Studies Academic Calendar content:
	<p>7. Graduate Specialization in Sustainable Energy</p> <ul style="list-style-type: none"> • To receive the Graduate Specialization in Sustainable Energy, students must successfully complete 2 compulsory courses and 3 elective courses: <ul style="list-style-type: none"> ○ Compulsory courses: <ul style="list-style-type: none"> ▪ ECE 663 Energy Processing ▪ ECE 760 Topic-10: Operation and Control of Future Integrated Energy Systems ○ Elective courses (choose 3 from the following list): Note: not all elective courses may be offered each year. <ul style="list-style-type: none"> ▪ ECE 661 HVDC and FACTS ▪ ECE 662 Power System Analysis and Control ▪ ECE 664 Power System Components and Modelling ▪ ECE 665 High Voltage Engineering Applications ▪ ECE 666 Power Systems Operation ▪ ECE 667 Sustainable Distributed Power Generation ▪ ECE 668 Distribution System Engineering ▪ ECE 669 Dielectric Materials ▪ ECE 768 Power System Quality ▪ ECE 765 Power System Protection and Relaying

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

Students who were enrolled in the MEng in ECE program prior to Winter 2020 who complete the course requirements for one of the Graduate Specializations will be permitted to receive credentialization for the Graduate Specialization at the time of degree completion.

Students who were enrolled in the MEng in ECE program prior to Winter 2020 who meet the criteria for both a GDip and a Graduate Specialization cannot receive both credentials. They must select which credential they want to receive at the time of degree completion and inform the Department of their selection.

Departmental approval date (mm/dd/yy): 04/03/19

Reviewed by GSPA (for GSPA use only) date (mm/dd/yy): 04/16/2019

Faculty approval date (mm/dd/yy): 05/21/2019

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
16 September 2019

Senate Undergraduate Council met on 18 June 2019 and agreed to forward the following items to Senate for approval in the regular agenda. This report also contains items from the 9 October 2018 meeting, which were unintentionally omitted from the 19 November 2018 Senate package.

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

FOR APPROVAL

NEW ACADEMIC PLANS

Faculty of Arts
Culture and Language Studies

- 1. Motion:** To approve the proposed inactivation of the existing certificates and creation of new diplomas in Arabic Language I and II, Chinese Language I and II, Korean Language I and II, and Japanese Language I and II as described below, effective 1 September 2020.

Diplomas in Arabic Language

For students registered in degree programs or any non- or post-degree academic plan at the University of Waterloo, two diplomas are offered: Arabic Language I and Arabic Language II. Students must successfully complete two academic course units (four courses) with a cumulative average of 65% from the following:

Arabic Language I
ARABIC 101R, ARABIC 102R, ARABIC 201R, ARABIC 202R

Arabic Language II

- ARABIC 120R or ARABIC 201R
- ARABIC 202R, ARABIC 301R, ARABIC 302R

Notes

1. Diplomas I and II are mutually exclusive.
2. Only one diploma can be granted.

Diplomas in Chinese Language

For students registered in degree programs or any non- or post-degree academic plan at the University of Waterloo, two diplomas are offered: Chinese Language I and Chinese Language II. Students must successfully complete two academic course units (four courses) with a cumulative average of 65% from the following:

Chinese Language I
CHINA 101R, CHINA 102R, CHINA 120R, CHINA 200R, CHINA 201R, CHINA 202R

Chinese Language II
CHINA 201R, CHINA 202R, CHINA 301R, CHINA 302R, CHINA 310R, CHINA 320R, CHINA 390R, CHINA 391R

Notes

1. Students may use no more than two 100-level courses towards Diploma I.
2. Diplomas I and II are mutually exclusive. Only one diploma can be granted.

Diplomas in Korean Language

For students registered in degree programs or any non- or post-degree academic plan at the University of Waterloo, two diplomas are offered: Korean Language I and Korean Language II. Students must successfully complete two academic course units (four courses) with a cumulative average of 65% from the following:

Korean Language I

KOREA 101R, KOREA 102R, KOREA 201R, KOREA 202R

Korean Language II

KOREA 201R, KOREA 202R, KOREA 301R, KOREA 302R, KOREA 391R

Notes

1. Diplomas I and II are mutually exclusive. Only one diploma will be granted.
2. Not all courses are offered on a yearly basis.

Diplomas in Japanese Language

For students registered in degree programs or any non- or post-degree academic plan at the University of Waterloo, two diplomas are offered: Japanese Language I and Japanese Language II. Students must successfully complete two academic course units (four courses) with a cumulative average of 65% from the following:

Japanese Language I

JAPAN 101R, JAPAN 102R, JAPAN 111R, JAPAN 112R, JAPAN 201R, JAPAN 202R

Japanese Language II

JAPAN 201R, JAPAN 202R, JAPAN 301R, JAPAN 302R, JAPAN 391R

Notes

1. Students may use no more than two 100-level courses towards Diploma I.
2. Diplomas I and II are mutually exclusive. Only one diploma will be granted.

Rationale:

Previously, language Diplomas existed for non- or post-degree students and required six courses (3.0 units) in the language, while language Certificates required four courses (2.0 units) in the language (introductory or advanced) and were only open to students registered in degree programs.

Existing language Certificates no longer fit the new definition of Certificates (established by the Common Language Working Group), but do fit the new definition of Diplomas. The existing language Certificates (for degree students) and matching Diploma (for non/post-degree students) will be combined and renamed to Diplomas I and II in that same language, in order to streamline requirements and render the plans more accessible to all student audiences.

The newly proposed Diplomas I and II in each language will replace the previous Certificates I and II in that language, mirroring the current Certificate course requirements. Therefore it is necessary to inactivate the Certificate plans in order to avoid duplication.

A new subject code ARABIC is being proposed for existing Arabic Language courses, currently listed under the SI subject code. The Arabic Language Diplomas reflect this change, with SI language courses (101R, 102R, 120R, 201R, 202R, 301R, and 302R) being replaced by the ARABIC subject code (no change to numbers or course descriptions; prerequisites have been updated accordingly).

Faculty of Arts Social Development Studies

- 2. Motion:** To approve the proposed inactivation of the Cultural Diversity Specialization and creation of the Diversity and Equity Specialization as described below, effective 1 September 2020.

Diversity and Equity Specialization

The Diversity and Equity Specialization allows students to develop a concentration of courses related to diversity, equity, and social development that will be noted on their transcripts. It is designed for students interested in undertaking critical analysis of power and privilege in relation to various forms of diversity (culture, religion, gender, sexuality, disability, etc.) that help them to understand and work with people from diverse backgrounds both within Canada and internationally.

Requirements

The Diversity and Equity Specialization requires successful completion of six courses:

- at least four of:
 - SDS 242R/RS 242R, SDS 310R, SDS 311R/LS 373, SDS 331R, SDS 345R, SDS 354R, SDS 367R, SDS 370R, SDS 405R, SDS 411R, SDS 415R, SDS 425R, SDS 449R, SDS 450R, SDS 490R, SDS 495R, SDS 496R, SDS 499A, SDS 499B
 - SOCWK 301R, SOCWK 356R
 - PSYCH 349R
- remaining courses from the courses above or the following courses:
 - ANTH 202
 - CI 200/GER 200, CI 250
 - EASIA 346R/ ENGL 346R
 - ENGL 108E/GSJ 108, ENGL 208L/GSJ 208L, ENGL 308/GSJ 307
 - FR 373
 - GSJ 101, GSJ 201, GSJ 302
 - HIST 221, HIST 269, HIST 271, HIST 321/LS 331
 - INDG 201/CDNST 201, INDG 301
 - LS 201/GSJ 206, LS 226/SOC 249
 - PACS 327
 - PHIL 204J, PHIL 227/INDEV 300, PHIL 302
 - PSCI 324, PSCI 421/LS 464
 - PSYCH 355
 - RS 229R, RS 259R
 - SI 221R, SI 315R/GSJ 315
 - SMF 208
 - SOC 256
 - SPCOM 226

Rationale: Social and Development Studies underwent a thorough review of their specializations and determined

a need to inactivate the Cultural Diversity (CD) specialization due to lack of enrollment. After review of numerous undergraduate courses themed around diversity and equity, this new specialization was proposed as a replacement. The theme better aligns with Social Development Studies student interest and department research, and incorporates both new courses and past elements of the CD specialization. Departments of all new additions have been notified.

