University of Waterloo
SENATE
Notice of Meeting

Date: Monday 16 May 2016
Time: 3:30 p.m.
Place: Needles Hall, room 3407

	OPEN SESSION	
3:30	1. Conflict of Interest	Declaration
	Consent Agenda	
	Motion: To approve or receive for information by consent items 2-7 below.	
	2. Minutes of the 18 April 2016 Meeting	Decision
	3. Reports from Committees and Councils	
	a. Graduate & Research Council	Decision/Information
	b. Undergraduate Council	Information
	4. Report of the President	
	a. Recognition and Commendation	Information
	5. Reports from the Faculties	Information
	6. Early Issuance of Degree	Information
	7. Committee Appointments	Decision
	Regular Agenda	
	8. Business Arising from the Minutes	
3:35	a. Policy re: removing course cross-listings	Information
3:45	9. Presentation – Sally Gunz, President, Faculty Association	Information
	10. Reports from Committees and Councils	
4:00	a. Graduate and Research Council	Decision
4:10	b. Undergraduate Council	Decision
4:20	11. Report of the President	Information
4:30	12. Q&A Period with the President	Information
	13. Report of the Vice-President, Academic & Provost	
4:45	a. Roster of Graduands	Decision
4:55	b. Timetabling/Scheduling Update	Information
5:05	14. Report of the Vice-President, University Research	Information
5:10	15. Other Business	
	CONFIDENTIAL SESSION	
5:15	16. Conflict of Interest	Declaration
5:20	17. Minutes of the 18 April 2016 Meeting	Decision

5:25	18. Business Arising from the Minutes	
5:30	19. Reports from Committees and Councils a. Executive Committee	Decision
5:40	20. Other Business	

4 May 2016
JLA/kjj

Logan Atkinson
University Secretary & General Counsel

University of Waterloo
SENATE
Minutes of the Monday 18 April 2016 Meeting

Present: Jean Andrey, Sandra Banks, Katherine Bergman, Catherine Booth, Lutz-Alexander Busch, Susan Cadell, Dong Eui Chang, Jennifer Clapp, Tara Collington, Mario Coniglio, Eric Croiset, Maya D'Alessio, Ray Darling, David DeVidi, George Dixon, Bernard Duncker, David Edwards, Samir Elhedhli, Marlene Epp, Mavis Fenn, Allyson Francis, Jim Frank, John Garcia, Feridun Hamdullahpur, Anwar Hasan, Mark Haslett, Robert Henderson, Dennis Huber, Shelley Hulan, Marios Ioannidis, Beth Jewkes, Karim S. Karim, Scott Kline, James Koo, Greta Kroeker, Robert Lemieux, Shoufa Lin, Christos Lolas, Paul Marriott, Rachel Mitchell, Barb Moffatt, Ian Orchard, Wayne Parker, Diana Parry, Douglas Peers, Angela Pereira, David Perrin, David Porreca, Tristan Potter, Chanakya Ramdev, Bruce Richter, David Rose, James Rush, Erin Sargeant Greenwood, James Skidmore, Richard Staines, Gordon Stubley, Hamid Tizhoosh, Barbara Veale, Johanna Wandel, Stephen Watt, Olaf Weber, Alexander Wray

Guests: Carolyn Augusta, Michael Balough, Bruce Campbell, Aldo Caputo, Donna Ellis, Rocco Fondacaro, Steven Furino, Stéphane Hamade, Derek Madge, Nick Manning, Flora Ng, Chris Read, Daniela Seskar-Hencic, Allan Starr, Marilyn Thompson, Sarah Wiley

Secretariat & Office of General Counsel: Logan Atkinson, Karen Jack, Emily Schroeder