Faculty of Engineering Electrical & Computer Engineering

- 3. Motion:** To approve the proposed specialization in Communication and Signal Processing as described below, effective 1 September 2019.

Specialization in Communications and Signal Processing

We take for granted remote connection to complex services, which may involve high-quality video streaming, human-machine voice interaction, biometric monitoring, image or video understanding, and rapidly evolving forms of assistance using artificial intelligence. Indeed, many are possible from a cell phone barreling down a highway or embedded on a massive scale in sensor networks. They hold promise of meaningful impact on global problems such as aging and health care, education, social cohesion, resource and environmental management, crime prevention, and countless applications yet to be imagined. Beyond applying known algorithms, engineers need to understand fundamental principles from communications and signal processing which are at the heart of sophisticated and powerful trade-offs in design. This specialization allows students to choose that depth of learning within various combinations of its two core topics.

Requirements

Students interested in pursuing this specialization must achieve an average of at least 60% in the specialization courses, and a grade of at least 50% in each of the courses. Students who satisfy the requirements for Faculty Options, Specializations and Electives for Engineering Students will have the appropriate designation shown on their diploma and transcript.

Required courses

ECE 313 Digital Signal Processing
ECE 318 Communication Systems 1
Any three courses from the following list
ECE 358 Computer Networks
ECE 414 Communication Systems 2
ECE 415 Multimedia Communications
ECE 416 Advanced Topics in Networking
ECE 417 Image Processing
ECE 474 Radio and Wireless Systems

Rationale: ECE has created a specialization in Communication and Signal Processing building on their strength in the area of communication. To achieve the specialization students must take ECE 318 and ECE 313 (or 413) plus three additional electives from the approved list.

Faculty of Environment

- 4. Motion:** To approve the proposed diploma in Sustainability as described below, effective 1 September 2019.

Diploma in Sustainability: Calendar Text

Legend

† Courses cross listed between faculties, one of which is the student’s home faculty, will be counted as a home faculty course.

The Diploma in Sustainability is available to all undergraduate students, including non-degree and post-degree students, at the University of Waterloo. The Diploma requires a minimum cumulative average of 65% in four courses (one required and three electives).

Required Courses (1)

ENVS 205: Sustainability: The Future We Want [online]

Elective Courses (3)

Students must take one course from each of the following three areas. Students must take two of these courses from outside of the faculty from which they graduate.¹ Many of the courses listed have prerequisites and/or may be cross-listed. Students are advised to check undergraduate calendar course descriptions for details.

i. Environmental Science

This set of courses focuses on the environmental dimensions of sustainability challenges, including Sustainable Development Goals related to life on land, life below water, and energy, climate, and technology.

course list	Prerequisites and restrictions (if any), with notes
BIOL 485 - Conservation Biology	Prereq: BIOL 150, 359
BIOL 489 – Arctic Ecology	Prereq: BIOL 150 or ENVS 200; Level at least 3B
CHE 571 - Industrial Ecology	Prereq: Level at least 3B Chemical or Environmental Engineering
CIVE 230 - Engineering and Sustainable Development	Prereq: CIVE 224; Level at least 2B Civil Engineering
EARTH 270 - Disasters and Natural Hazards	
ENVE 279 - Energy and the Environment	Prereq: Level at least 2B Civil, Environmental, or Geological Engineering.
ENVS 200 - Field Ecology	
GEOG 207 - Climate Change Fundamentals	
GEOG 459 - Energy and Sustainability	Prereq: Currently ‘GEOG202 or GEOG203,’ though ENV Faculty Council approved change to ‘level at least 3A’
NE 109 - Societal and Environmental Impacts of Nanotechnology	Prereq: Level 1A Nanotechnology Engineering
SCI 200 - Energy: Its Development, Use and Issues	
SCI 201 - Global Warming and Climate Change	

¹ The Registrar’s Office has confirmed that they can code this course selection process on academic templates.

SYDE 332 - Introduction to Complex Systems	Prereq: Level at least 3A Biomedical Engineering or Level at least 3B Systems Design Engineering
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ii. Social Wellbeing

This set of courses focuses on the social dimensions of sustainability challenges, including Sustainable Development Goals related to socio-cultural practices; equality and justice; health, hunger, and poverty.

course list	Prerequisites and restrictions (if any)
ENGL 248 - Literature for an Ailing Planet	
ENVS 105 - Environmental Sustainability and Ethics	Prereq: Currently 'Level at least 2A Environment students or departmental consent,' though ENV Faculty Council approved change to 'level at least 2A
ERS 215 - Environmental and Sustainability Assessment I	Prereq: Level at least 1B
ERS 225 - Gendering Environmental Politics	Prereq: Level at least 2A
ERS 253 - Communities and Sustainability	Prereq: Level at least 2A
ERS 270 - Introduction to Sustainable Agriculture	
ERS 294/RS 285 – The Sacred Earth: Religion and Ecology	
ERS 316 - Urban Water and Wastewater Systems: Integrated Planning and Management	Prereq: Level at least 2A
ERS/GEOG 361 - Food Systems and Sustainability	
ERS 294/RS 285 – The Sacred Earth: Religion and Ecology	
ERS 372 - First Nations and the Environment	Prereq: Level at least 2A
GEOG 225 - Global Environment and Health	
GEOG 368/PLAN 341 - Conservation/ Resource Management of the Built Environment	Prereq: ENVS 200
GEOG/HEALTH/PLAN 432 - Health, Environment, and Planning	Prereq: One of PLAN 233, HLTH 260, ERS 253, GEOG 325
PACS 310 - Peace and the Environment	Prereq: Level at least 2A or Peace and Conflict Studies Diploma students.
PHIL 224 - Environmental Ethics	

PLAN 451 - Tools for Sustainable Communities	Prereq: Level at least 3A
SDS 260R - Ecology, Society, and Justice: Social Development and the Environment	Prereq: One of SDS 131R, PSCI 150, SOC 101R/101, EARTH 122, ERS 110, ENVS 105; Level at least 2B [SDS has approved addition of ENVS205 as a prerequisite, effective Sept. 2020]
THPERF 374 - Sustainability in Performance	Prereq: Level at least 3A

iii. Economic prosperity

This set of courses focuses on the political and economic dimensions of sustainability challenges, including Sustainable Development Goals related to economic growth, industry and innovation, and business approaches to sustainability.

course list	Prerequisites and restrictions (if any)
ECON 255 - Introduction to the Economics of Natural Resources	Prereq: ECON 101 or ECON 100/COMM 103
ENBUS 102 - Introduction to Environment and Business	Prereq: Currently 'Environment and Business students only,' though ENV Faculty Council approved removal of this prerequisite
ENBUS 211 - Principles of Marketing for Sustainability Professionals	
ENVS 220 - Ecological Economics	
ERS 320 - Economics and Sustainability	Prereq: Level at least 3A.
ERS 328 - Environmental Politics and System Change	Prereq: Level at least 2A
ERS 370 - Corporate Sustainability: Issues and Prospects	Prereq: Level at least 2B; Not open to Environment and Business students
GEOG 203 - Environment and Development in a Global Perspective	Prereq: Currently 'ENVS195 or GEOG101 or Geomatics plans,' though ENV Faculty Council approved addition of ENVS205
GEOG/AVIA 315 – Aviation Sustainability	Prereq: Level at least 2A
PSCI 432 - Global Environmental Governance	Prereq: Level at least 3A
REC 383 - Perspectives on International Tourism	Prereq: One of GEOG 233, REC 280, PLAN 362

Diploma in Sustainability: Clean Calendar Text

Legend

† Courses cross listed between faculties, one of which is the student's home faculty, will be counted as a home faculty course.

The Diploma in Sustainability is available to all undergraduate students, including non-degree and post-degree students, at the University of Waterloo. The Diploma requires a minimum cumulative average of 65% in four courses (one required and three electives).

Required Course: ENVS 205

Elective Courses:

Students must take one course from each of the following three areas. Students must take two of these courses from outside of the faculty from which they graduate. Many of the courses listed have prerequisites and/or may be cross-listed. Students are advised to check undergraduate calendar course descriptions for details.

Environmental Science

One of: BIOL 485, BIOL 489, CHE 571, CIVE 230, EARTH 270, ENVE 279, ENVS 200, GEOG 207, GEOG 459, NE 109, SCI 200, SCI 201, SYDE 332

Social Wellbeing

One of: ENGL 248, ENVS 105, ERS 215, ERS 225, ERS 253, ERS 270, ERS 294/RS 285†, ERS 316, ERS 361, ERS 372, GEOG 225, GEOG 368/PLAN 341, GEOG/HLTH/PLAN 432†, PACS 310, PHIL 224, PLAN 451, SDS 260R, THPERF 374

Economic prosperity

One of: ECON 255, ENBUS 102, ENBUS 211, ENVS 220, ERS 320, ERS 328, ERS 370, GEOG 203, GEOG/AVIA† 315, PSCI 432, REC 383

Rationale: The Diploma in Sustainability has been designed through extensive consultation with colleagues from units within ENV and from across the university to provide a coherent sustainability credential that is accessible to students from across campus. Sustainability problems are by their nature interdisciplinary, so the Diploma in Sustainability has embedded interdisciplinarity in its requirement that students must take courses from different focal areas and from outside of their home Faculty. Note that all faculties have been consulted and approved the use of their courses.

As further background, note that sustainability has been defined in many ways; this proposal adopts the definition from the UW Environmental Sustainability Strategy

(<https://uwaterloo.ca/sustainability/about/environmental-sustainability-strategy>): “Sustainability means maintaining the integrated health of the environment, society, and economy for today and into the future.” Most definitions of sustainability adopt a version of this tripartite framework, though the United Nations has more recently outlined global objectives for sustainability through the Sustainable Development Goals (SDGs, see <http://www.un.org/sustainabledevelopment/sustainable-development-goals>), with a pertinent target being that “By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles...”

The SDGs are embedded in UW Policy 53, Environmental Sustainability (<https://uwaterloo.ca/secretariat/policy-53-environmental-sustainability>). Policy 53 states that “The University commits to creating a campus where *environmental sustainability is a core part of its culture*. The University embeds environmental sustainability in transformative research and teaching, campus operations, and in its engagement with employees and students as agents of change [emphasis added].”

In this context, the motivation for a diploma comes from one of the guiding principles of Policy 53, Education, which commits the university to “ensure [that] students and employees are informed to live sustainably and understand sustainability issues and concepts relevant for their careers.”

Similarly, a primary “teaching and learning” objective of the UW Environmental Sustainability Strategy is that “by 2019, ensure undergraduate students from any program of study will have the opportunity to learn about sustainability in their courses.” It further recognizes that “Employees of the future will need to understand the interconnectedness between their work and its social, economic, and environmental contexts ... In every career pathway and industry, complex sustainability challenges will be increasingly relevant for decision-makers of tomorrow. Enabling access to a foundational understanding of sustainability is a first step to prepare world-ready graduates.”

Accordingly, the Diploma in Sustainability is designed to embed environmental sustainability in undergraduate teaching at UW – consistent with its recognition as a “core value” on campus; where the course work required for the Diploma is not possible for a student, an introductory course on sustainability (ENVS 205) has been created.

The courses listed within the theme areas for the Diploma are generally sustainability-focused in the sense that they are foundational, interdisciplinary, apply sustainability within a field, or provide “skills and/or knowledge directly connected to understanding or solving one or more major sustainability challenges (see <http://www.aashe.org/wp-content/uploads/2017/07/STARS-2.1-Technical-Manual-Administrative-Update-Three.pdf>). There are many other courses on campus that have sustainability content, but the lists here seek a balance between making the Diploma accessible while keeping the list manageable. Most of the courses are open to students across campus, though others are included in the list to improve the feasibility of the diploma for students from some faculties.

The Office of Quality Assurance has been consulted with regards to this diploma.

Faculty of Mathematics Applied Mathematics

- 5. Motion:** To approve the proposed inactivation of the Applied Mathematics/Physics Option and creation of the Physics Option described below, effective 1 September 2019.

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

This plan has the same course requirements as Honours Applied Mathematics with the following additional constraints on course selection:

All of

~~AMATH 271 Introduction to Theoretical Mechanics~~

~~ECE 403 Thermal Physics or PHYS 358 Thermal Physics~~

~~PHYS 122 Waves, Electricity and Magnetism~~

~~PHYS 234 Quantum Physics I~~

~~PHYS 242 Electricity and Magnetism I~~

~~PHYS 359 Statistical Mechanics~~

An additional 1.0 unit from the following list:

~~Any 300- or 400- PHYS courses~~

~~AMATH 361 Continuum Mechanics~~

~~AMATH 373 Quantum Theory 1~~

~~AMATH 463 Fluid Mechanics~~

~~AMATH 473 Quantum Theory 2~~

~~AMATH 475/PHYS 476 Introduction to General Relativity~~

4.0 units, at least 2.0 units of which are at the 300- or 400-level, from the following list*

Any PHYS course**

ECE 403 Thermal Physics

AMATH 271 Introduction to Theoretical Mechanics

AMATH 361 Continuum Mechanics

AMATH 373 Quantum Theory 1

AMATH 463 Fluid Mechanics

AMATH 473/PHYS 454 Quantum Theory 2

AMATH 475/PHYS 476 Introduction to General Relativity

*** Courses used to satisfy this requirement cannot be used to satisfy the 300- and 400-level AMATH requirements of the Applied Mathematics plan.**

**** PHYS 121 course is a requirement for Honours Applied Mathematics and cannot be used to satisfy this requirement.**

Note: PHYS courses can be used to fulfil the subject specialization requirement of the AMATH plan.

Some suggested courses are listed below

PHYS 122 Waves, Electricity and Magnetism

PHYS 124 Modern Physics

PHYS 175 Introduction to the Universe

PHYS 234 Quantum Physics 1

PHYS 225 Modeling Life Physics

PHYS 242 Electricity and Magnetism 1

PHYS 335 Condensed Matter Physics

PHYS 358 Thermal Physics

PHYS 359 Statistical Mechanics

Rationale: The Faculty of Mathematics is restructuring and simplifying Applied Mathematics plans, such that there will be one common Plan 10 (Applied Mathematics) and several Plan 20s (options and specialization). Changes to the number of courses in the AMATH options will make them more uniform and give students flexibility. This will make the options more attractive to students. Students can choose which calendar they would like to follow.

Faculty of Mathematics

Applied Mathematics

- 6. Motion:** To approve the proposed inactivation of the Applied Mathematics/Biology Option and creation of the Biology Option described below, effective 1 September 2019.