Absent: Alanna Benson, Graham Brown*, John Burbidge*, Michael Drescher, Fraser Easton*, Wendy Fletcher, Shikha Gandhi, Robert Gorbet, Sally Gunz*, Mike Hudson*, Pallavi Hukerikar, Craig Janes*, Tom Jenkins, Alysia Kolentsis, Susan Leat*, Michele Mosca*, Paul Murphy, Mohammad Nasif, Daniel O'Connor, Susan Schultz Huxman*, Mark Seasons*, Jay Shah*, Samantha Shortall, Neil Thomson*, Bryan Tolson*, William Watson*

*regrets

Organization of Meeting: Feridun Hamdullahpur, chair of Senate, took the chair, and Logan Atkinson, secretary of Senate, acted as secretary. Atkinson advised that due notice of the meeting had been given, a quorum was present, and the meeting was properly constituted.

OPEN SESSION

1. DECLARATIONS OF CONFLICT OF INTEREST

Senators were asked to declare any interests they may have in relation to the items on the agenda in open session. No conflicts were declared.

Consent Agenda

Senate heard a motion to approve or receive for information the items on the consent agenda.

Kroeker and Porreca.

A question was raised about the two year report from Anthropology in the materials from Senate Undergraduate Council, and the recommendation about increasing space allocation. The response to this recommendation seems to be about increased space constraints, rather than about addressing those constraints. Peers advised that there is no surplus space to address this need at the present time.

2. MINUTES OF THE 28 MARCH 2016 MEETING

Senate approved the minutes of the meeting.

3. REPORTS FROM COMMITTEES AND COUNCILS

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

Undergraduate Council.

- **Faculty of Engineering, Option in Computer Engineering.** Senate approved the changes to the option in computer engineering.

Senate received the remainder of the report for information.

4. REPORT OF THE PRESIDENT
Recognition and Commendation. Senate received the report for information.

5. REPORTS FROM THE FACULTIES
Senate received the reports for information.

6. EARLY ISSUANCE OF DEGREES
Senate received the report for information.

7. REPORT OF THE COU ACADEMIC COLLEAGUE
Senate received the report for information.

The question was called, and the motion carried.

Regular Agenda

8. BUSINESS ARISING FROM THE MINUTES
UARC Supplementary Report. Senate received the report for information.

9. PRESENTATIONS
MARK HASLETT, UNIVERSITY LIBRARIAN
Haslett informed Senators that this would be his final report to Senate, as he retires effective 1 May 2016; he acted as judge at the three minute thesis competition finals for the University of Waterloo; he paid respect to former university librarian at McMaster, Graham Hill, who recently passed away; he expressed his own good fortune at having served the University and been university librarian during his time here; he mentioned the exciting collaborative initiatives underway in the library, focusing on cross-disciplinary work in the library and the fine staff who execute these projects; he made reference to the recently completed 2015 external report of the library's operations; the remaining members of the library executive team will manage the library as a team during the search for the next university librarian.

Orchard thanked Haslett for his service to the University, and highlighted several of the important projects that have been executed under his leadership. Haslett has been a national leader on copyright issues, and has been prominent on other national and provincial initiatives; he is held in high esteem by all constituencies at the University and by his professional community across the country.

Senate heard a motion to acknowledge the exemplary contribution of Mark Haslett as university librarian over the course of his career.

Orchard and Richter. Carried.

CHRIS LOLAS, PRESIDENT, FEDERATION OF STUDENTS
Lolas informed Senators about the Federation of Students, its structure, programs and initiatives. Additional policy initiatives underway include input on the sexual violence policy, online learning, and students with disabilities.

Slides used in the presentation may be seen online.

10. REPORTS FROM COMMITTEES AND COUNCILS

Executive Committee.

i. Senate Bylaw 2, A bylaw to establish Committees and Councils of Senate of the University of Waterloo (2nd reading). On the recommendation of Executive Committee, a proposed amendment to Bylaw 2 was read for the second time. The proposed bylaw amendment provides clarity on the circumstances under which the powers of Senate may be exercised by Senate Executive Committee.

Senate heard a motion to amend Bylaw 2 as presented in the report.

Skidmore and Wray.

Some apprehension was expressed about the power of Senate Executive to dispense with a meeting of Senate but yet deal with matters of urgency.

Carried.

ii. Elections to Committees and Councils and to the Board of Governors.

Senate heard a motion to acclaim the membership of Senate committees and councils and the Board of Governors as follows:

- **Executive Committee.** 2016-17 – Richard Staines (applied health sciences), James Skidmore (arts), Hamid Tizhoosh (engineering), Mark Seasons (environment), Carmen Bruni (mathematics), Barb Moffatt (science), Wendy Fletcher (AFIW), Chris Lolas (undergraduate student), Robert Bruce and Christopher Pugh (graduate students), Angela Pereira (Alumna).

- **Senate Finance Committee.** 2016-17 – Craig Janes (applied health sciences), Daniel O'Connor (arts), Samir Elhedhli (engineering), Jennifer Clapp (environment), Mark Giesbrecht (mathematics), David Edwards (science), Katherine Bergman (AFIW), Tristan Potter and Alexander Wray (undergraduate students), Shikha Gandhi (alumna).

- **Senate Long Range Planning Committee.** 2016-17 – Diana Parry (applied health sciences), Tara Collington (arts), Marios Ioannidis (engineering), Simon Courtenay (environment), Dan Wolczuk (mathematics), Mungo Marsden (science), Richard Myers (AFIW), Hannah Beckett and Sacha Forstner (undergraduate students), Jeff Bunn (alumnus).

- **Senate Nominating Committee for Honorary Degrees.** 2016-17 – John Garcia (applied health sciences), Neil Randall (arts), Gordon Stubley (engineering), Michael Drescher (environment), Bruce Richter (mathematics), Mike Hudson (science), Susan Schultz Huxman (AFIW), Christopher Pugh (graduate student).

- **Senate Graduate & Research Council.** 2016-18 – Adam Dor On, Aaron Thompson and (graduate students); 2016-17, Samantha Shortall (graduate student).

- **Senate Undergraduate Council.** 2016-18 – Dan Davison (engineering), Brendan Larson [1 May 2016 – 30 June 2016] (environment), Dan Wolczuk (mathematics), Carey Bissonnette (science), Veronica Austen (federated university).

- **University Committee on Student Appeals.** 2015-18 **–** Duane Kennedy (arts), Daniel Stashuk (engineering), Stephen Cook (staff member), Tomson Tran and Hannah Beckett [1 May 2016 – 30 April 2017], Pallavi Hukerikar and Mohammad Nasif (undergraduate students), Nathalie Moon (graduate student).

- **Board of Governors.** 2016-18 – Chris Lolas and Andrew Clubine (undergraduate students), Robert Bruce and Christopher Pugh (graduate students).

Orchard and Henderson. Carried. Senator Wray requested that his vote against the motion be recorded.

[Secretary's note: Subsequent to the meeting an election was held for the three vacant faculty senator positions on the Board of Governors. The winners were: Sally Gunz, Greta Kroeker, and David Porreca.

Graduate & Research Council.
Faculty of Arts, Philosophy. Senate heard a motion to approve a new PhD plan in applied philosophy.

Frank and Porecca. Carried.

Undergraduate Council.
Articulation Agreement with Hefei University of Technology. Senate heard a motion to approve the articulation agreement with Hefei University of Technology.

Coniglio and Lemieux.

The question was asked as to the number of students anticipated to be involved pursuant to this agreement. Senate was advised that there will be a cap of twenty students under this agreement, with an expectation of five to ten in the first year.

Carried.

Faculty of Engineering, Electrical and Computer Engineering. Senate heard a motion to approve changes to the electrical and computer engineering plan.

Coniglio and Parker.