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

This plan has the same course requirements as Honours Applied Mathematics with the following additional constraints on course selection:

All of

~~BIOL 130 Introductory Cell Biology~~

~~BIOL 239 Genetics~~

~~An additional 3.0 units, at least 2.0 units of which are at the 300- or 400-level from the following list*:~~

~~Any BIOL course~~

~~AMATH 382/BIOL 382 Computational Modelling of Cellular Systems~~

~~AMATH 383 Introduction to Mathematical Biology~~

~~Recommended course~~

~~BIOL 364 Mathematical Modeling in Biology~~

4.0 units, at least 2.0 units of which are at the 300- or 400-level, from the following list*

Any BIOL course

AMATH 382/BIOL 382 Computational Modelling of Cellular Systems

AMATH 383 Introduction to Mathematical Biology

*** Courses used to satisfy this requirement cannot be used to satisfy the 300- and 400-level**

AMATH course requirements of the Applied Mathematics plan.

Note: BIOL courses can be used to fulfil the subject specialization requirement of the AMATH plan.

Some suggested courses are listed below

BIOL 130 Introductory Cell Biology

BIOL 239 Genetics

BIOL 240 Fundamentals of Microbiology

BIOL 266 Introduction to Computational Biology

BIOL 280/PHYS 280 Introduction to Biophysics

BIOL 308 Principles of Molecular Biology

BIOL 359 Evolution 1: Mechanisms

BIOL 364 Mathematical Modelling in Biology

BIOL 365 Methods in Bioinformatics

BIOL 456 Population Biology

BIOL 458 Quantitative Ecology

Rationale: The Faculty of Mathematics is restructuring and simplifying Applied Mathematics plans, such that there will be one common Plan 10 (Applied Mathematics) and several Plan 20s (options and specialization). Changes to the number of courses in the AMATH options will make them more uniform and give students flexibility. This will make the options more attractive to students. Students can choose which calendar they would like to follow.

Faculty of Mathematics

Applied Mathematics

- 7. Motion:** To approve the proposed inactivation of the Applied Mathematics/Economics Option and creation of the Economics Option described below, effective 1 September 2019.

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

This plan has the same course requirements as Honours Applied Mathematics with the following additional constraints on course selection:

One of
~~CO 250 Introduction to Optimization~~
~~CO 255 Introduction to Optimization (Advanced Level)~~

All of
ECON 101 Introduction to Microeconomics
ECON 102 Introduction to Macroeconomics
ECON 201 Microeconomic Theory for Business and Policy

One of
ECON 206 Money and Banking 1
ECON 207 Economic Growth and Development 1

~~An additional 1.5 units of 300- or 400-level ECON courses.~~

4.0 units, at least 2.0 units of which are at the 300- or 400-level, from the following list

Any ECON course
CO 250 Introduction to Optimization or
CO 255 Introduction to Optimization (Advanced Level)

Note: ECON courses can be used to fulfil the subject specialization requirement of the AMATH plan.

Some suggested courses are listed below
ECON 101 Introduction to Microeconomics
ECON 102 Introduction to Macroeconomics
ECON 201 Microeconomic Theory for Business and Policy
ECON 206 Money and Banking 1
ECON 207 Economic Growth and Development 1
ECON 211 Introduction to Mathematical Economics
ECON 212 Introduction to Game Theory
ECON 301 Microeconomic Theory 2
ECON 302 Macroeconomic Theory 2
ECON 311 Mathematical Economics
ECON 401 Microeconomic Theory 3
ECON 402 Macroeconomic Theory 3

Rationale: The Faculty of Mathematics is restructuring and simplifying Applied Mathematics plans, such that there will be one common Plan 10 (Applied Mathematics) and several Plan 20s (options and specialization). Changes to the number of courses in the AMATH options will make them more uniform and give students flexibility. This will make the options more attractive to students. Students can choose which calendar they would like to follow.

Faculty of Mathematics Applied Mathematics

- 8. Motion:** To approve the proposed inactivation of Applied Mathematics with Engineering Electives and creation of Engineering Specialization: Fluids and Heat and Engineering Specialization: Communication and Control as described below, effective 1 September 2019.

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

*Enrolment in this plan is limited; a cumulative average of 70% or higher is strongly recommended.
~~Students must choose one of two specializations in this option.~~*

~~Both options have~~ **This plan has** the same requirements as Honours Applied Mathematics, with the following constraints on course selection:

Engineering Specialization: Fluids and Heat (new page will be created)

All of

AMATH 271 Introduction to Theoretical Mechanics
AMATH 361 Continuum Mechanics*
AMATH 463 Fluid Mechanics*
PHYS 122 Waves, Electricity and Magnetism

One of

CO 250 Introduction to Optimization
CO 255 Introduction to Optimization (Advanced Level)
STAT 331 Applied Linear Models
STAT 340 Computer Simulation of Complex Systems

All of

GENE 123 Electrical Circuits and Instrumentation
ME 219 Mechanics of Deformable Solids 1
ME 250 Thermodynamics 1
ME 353 Heat Transfer 1
ME 354 Thermodynamics 2
ME 456 Heat Transfer 2

One of

ME 557 Combustion 1
ME 564 Aerodynamics
ME 571 Air Pollution

* This course can be used to satisfy the 300- and 400-level AMATH course requirements of the Applied Mathematics plan.

Engineering Specialization: Communication and Control (new page will be created)

Enrolment in this plan is limited; a cumulative average of 70% or higher is strongly recommended.

This plan has the same requirements as Honours Applied Mathematics, with the following constraints on course selection:

All of

AMATH 455 Control Theory*
PHYS 122 Waves, Electricity and Magnetism

One of

CO 250 Introduction to Optimization
CO 255 Introduction to Optimization (Advanced Level)
CS 475 Computational Linear Algebra
STAT 331 Applied Linear Models
STAT 340 Computer Simulation of Complex Systems

All of
GENE 123 Electrical Circuits and Instrumentation
ECE 207 Signals and Systems
ECE 240 Electronic Circuits 1
ECE 318 Analog and Digital Communications
ECE 380 Analog Control Systems

Two of
ECE 413 Digital Signal Processing
ECE 484 Digital Control Applications
ECE 486 Robot Dynamics and Control
SYDE 372 Introduction to Pattern Recognition
SYDE 544 Biomedical Measurement and Signal Processing

* This course can be used to satisfy the 300- and 400-level AMATH course requirements of the Applied Mathematics plan.

Rationale: The Faculty of Mathematics is restructuring and simplifying Applied Mathematics plans, such that there will be one common Plan 10 (Applied Mathematics) and several Plan 20s (options and specialization). In addition to restructuring, the names for these options are being changed. Engineering has been consulted and supports the name change since this plan is based in Math and is only open to math students. Students can choose which calendar they would like to follow.

Faculty of Mathematics Applied Mathematics

- 9. Motion:** To approve the proposed Engineering Specialization: Heat and Mass Transfer as described below, effective 1 September 2019.

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

Engineering Specialization: Heat and Mass Transfer (new specialization and new page)
Enrolment in this plan is limited; a cumulative average of 70% or higher is strongly recommended.

All of
CHE 230 Physical Chemistry 1
CHE 231 Physical Chemistry 2
CHE 312 Mathematics of Heat and Mass Transfer
CHE 313 Applications of Heat and Mass Transfer
CHE 330 Chemical Engineering Thermodynamics

All of
AMATH 361 Continuum Mechanics*
AMATH 463 Fluid Mechanics*

Two of
CHE 314 Chemical Reaction Engineering
CHE 331 Electrochemical Engineering
CHE 341 Introduction to Process Control
CHE 361 Bioprocess Engineering
CHE 522 Advanced Process Dynamics and Control
 * This course can be used to satisfy the 300- and 400-level AMATH course requirements of the Applied Mathematics plan.

Rationale: Heat and mass transfer is an important area of applied mathematics related to industrial applications. Given the greater flexibility of this stream, it should be more attractive to students. Mathematics has consulted with the chemical engineering undergraduate advisor. Revisiting this option in a few years is recommended.