One aspect brought to the attention of Senate related to removing the cross listing of certain courses with Physics. This results in duplication of courses and instruction across two units. The courses are classified as "natural science electives," and arguably are best taught in the Faculty of Science. Some concern was expressed that changes of this sort may be driven by the new resource allocation model, even unintentionally. The question was asked whether there are policies or procedures in place, or should there be, to address these issues.

The principle in the new resource allocation model is that teaching ought to be done in the Faculty best suited to do the teaching. In this case, the Faculty of Engineering is well positioned to deliver the subject courses, as certain related courses are already taught in engineering. And, the question is revenue neutral for science, as the dedicated sections for engineering students will be reallocated to other purposes.

Coniglio advised that this same process had been executed before, and that each case is dealt with on its merits.

The question was raised as to whether the Department of Physics and Astronomy had been consulted and whether it has agreed. And, could such agreement be indicated in the motion to Senate. The impact on departmental and Faculty budgeting should be made clear in the report to Senate as well.

Michael Balogh, Associate Chair of Physics and Astronomy, advised Senate that the Department of Physics and Astronomy was not in agreement with the change, although it ultimately approved the change to the calendar because the change had already been implemented.

Parker suggested that the subject program is a Faculty of Engineering program, and that the Faculty is within its rights to design and deliver its programs in the way it thinks best for its students.

Henderson observed that the courses were essentially designed by faculty in the Department of Physics and Astronomy, and that the cancellation of their offering as cross-listed courses may have an impact.

Senate heard a motion to amend the principal motion to leave the cross-listing with the Department of Physics and Astronomy in place.

Henderson and Richter.

Senators made a number of comments, including: any change should be done in the best interests of the students involved and should not be dictated by departments other than the lead department; removing the cross-listing must have a reason and one has not been articulated for this attempt; there may be implications for the new resource allocation model, and Senate Undergraduate Council must consider this as proposals are debated.

The question was called on the amendment, and it was defeated.

Senate was asked if there is a guiding principle document on cross-listing courses. If not, this is a gap that ought to be addressed.

Senate heard a motion to lay the initial motion on the table, and to refer the matter back to Senate Undergraduate Council for additional review.

Wray and D'Alessio.

Senate was advised that Senate Undergraduate Council considers these things purely on academic grounds, and does not look at budgetary implications, and that the decision at the departmental level was made with the best interests of the students in mind, and not with any eye to budget implications. It was noted that, when it came to a vote at Senate Undergraduate Council, representatives of the Faculty of Science voted in favour of removing the cross-listing.

The question was called to lay the initial motion on the table, and the motion was defeated.

Senate returned to debate on the initial motion.

It was observed that the matter is divisive and should be subject to further discussion. It was also observed that the debate has been open and thorough, and that the essence of the discussion can be taken back to Senate Undergraduate Council by Coniglio.

The president advised that the provost and the deans will consider the possibility of a policy to determine proper grounds for cross-listing and for removing cross-listing. An update will be brought to the next meeting of Senate.

The question was called on the initial motion, and it carried.

Faculty of Science, Chemistry. Senate heard a motion to the following effects:

To approve changes to the honours chemistry plan.
To approve changes to the honours co-operative chemistry plan.
To approve changes to the honours co-operative medicinal chemistry plan.

All as outlined in the materials circulated to Senate.

Coniglio and Lemieux. Carried.

It was observed that the decrease in the number of units of the major taught in the fourth year does not necessarily mean that the academic strength of the program is reduced. Increasing the number of electives at fourth year actually increases the focus on the interdisciplinary nature of studies in chemistry.

Global Experience Certificate. Senate heard a motion to approve deferral of the changes to the Global Experience Certificate by one year, from 1 September 2016 to 1 September 2017.

Coniglio and Kline.

The modules in the certificate are under reconsideration at the moment, and will depend on changes underway in Waterloo International.

The $100 fee for withdrawal from the program or failure to attend once accepted is justified because of the upfront costs in the delivery of the program which are covered by this fee recovery.

The question was called, and the motion carried.

11. REPORT OF THE PRESIDENT

Hamdullahpur acknowledged and thanked Senators who are stepping down following today's meeting and those who have been reappointed: faculty representatives: John Burbidge, Dong Eui Chang, David Edwards (reappointed), Anwar Hasan, Shelley Hulan, Marios Ioannidis (reappointed), Craig Janes (reappointed), Susan Leat, Paul Marriott, Daniel O'Connor (reappointed), David Rose, James Skidmore (reappointed), Bryan Tolson, Olaf Weber; AFIW representatives: Marlene Epp (reappointed), Alysia Kolentsis (reappointed), FAUW president: Sally Gunz (reappointed), undergraduate student representatives: Alanna Benson, Allyson Francis, James Koo, Chis Lolas (reappointed), Mohammad Nasif (reappointed), Chanakya Ramdev, Alexander Wray (reappointed), graduate student representatives: Maya D'Alessio, Robert Henderson, Rachell Mitchell, Samantha Shortall (reappointed); alumni representative: Barbara Veale.

Hamdullahpur presented a short report on recent activities at the University, including federal funding for strategic investment at universities, with a deadline for submission of 9 May, and he emphasized this as an important opportunity for the University; more than 300 post-doctoral fellows at the University, and more than 390 visiting professors, both indications of the strong reputation of the University; University of Waterloo graduate student Gah-Jone Won is the winner of the three minute thesis contest for Ontario; some comment was provided on a former student arrested for terrorism-related charges; challenges with exam fraud in Mathematics, an incident under investigation by the Faculty of Mathematics and Police Services at the University; Vice-President, University Research and Vice-President, Advancement searches are underway.

12. Q&A PERIOD WITH THE PRESIDENT

Hamdullahpur was asked about the consequences for the students who wrote the exam in mathematics where questions were compromised. Associate Dean Steven Furino advised that there

was no impact on the results of the exam, having compared the results with results from an earlier exam where the same set of leaked questions were used. Details of the resolution of the matter will be released on 19 April. The use of repeated questions is generally not the practice, and this will be addressed with Faculty council. The questions in issue were embargoed.

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

Orchard had no report.

14. REPORT OF THE VICE-PRESIDENT, UNIVERSITY RESEARCH

Senate received the report for information and Dixon further advised that recently announced results for the University of Waterloo in NSERC and SSHRC competitions were well above national average in both cases. With respect to NSERC discovery grants, our success rates have been very strong, with the highest success rate ever for early career researchers, and outstanding success in other categories. Dixon expressed special thanks to Kelly Moran of the Office of Research who leads institutional support for these grant applications.

15. NEW DEGREE HOOD

Darling spoke to the proposed degree hood for the Bachelor of Public Health and Bachelor of Health Promotion. Slides used in Darling's presentation may be seen online.

Senate heard a motion to approve the degree hood.

Darling and Rush.

Colors are selected informally by the Registrar's Office and the relevant Faculty. Some universities have moved to a single color of hood across undergraduate programs, although we have not moved in that direction yet.

The question was called, and the motion carried.

16. OTHER BUSINESS

There was no other business.

Senate convened in confidential session.

19 April 2016

Logan Atkinson
University Secretary & General Counsel
Secretary to Senate

Confidential minutes have been removed.

University of Waterloo
SENATE GRADUATE & RESEARCH COUNCIL
Report to Senate
16 May 2016

Senate Graduate & Research Council met on 11 April 2016, and agreed to forward the following items to Senate for approval and additional items to Senate for information. This report is recommended for inclusion in the consent agenda.

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

FOR APPROVAL

CHANGES TO ACADEMIC REGULATION

Guidelines for Reappointment of Postdoctoral Fellows

1. **Motion:** To approve the amendment of the reappointment provision in the regulation pertaining to the appointment of postdoctoral fellows as described.
   (strikethrough = deleted text; underline = new text)

   …

   Reappointment
   In special circumstances, an extension of up to three years is permitted, subject to the approval of the Faculty Dean and the ~~Provost~~ Associate Provost, Graduate Studies. The supervisor's written assessment should accompany any reappointment letter submitted for approval.