Faculty of Mathematics
Computer Science

10. Motion: To approve the inactivation of the plans listed in the first column and the creation of the plans listed in the third column of the table below, effective 1 September 2019.

Background:

Current Structure	Existing Plan 10	New Structure – Plan 20
Computer Science/Artificial Intelligence	Computer Science – BMath/BCS	Artificial Intelligence Specialization
Computer Science/Bioinformatics Option	Computer Science – BMath/BCS	Bioinformatics Specialization
Computer Science/Business Option	Computer Science – BMath/BCS	Business Specialization
Computer Science/Computational Fine Art Option	Computer Science – BMath/BCS	Computational Fine Art Specialization
Computer Science/Digital Hardware Option	Computer Science – BMath/BCS	Digital Hardware Specialization
Computer Science/Human-Computer Interaction Option	Computer Science – BMath/BCS	Human-Computer Interaction Specialization
Computer Science/ Software Engineering Option	Computer Science – BMath/BCS	Software Engineering Specialization

Rationale: The Faculty of Mathematics is restructuring and simplifying the Computer Science plans, such that there will be one common Plan 10 (Computer Science) and several Plan 20s (options and specialization). In October 2018, Senate Undergraduate Council voted to recommend the inactivation of the plans listed in the first column and creation of plans listed in the third column as options effective 1 September 2019. In June 2019, Senate approved renaming the options to specializations in order to comply with the common language guidelines. The requested effective date for renaming the options to specializations was 1 September 2020 because of the timing of the approval. Due to the administrative burden involved in creating the new plans as options and then renaming them as specializations one year later, the registrar’s office has approved an extraordinary exception to allow the restructuring and renaming to take effect 1 September 2019 (subject to Senate approval of the restructuring). There are no other proposed changes to the plans. Students can choose which calendar they would like to follow.

Faculty of Mathematics
Mathematical Studies

- 11. Motion:** To approve the proposed inactivation of the Mathematical Studies – Business Specialization plan and creation of the Business Specialization described below, effective 1 September 2019.

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

~~Students in this plan must fulfil all the requirements in Table I. This must include at least 24 math courses, and the following specific requirements.~~

This plan has the same course requirements as Honours Mathematical Studies except that

- 1. Must include 24 math courses**
- 2. Include the following additional requirements on course selection**

~~One of~~

~~MATH 127 Calculus 1 for the Sciences~~

~~MATH 137 Calculus 1 for Honours Mathematics~~

~~MATH 147 Calculus 1 (Advanced Level)~~

~~One of~~

~~MATH 128 Calculus 2 for the Sciences~~

~~MATH 138 Calculus 2 for Honours Mathematics~~

~~MATH 148 Calculus 2 (Advanced Level)~~

~~One of~~

~~MATH 135 Algebra for Honours Mathematics~~

~~MATH 145 Algebra (Advanced Level)~~

~~One of~~

~~MATH 106 Applied Linear Algebra 1~~

~~MATH 136 Linear Algebra 1 for Honours Mathematics~~

~~MATH 146 Linear Algebra 1 (Advanced Level)~~

~~One of~~

~~MATH 225 Applied Linear Algebra 2~~

~~MATH 235 Linear Algebra 2 for Honours Mathematics~~

~~MATH 245 Linear Algebra 2 (Advanced Level)~~

~~One of~~

~~STAT 220 Probability (Non-Specialist Level)~~

~~STAT 230 Probability~~

~~STAT 240 Probability (Advanced Level)~~

~~One of~~

~~STAT 221 Statistics (Non-Specialist Level)~~

~~STAT 231 Statistics~~

~~STAT 241 Statistics (Advanced Level)~~

~~One of~~

~~CS 115 Introduction to Computer Science 1~~

~~CS 135 Designing Functional Programs~~
~~CS 145 Designing Functional Programs (Advanced Level)~~

One of

~~CS 116 Introduction to Computer Science 2~~
~~CS 136 Elementary Algorithm Design and Data Abstraction~~
~~CS 146 Elementary Algorithm Design and Data Abstraction (Advanced Level)~~

One of

~~MATH 207 Calculus 3 (Non-Specialist Level)~~
~~MATH 229 Introduction to Combinatorics (Non-Specialist Level)~~
~~MATH 237 Calculus 3 for Honours Mathematics~~
~~MATH 247 Calculus 3 (Advanced Level)~~
~~MATH 239 Introduction to Combinatorics~~
~~MATH 249 Introduction to Combinatorics (Advanced Level)~~

All of

AFM 101 Introduction to Financial Accounting
AFM 102 Introduction to Managerial Accounting
BUS 121W Functional Areas of the Organization
ECON 101 Introduction to Microeconomics
ECON 102 Introduction to Macroeconomics

One of

AFM 131/ARBUS 101 Introduction to Business in North America
BUS 111W Understanding the Business Environment

One of

ARBUS 302/ECON 344 Marketing 1: Principles of Marketing and Consumer Economics
BUS 352W Introduction to Marketing Management

Three additional courses chosen from

LS 271/PACS 202 Conflict Resolution
LS 319/PACS 323 Negotiation: Theories and Strategies
Any AFM, BUS (see Laurier calendar), COMM, ECON, HRM, MSCI, STV courses

One of

CO 227 Introduction to Optimization (Non-Specialist Level)
CO 250 Introduction to Optimization
CO 255 Introduction to Optimization (Advanced Level)

One of

CO 327 Deterministic OR Models (Non-Specialist Level)
CO 370 Deterministic OR Models

All of

CS 330 Management Information Systems

One of

AFM 272/ACTS291 Corporate Finance 1

ACTSC 221 Introductory Financial Mathematics (Non-Specialist Level)
ACTSC 231 Introductory Financial Mathematics
ACTSC 371 Introduction to Investments

Two of

CS 200 Concepts for Advanced Computer Usage; ~~Note: students wishing to take CS 200 must do so prior to taking any other 200-level or higher CS courses~~

CS 338 Computer Applications in Business: Databases

CS 430 Applications Software Engineering

CS 432 Business Systems Analysis

STAT 340 Computer Simulation of Complex Systems

One of

STAT 321 Regression and Forecasting (Non-Specialist Level)

STAT 322 Sampling and Experimental Design (Non-Specialist Level)

Seven additional math courses (3.5 units).

A minimum of 10 300- or 400-level math courses (5.0 units), including any taken to satisfy the requirements above.

Notes

W courses are offered by Laurier. See the Laurier Calendar for course details.

Rationale: These changes are necessary to reflect the separation of the specialization into the Plan 20. The note about CS 200 has been removed since this is no longer the case that CS 200 must be taken prior to taking any other 200-level or higher CS courses.

ACADEMIC PLAN CHANGES

Faculty of Arts

Studies in Islam Minor

- 12. Motion:** To approve the proposed changes to the Studies in Islam Minor as described below, effective 1 September 2020.

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

Studies in Islamic **and Arab Cultures** Minor

Students enrolled in any degree program may pursue a minor designation in Studies in Islamic **and Arab Cultures**.