   Rationale: In practice, postdoctoral appointments are only very rarely brought to the provost unless there is a peculiar request put forward. The provost has expressed his willingness to delegate authority for these special circumstance reappointments (up to three years) to the Faculty Dean and the Associate Provost, Graduate Studies.

FOR INFORMATION

ACADEMIC PROGRAM REVIEW REPORTS
1. Two-year report for digital experience innovation (Attachment #1).

SCHOLARSHIPS AND AWARDS
On behalf of Senate, council approved the creation of Faculty/Department 3MT Award.

CURRICULAR MODIFICATIONS
On behalf of Senate, council reviewed and approved new courses, course changes, and minor plan changes for the faculties of arts (psychology), engineering (chemical engineering; civil and environmental engineering), and science (earth sciences; pharmacy).

Migration to New Common Template for Graduate Studies Academic Calendar

In 2015, the Graduate Studies Office initiated a project to migrate the content of existing academic plans in the graduate calendar to a new common template, as well as a new web platform (WCMS). The aim of the project was to provide a common look and feel for all academic program calendar content that is robust and can fit the requirements and descriptions of every existing graduate academic plan. Prospective and current students as well as faculty and staff will benefit from clearer, more accurate and consistent program requirements, as well as more robust search functionality. Following outreach to the six faculties and the AFIW institutions, all units have subscribed to this approach and are adopting the common template over the course of early 2016.

At the 11 April 2016 meeting, council approved on behalf of Senate minor changes to the calendar text of academic plans for the faculties of applied health sciences (kinesiology; recreation and leisure studies; public health and health systems; social work), arts (English language and literature), engineering (civil and environmental engineering; management sciences; systems design engineering), mathematics (computer science; statistics and actuarial science) and science (biology; chemistry; earth and environmental sciences; optometry and vision science; pharmacy; physics and astronomy).

/*mg* Jim Frank
Associate Provost, Graduate Studies

George Dixon
Vice President, University Research

Two-Year Progress Report for New Program Digital Experience Innovation (MDEI) September 2015

Preamble

This report is a response to the request from the Graduate Studies Office (GSO) to submit a two-year progress report for the Master of Digital Experience Innovation Program (MDEI) at the University of Waterloo Stratford Campus. The Program has been in existence since 2011 and will admit its fifth cohort in fall 2015. Since the request for this report was made to our office only on June 9, 2015, I will comment on the program since its inception in September 2011 and not only on the first two years.

The report describes all aspects of the Master of Digital Experience Innovation program:

1. Introduction
2. Curriculum
3. Faculty and Research
4. Enrolment and Alumni
5. Facilities

As requested by the GSO and inasmuch as this is possible, the report takes into consideration the comments made by the program reviewers Dr. Wendy Cukier and Dr. Lizbeth Goodman in the "Consultants Report on the Proposed Master in Digital Innovation at the University of Waterloo," dated May 5, 2011. However, while the reviewers' remarks were extremely helpful at the time of the program approval and launch, they are less relevant after four years of running the program.

1. Introduction

Strategic Mandate

The Master of Digital Experience Innovation (MDEI) program is a professional degree geared to graduating university students as well as working professionals planning to expand their skill sets and to position themselves for meaningful employment in the digital age. The MDEI program is housed within the Faculty of Arts at the University of Waterloo and located at the University of Waterloo Stratford Campus. It was launched in September 2011 and will admit its fifth cohort of students in September 2015.