~~Studies in Islam at the University of Waterloo seeks to situate Islam in the context of other religions, issues, and topics. This program is housed at and administered by Renison University College.~~

The Studies in Islamic **and Arab Cultures** Minor requires successful completion of a minimum of four academic course units (eight courses) with a minimum cumulative average of 65%, including:

- SI 121R, ~~SI 221R, SI 390R~~
- **SI 131R**
- ~~one of SI 250R/MEDVL 250R, SI 251R/MEDVL 251R~~

- **two courses in ARABIC**
- **two additional SI courses**
- remaining courses (to a total of eight) from the balance of courses above and the following courses:
 - Faculty of Arts courses: **any additional ARABIC course**, any additional SI course, ANTH 311/RS 361, ANTH 350, FINE 214, HIST 115/MEDVL 115, HIST 230/PSCI 257, HIST 260/MEDVL 260, MUSIC 232, MUSIC 233, PACS 326/RS 380, PSCI 252, ~~PSYCH 349R, RS 110, RS 125, RS 216, RS 284/GSJ 261, RS 312, RS 325, SDS 240R, SOC 253/HLTH 253~~
 - Faculty of Environment courses: ERS 404/PSCI 432, GEOG 101, GEOG 203, INDEV 100, INDEV 300
 - Faculty of Mathematics course: CO 480

Note

~~Students may petition the director of Studies in Islam for permission to have a course not on the list accepted as an elective. This should happen before registration in the course is finalized. Consult the director **appropriate academic advisor** for details.~~

Rationale:

Following an advisory task force review of Studies in Islam and changes in the program's administrative structure and faculty, the decision was made to make needed alterations to the program.

First, the program will be renamed Studies in Islamic and Arab Cultures, reflecting the nature of the range of courses that are taught under the SI designation, some of which have minimal relation to Islamic Studies. Along with this, we are surfacing the area studies nature of the program, similar in many ways to the East Asian Studies program, which includes important consideration of religious phenomena such as Buddhism, but (like SI) also covers significant historical, political, literary, and other topics that do not necessarily fall under the rubric of religion.

To reflect the nature of the SI program as one that keeps religion in view but is not simply an adjunct of Religious Studies, the number of Islamic Studies core courses that are required is being reduced.

To reflect the differentiation between language courses and non-language courses (culture, history, religion, literature, etc.) a new subject code ARABIC is also being proposed. All current SI language courses will change to the ARABIC subject code (with corresponding changes to requisites), retaining all other course details (number, description, etc). This will indicate more clearly and intuitively to students the availability of Arabic language courses, and will provide a more accurate reflection of course content on student transcripts.

The core course SI 121R Islam in the World remains. The rather similar SI 221R Islam, the West, and the World is removed, as is the capstone course SI 390R Understanding Islam. And the requirement to take one of SI 250R/MEDVL 250R The History of Islamic Civilization from Late Antiquity to 1300 or SI 251R/MEDVL 251R The History of Islamic Civilization from 1300-1800: The Islamic Gunpowder Empires is removed. They are replaced by SI 131R Arab Culture, which includes some consideration of Islam but is not focused on religion as such. Additionally, as with the East Asian Studies minor, a language requirement is being introduced: any two Arabic language courses. These are already the strongest area within SI.

The remaining courses (toward the eight-course minor) are now a mix of SI and Arabic electives, and electives from other subjects. Students who do wish to steer toward an interest in Islam will be able to do so; those who have stronger interests in Middle Eastern history, art, politics, or other areas will also be able to pursue such tracks to the Studies in Islamic and Arab Cultures minor.

Finally, after consulting with other programs, some non-SI electives are being removed, as they do not deliver

significant instruction on Islamic or Arab cultures (PSYCH 349R Cross-Cultural Psychology; SDS 240R Art and Society; RS 125 What is religion?). A review is under way to assess the relevance of remaining electives.

Faculty of Mathematics
Applied Mathematics

- 13. Motion:** To approve the proposed changes to the Scientific Computation/Applied Mathematics plan as described below, effective 1 September 2019.

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

To make the following changes to the Scientific Computation/Applied Mathematics plan:

- Change the name of the plan and inactivate the old plan
- Change the first 'All of' list
- Delete second 'One of' list
- Add a 400-level AMATH course requirement
- Add a 300- or 400-level AMATH requirement
- Change the 'Two of' list to a 'Recommended' list
- Remove note
- Remove 'four additional' specialized course requirement

~~Scientific Computation/Applied Mathematics~~
Applied Mathematics with Scientific Computing

Students in this plan must fulfil all the requirements in Table I and Table II. This must include at least 26 math courses, and the following specific requirements:

One of

MATH 237 Calculus 3 for Honours Mathematics
MATH 247 Calculus 3 (Advanced Level)

All of

AMATH 231 Calculus 4
AMATH 242/CS 371 Introduction to Computational Mathematics
AMATH 251 Introduction to Differential Equations (Advanced Level); Note: AMATH 250 can be substituted with consent of the department.
AMATH 342 Computational Methods for Differential Equations
~~AMATH 351 Ordinary Differential Equations 2~~
~~AMATH 353 Partial Differential Equations 1~~
AMATH 442 Computational Methods for Partial Differential Equations
CS 230 Introduction to Computers and Computer Systems
CS 234 Data Types and Structures
CS 475 Computational Linear Algebra
~~STAT 331 Applied Linear Models~~
STAT 341 Computational Statistics and Data Analysis

One of

~~AMATH 331/PMATH 331 Applied Real Analysis~~
~~AMATH 332/PMATH 332 Applied Complex Analysis~~

One of

CO 250 Introduction to Optimization

CO 255 Introduction to Optimization (Advanced Level)

Two 400-level AMATH courses.

Two additional 300- or 400-level AMATH course.

Two of

Recommended 300/400- level AMATH courses

~~AMATH 442 Computational Methods for Partial Differential Equations~~

AMATH 331/PMATH 331 Applied Real Analysis

AMATH 332/PMATH 332 Applied Complex Analysis

AMATH 351 Ordinary Differential Equations 2

AMATH 353 Partial Differential Equations 1

AMATH 453 Partial Differential Equations 2

AMATH 455 Control Theory

AMATH 456 Calculus of Variations

AMATH 463 Fluid Mechanics

AMATH 473/PHYS 454 Quantum Theory 2

Recommended additional math courses

CO 453 Network Design

CO 459 Topics in Optimization

CO 463 Convex Optimization and Analysis

CO 466 Continuous Optimization

CS 487 Introduction to Symbolic Computation

STAT 330 Mathematical Statistics

STAT 331 Applied Linear Models

~~STAT 341 Computational Statistics and Data Analysis~~

STAT 440 Computational Inference

STAT 441 Statistical Learning - Classification

STAT 442 Data Visualization

STAT 444 Statistical Learning - Function Estimation

~~Note: Many of the courses on this list have prerequisites that are not plan requirements.~~

~~A subject specialization consisting of four additional courses (2.0 units) from any one department in the Faculties of Science or Engineering, or the Department of Economics. Alternatively, a set of four courses (2.0 units) from departments in other faculties may be eligible, subject to approval by the Applied Mathematics undergraduate advisor.~~

Rationale: The new title will better present this plan. In addition, Mathematics would like to reduce the required number of math courses and increase the number of computing courses. It is anticipated that the new version will be more popular with students. Students who are currently enrolled in this plan can decide to stay in the old plan or move to the new plan.

ACADEMIC REGULATION CHANGES

- 14. Motion:** To harmonize and centralize the regulations in the Undergraduate Calendar regarding the number of terms a student may be absent (not enrolled in courses) before that student will be required to submit an Application for Readmission effective 1 Sept 2020.

Rationale: This motion was considered at and withdrawn from the May 2019 Senate meeting, due to clarification questions arising from the floor. The substance of the motion has not changed, but the rationale has been clarified with the intent of addressing the questions.

All faculties have agreed to a 3-term absence from studies timeline (Math decreasing from 5), meaning that students will be required to submit an [Application for Readmission](#) after being absent (not enrolled in courses nor co-op) for three consecutive academic terms and they have not enrolled in at least one course for the term immediately following the three-term absence (i.e. the student has not enrolled in courses for more than three terms in a row). Please see <https://uwaterloo.ca/forms/undergraduate-studies/application-undergraduate-readmission> for readmission requirements.

Proposed text:

Section of Calendar: [University Policies, Guidelines, and Academic Regulations](#) (at the bottom of the list).

New Calendar page: Absence from Studies

Students who have not enrolled in at least one course for more than three consecutive academic terms must apply for readmission to continue studies in their academic plan. Work terms are not academic terms.

Current (2019-2020 Undergraduate Calendar) faculty-specific text to be removed or edited as follows:

Faculty	Page URL	Text to be removed/edited as indicated
Applied Health Sciences	http://ugradcalendar.uwaterloo.ca/page/AHS-Academic-Standing	To be removed completely: Students who have been inactive for three or more terms must apply for readmission to their plan. Note that work terms are not considered inactive terms.
Arts	http://ugradcalendar.uwaterloo.ca/page/ARTS-Admission-Application-Information	To be edited as follows: Readmission Current or former University of Waterloo students are required to submit an Application for Undergraduate Readmission Form if: <ul style="list-style-type: none"> they have received a Failed - required to withdraw standing decision; they were in satisfactory standing and resuming their studies in Arts following a voluntary absence of three academic terms or more (excluding co-op work terms); or they have a voluntary absence from studies; they are seeking to upgrade their undergraduate Arts degree; or they are seeking another undergraduate degree (e.g., a second degree in a different discipline).
Engineering	http://ugradcalendar.uwaterloo.ca/page/ENG-Failure-to-Register	To be removed completely: If the absence exceeds one year, students will be required to apply for readmission in order to be considered for continuation in their program of study. See the Request to Complete Degree Requirements Following an

<p>Mathematics</p>	<p>http://ugradcalendar.uwaterloo.ca/page/MATH-Math-Faculty-Policies</p>	<p><u>Absence</u> section of this Calendar.</p> <p>To be removed completely:</p> <p>Readmission A student who has completed at least one term of study and who has been inactive (i.e., not registered as a candidate for a Faculty of Mathematics degree or on an approved Letter of Permission) for at least five consecutive academic terms must apply for readmission. For example, a student whose last term of enrolment was spring 2016 would not need to apply for readmission if they returned to study in winter 2018 or earlier. However, if this student remained inactive until spring 2018 or later, then they would need to apply for readmission. Application for readmission must include a résumé covering the inactive period, and must include transcripts from any post-secondary institutions attended in the interim. If the student is readmitted, Faculty policies in effect at the time of readmission will apply unless otherwise stated by the Faculty.</p>
<p>Science</p>	<p>http://ugradcalendar.uwaterloo.ca/page/SCI-Admissions-Application-for-Readmission</p>	<p>To be removed completely:</p> <p>The admission categories, requirements, and procedures are outlined in the <u>Admissions</u> section of this Calendar. Application for Readmission A student in good standing who does not register in any academic plan for more than a year must apply for <u>readmission</u> before returning to that academic plan.</p>

/rmw

David DeVidi
 Associate Vice-President, Academic

Report of the Vice-President, Research and International to Senate

September 2019

Faculty Achievements

Canadian Academy of Engineering Inductees

Two Waterloo Engineering faculty members and an alumnus were inducted into the Canadian Academy of Engineering (CAE):

- **Pearl Sullivan**, Dean of Engineering, Mechanical and Mechatronics Engineering;
- **Peter Huck**, Civil and Environmental Engineering;
- **Tom Lee** (PhD '96, Engineering).

Additionally, **Donna Strickland**, Physics and Astronomy, was awarded a CAE Honorary Fellowship and will receive the honour later this year.

Appointments

Catherine Burns, Executive Director, Health Initiatives and Sponsored Research, Office of Research (July 1, 2019-June 30, 2022)

Kevin Resch, Interim Executive Director, Institute for Quantum Computing (July 1, 2019-June 30, 2020)

Major Awards

Health Canada

David Hammond, School of Public Health and Health Systems, was awarded \$ 1,129,588 over four years for his research on vaping use among youth aged 16 to 19 years. The research will build on the existing International Tobacco Control (ITC) Youth Tobacco and Vaping Survey in order to enhance knowledge on youth vaping, dependence and cessation.

Employment and Social Development Canada – Investment Readiness Program

Sean Geobey, School of Environment, Enterprise and Development, was awarded \$499,179 over two years for a project aiming to identify systemic barriers to SME-to-SPO (small and medium enterprises to social purpose organizations) conversion through the co-creation and validation of a system map, design and test social innovation and social finance interventions enabling SPO conversions, and identify opportunities for social finance intermediaries to support conversions.

Social Sciences and Humanities Research Council (SSHRC) Grants

Steven Bednarski, History and St. Jerome's University, was awarded \$2,500,000 to establish the first permanent humanities lab dedicated to digitizing environmental history and understanding human impacts on the natural world and vice versa. The project "Environments of Change: Digitizing Nature, History, and Human Experience in Late Medieval Sussex," includes over 30 researchers from Arts, Science, Environment, the Games Institute and the Stratford School of Interaction Design and Business.

See Appendix for list of additional SSHRC awardees.

CIHR Project Grant Competition

Background: The CIHR Project Grant program was designed to capture ideas with the greatest potential to advance health-related fundamental or applied knowledge, health research, health care, health systems, and/or health outcomes.

The University of Waterloo received three successful grants out of 20 applications, for a success rate of 15% (the national success rate was 15.6%). Total funding awarded to Waterloo researchers was \$3.09M over five years (national average was \$714,240 over 4.33 years). Also of note, seven of the 20 applicants scored in the 'excellent' category of CIHR rating. See Appendix for list of awardees.

CFI – John R. Evans Leaders Fund

Background: CFI-JELF applications are offered three times a year (February, June, and October). The funding is a strategic investment tool that is designed to help institutions to attract and retain the very best of today's and tomorrow's researchers.

For the February 2019 competition, 21 applications were submitted and 17 were awarded (with one application still being adjudicated) for an 81% success rate, and an 86.3% funding rate for a total funded amount of \$2,306,235. See Appendix for list of awardees.

CFI-Innovation Fund 2020 – Internal NOI results

Background: The CFI-IF program supports promising and innovative research or technology development directions that allow institutions and their researchers to build on and enhance an emerging strategic priority area, accelerate current research and technology development work or take established capabilities to a globally competitive level.

Of the 27 applications received for the internal NOI competition, 21 projects were approved to move forward (18 with Waterloo as the lead and three externally led applications). The approved allocation is \$37,800,000. Final applications are due January 2020.

Waterloo International

Waterloo Outbound Activities (as registered through Waterloo International)

Participants	# Outbound	Period	Notes
Faculty members	239	Jun-Aug 2019	
Student exchange (1 or 2 terms)	621	2019-2020 Academic year (registered as at Jul 24, 2019)	32% increase over 18/19 academic year

Waterloo Inbound Delegations (coordinated through/in collaboration with Waterloo International)

Period	Country
Jun-Aug 2019	Brazil, China, France, Japan, The Netherlands, New Zealand, Switzerland

2019 Staff International Experience Award

Background: The Staff International Experience Awards provide opportunities for University of Waterloo staff members to travel to global peer institutions in order to exchange ideas and advance learnings with like-minded colleagues, the programme also serves to deepen Waterloo's global relationships and forge new connections with innovative counterparts around the world. This year's award recipients are:

- **Sarah Howard**, Graduate Student Experience Specialist, Graduate Studies and Postdoctoral Affairs: Sarah will travel to Northern Europe to gain insight into graduate student wellbeing and support mechanisms that are currently in place at various universities.
- **Chantal Vallis**, Communications Officer, Internationalization, Student Success Office: Chantal will travel to East Asia where she plans to broaden her understanding of communications strategies at some of the world's most internationalized universities.