In this cross-disciplinary program, students deepen their knowledge in critical thinking, communication, visual analysis, and human-centric computing. Students gain competence in the technological skills demanded by the Digital Age, making them fully conversant in web-based social media and visual literacy and comfortable with all forms of multi-media communications and applications. Further, students acquire business skills including teamwork, project management, marketing, innovation, and entrepreneurship. MDEI students are immersed in a rich, technology-driven environment where theory and practice, science and commerce, creativity and innovation merge to create knowledge workers for Canada's future.

2. Curriculum

The MDEI program is a 12 month intensive program. Students normally take eight courses and complete a major milestone project with our industry partners during the spring term. The required courses are delivered by qualified tenure-track faculty and lecturers as well as by senior corporate personnel from our partner companies.

Typical course sequence for full-time students:

Fall	DEI 612 Working in Teams
	DEI 613 Digital Media Solutions: Design Principles and Practice
	DEI 614 Principles of Marketing in a Globalized World
	DEI 615 New Perspectives: Media History and Analysis
Winter	
	DEI 623 Digital Media Solutions: Project Management
	DEI 624 Understanding the Consumer Universe: Market Research in Digital Media
	DEI 625 Media Innovation and Impact
	DEI 626 User Experience (UX) Fundamentals and User Research (UER)
Spring	DEI 631 Projects

A part-time option, where students spend 24 instead of 12 months to complete the program, was introduced in 2012 in order to accommodate mid-career professionals and mature learners. With the part-time option, we also added an alternate admission path for mid-career professionals: to be considered, an applicant who does not meet the regular academic requirements must have a least eight years of professional experience in a field related to the program, such as digital media, journalism, digital entertainment, digital gaming, software development, design, etc., and a minimum Graduate Management Admission Test (GMAT) score of 550, or an equivalent score on the Graduate Record Exam (GRE) (referencing Educational Testing Service's (ETS) GRE Comparison Table for Business Schools).

Minor curricular changes were introduced in the first year of the program's existence. Effective fall 2012, the second Working in Teams course, which was part of the original curriculum, was replaced by a seminar in User Experience Fundamentals and User Research (DEI 626) in order to complement the existing curriculum and to fill a disciplinary gap that was perceived by students and instructors alike. Through the remaining DEI 612 Working in Teams course, the intensive workshop that precedes the beginning of the program, and project-based learning our students gain significant exposure to real-life simulations of teamwork and competence in collaborative work.

The name of the program was changed from Master in Digital Innovation to Master in Digital Experience Innovation in 2012 in order to reflect the curricular change and to more accurately reflect the experiential nature of the program.

The program begins with a 2-week workshop that covers a range of topics including personal learning styles, working in teams, and digital media applications. The workshop generally takes place during the last week of August and the first week of September. Participation is required. In addition to teaching

the students collaborative working skills, the workshop's aim is to introduce students to the various software applications they will be required to use in their courses. Students in need of remedial or additional instruction can follow regular workshops that are provided outside of the classroom by lab instructors during the academic year. The "Bootcamp" workshop was formalized into a milestone requirement for graduation in 2012.

Major Milestone Project and Industry Partners
The major milestone project is at the heart of the program and serves as the culminating graduation requirement. During the last term of the program, student teams work intensively on their projects, applying lessons learned during other courses, and working closely with industry consultants and coaches, to bring their project to the stages of delivery and implementation. Students then have the opportunity to publicly showcase their work at the end of the term.

Companies who have mentored our students as part of the major milestone projects are:
Big Brothers and Sisters, Canadian Tire, Christie Digital Systems, CIBC, Desire2Learn, Globe and Mail, Google, Blitzen, McMichael Gallery, Destination North, PineLake Communications, the Stratford Festival, Sun Life Financial, UW Dana Porter Library, and Coreworx.

Quality Assurance
In addition to the traditional measurements for academic success that include competitive rankings, National Survey of Student Engagement (NSSE) and Common University Data Ontario (CUDO) data indicators, success for MDEI is measured by the competency levels of our graduates and their success rate of finding employment in industry. We track program success, job placements and career paths of our graduating students through feedback from our industry partners, graduate exit surveys and ongoing alumni relations. Please see Appendix A for a full alumni employment list. Feedback is also collected from corporations for whom projects are undertaken and from our Advisory Board members who meet on a biannual basis at the Stratford Campus. Please see Appendix B for a full list of their names and corporate affiliations.