Appendix

Social Sciences and Humanities Research Council (SSHRC) Grants

Partnership Development Grants

- **Roy Brouwer**, Economics - Payments for wetland ecosystem services as a nature-based solution to sustainably manage urbanized watersheds (\$198,948)
- **Steffanie Scott**, Geography and Environmental Management - Using agroecology to advance Sustainable Development Goals in China: Pathways of transition towards a sustainable food system (\$178,772)

Insight Development Grants

- **Martine August**, School of Planning - The downsides of upgrading: Displacement and the financialization of Canadian rental housing (\$74,512)
- **Adrian Blackwell**, School of Architecture - Tracing the relationship between colonial land appropriation and contemporary urbanization in the Greater Golden Horseshoe and Paddle Prairie (\$70,273)
- **Janet Boekhorst**, Conrad School of Entrepreneurship and Business - The paradox of supporting employee wellbeing: Implications for manager wellbeing and job performance (\$63,327)
- **Karla Boluk**, Recreation and Leisure Studies - Exploring the engagement of tourism social entrepreneurs with the United Nations' Sustainable Development Goals (\$68,536)
- **Dillon Browne**, Psychology - Emotional well-being in newcomer Canadian families: Applying a whole family approach to assessment and monitoring (\$74,990)
- **Shannon Dea**, Philosophy -Academic freedom in a non-ideal world (\$20,269)
- **Jennifer Dean**, School of Planning - Immigrant settlement in rural communities: Exploring access to the determinants of health (\$69,492)
- **Ana Ferrer**, Economics - Conspicuous consumption, savings, and income inequality (\$60,160)
- **Margaret Gibson**, Social Development Studies, Renison University College - Neurodiversity matters: An ethnographic investigation of discourse, practice, and identity (\$66,659)
- **Rachael Johnstone**, Political Science - Mother, you have the floor: Pregnancy, policy, and politics (\$42,197)
- **Christina Parker**, Political Science - Restorative justice and peacebuilding dialogue in schools \$57,197)
- **Joe Qian**, School of Planning - Informal housing finance in urban China: its causes, constraints, and potential (\$74,888)

- **Winy Shen**, Psychology - Leveraging data science and observed internet data to understand the role of gender in work family interface (\$57,077)
- **Simron Singh**, School of Environment, Enterprise, and Development - Policy pathways towards achieving sustainable food security in an island state (\$68, 679)
- **Andrew Stumpf**, Philosophy - Physicians' Moral Experience and Moral Distinctions in Philosophical Bioethics (\$35,982)
- **Henry Svec**, Communication Arts - Entangling the media history archive: String figures as imaginary media (\$50,698)
- **Sarah Wolfe**, School of Environment, Resources, and Sustainability - Stronger than fear: awe, ritual, identity, and water decisions (\$72,274)

Insight Grants

- **Janice Aurini**, Sociology and Legal Studies - National stratification systems, parenting logics, and social reproduction: The case of higher education in the United States, Canada, and Cuba (\$166,522)
- **Andy Bauer**, Accounting and Finance - Corporate tax incentives and their link to managerial compensation and risk-taking (\$174,335)
- **Gerry Boychuk**, Political Science - Populism, suffrage, prohibition: Causes and consequences of the female vote in the Northern Plains States and Canadian Prairie provinces, 1910-1920 (\$90, 842)
- **Jay Dolmage**, English Language and Literature - Academic eugenics (\$86,217)
- **Doreen Fraser**, Philosophy - How mid-level frameworks are used to develop new theories in physics (\$79,230)
- **Bruce Frayne**, School of Environment, Enterprise, and Development - Monitoring the Sustainable Development Goals in Canadian cities: Mapping social-ecological relationships underpinning urban sustainable development (\$74,115)
- **Igor Grossmann**, Psychology - Wisdom of knowing the difference: Unpacking knowledge of strategy-situation fit and its relationship to context-sensitive meta-cognition (\$239,703)
- **Corey Johnson**, Recreation and Leisure Studies - More than a profile pic?: Gender and sexual social relations on geo-social networking applications (\$195,304)
- **Svetlana Kaminskaia**, French Studies - Regional and stylistic (in)variance in Canadian French prosody (\$96,236)
- **Alice Kuzniar**, Germanic and Slavic Studies - Homeopathy and the poetic modernity of Annette von Droste-Hülshoff (\$66,942)
- **Denise Marigold**, Social Development Studies, Renison University College - Responsive social support for vulnerable individuals (\$186,127)
- **Aimee Morrison**, English Language and Literature - Rhetoric of the selfie (\$94,465)
- **Diana Parry**, Recreation and Leisure Studies - Creating male equity advocates: Addressing sexual violence on university campuses (\$92,881)
- **Theo Stratopoulos**, Accounting and Finance - Using company disclosures to predict technology diffusion (\$91,732)
- **Andrew Thompson**, Political Science - The defenders: A short history of the Office of the High Commissioner for Human Rights (\$70,390)
- **Adam Vitalis**, School of Accounting and Finance - An investigation into the impact of changing the Auditor's Report on financial statement users (\$94,829)
- **Nancy Worth**, Geography and Environmental Management - Home/work: Understanding the significance of work-at-home freelancing (\$112,919)

CIHR Project Grant Competition

Successful Waterloo projects included:

- **Lora Giangregorio**, Kinesiology - “Finding the Optimal Resistance Training Intensity For Your Bones: A randomized controlled trial (FORTIFY Bones)” (\$1,258,426 over 5 years)
- **Emmanuel Ho**, Pharmacy - “3D Printed Scaffolds for the Prevention of HIV” (\$918,000 over 5 years)
- **Qing-Bin Lu**, Physics and Astronomy - “Development of Novel Non-Platinum-Based Antitumor Agents for Natural Targeted Chemotherapy and Radiotherapy of Cervical, Lung and Ovarian Cancers”(\$910,350 over 5 years)

CFI – John R. Evans Leaders Fund

- **Eihab Abdel-Rahman**, Systems Design Engineering - Electrical Drive and Detection System (\$80,000)
- **Arash Arami**, Mechatronics and Mechanical Engineering - Neuromechanics-based Assistive Robotics: Towards Optimal Personalized Robotic Assistance (\$182,000)
- **Elliot Biro**, Mechatronics and Mechanical Engineering - Understanding Weld Cracking using In-Situ Thermography and Simulation (\$80,000)
- **Dongpu Cao**, Mechatronics and Mechanical Engineering - CogSim: An Interaction-Aware Tri-Simulator Facility for Research on Driver Behaviors and Cognitive Autonomous Driving (\$150,000)
- **Kerstin Dautenhahn**, Infrastructure for research on social and intelligent robotics (\$350,000)
- **Peter Deadman**, Geography and Environmental Management - GIS-based virtual and augmented reality tools (\$72,000)
- **Thorsten Dieckmann**, Chemistry - High Resolution NMR Facility for Structure Elucidation (\$352,810)
- **Emmanuel Ho**, Pharmacy - Advanced Microbicide Research and Analysis Facility (\$123,378)
- **Amir Khandani**, Electrical and Computer Engineering - Infrastructure for research on next generation wireless networks (\$80,000)
- **Anita Layton**, Applied Math - The Virtual Physiological Human Project (\$100,000)
- **Nima Maftoon**, Systems Design Engineering - A therapeutic device for otitis media (\$120,000)
- **Etienne Martin**, Mechatronics and Mechanical Engineering - Scanning Electron Microscope (\$100,000)
- **Tizazu Mekonnen**, Chemical Engineering - Rational design of multiphase and multifunctional renewable – resourced polymers (\$100,000)
- **Paul Parker**, Geography and Environmental Management - Engaging technology and people to achieve advanced building performance (\$85,228)
- **Oliver Schneider**, Management Sciences - Haptic Computing Lab (\$80,000)
- **Christopher Wilson**, Electrical and Computer Engineering - Taking superconducting electronics to the next level of integration (\$170,819)