Curriculum Enrichment
MDEI students have many opportunities during the academic year to engage in extracurricular activities. Since 2011, students have participated in research trips to Israel, Boston, and New York, where they visited start-up firms, venture capitalist firms and established corporations in the digital media industry such as Google or Ideo. During these trips, students listened to guest lectures at Technion – Israel Institute of Technology, Haifa, at Columbia University, and MIT. They also had the opportunity to visit cultural and historic sites in these locations.

We frequently invite industry leaders to come into the classroom for guest lectures on topics such as social media marketing, innovation and branding, and start-up cultures. We host competitive user experience maker camps and workshops and facilitate conference participation for our students.

In an effort to integrate the graduate students with the undergraduate students in the Bachelor of Global Business and Digital Arts program (GBDA), MDEI students have the opportunity to work as Project Assistants on a part-time basis by assisting faculty members with teaching and course assessment.

MDEI students have the option of attending additional classes, at no extra charge, to cover the education hours required for the Project Management Professional (PMP) designation. The workshops

are taught by certified project managers and have been offered since 2012. In total, 40 students have successfully completed these workshops.

Effective March 24, 2014, the Stratford Accelerator Centre (SAC) moved into the Industry Interaction Area of the Stratford Campus. In the three years of its existence, the Stratford Campus has succeeded in the creation of an ecosystem where entrepreneurial practices are encouraged and furthered within the curriculum and on an extracurricular level. An integral part of this ecosystem, has been our participation with the local Stratford Accelerator Centre, a branch of the University of Waterloo's main campus Accelerator Centre. The SAC provides support for our students and the broader community who wish to explore starting their own businesses.

3. Faculty and Research

Faculty Hires

In the first two years of the program, our faculty complement was drawn from existing Faculty of Arts departments and from industry partners. The only full-time seconded faculty to the Stratford Campus were Paul Doherty, Anthropology, Lecturer (teaching DEI623 and DEI631) and Christine McWebb, French Studies, Professor (teaching DEI615 and holding the position of Academic Director). The Stratford Campus currently does not have the administrative status of a hiring unit. Therefore, all full-time hires are appointed into an existing department in the Faculty of Arts with teaching, research and service responsibilities to the Stratford Campus. Teaching duties are 50% of the department's regular teaching load. Service responsibilities are assigned in consultation with the faculty member's department chair, the director of the Stratford Campus and the faculty member. Annual Performance Reviews and Tenure and Promotion considerations are carried out in the faculty member's department by the chair and the relevant department committees. The director of the Stratford Campus provides input into these evaluations.

Since 2013, we have made the following full-time tenure-track and definite term lecturer appointments:

Faculty position	*Faculty Rank*	*Area of Expertise*	*Start date*
1. Gerald Voorhees, Drama and Speech Communication	Assistant	Digital Cultures, Gamification	Fall 2013
2. Jane Tingley, Fine Arts	Assistant	Digital Art/Production	Fall 2013
3. Jessica Thompson, Fine Arts	Assistant	Digital Art/Production	Fall 2013
4. Philip Boyle, Sociology and Legal Studies	Assistant	Law, Security and Society	Fall 2014
5. Olivia Mesta, Economics*	Definite Term Lecturer	Marketing	Fall 2014
6. Kathleen Rodenburg, Economics*	Definite Term Lecturer	Marketing	Fall 2014
7. Jennifer Whitson, Sociology and Legal Studies	Assistant	Gaming, Ethnography of Gaming Communities	Winter 2015
8. Lennart Nacke, Drama and Speech Communication	Associate	User Experience, Gamification	Fall 2015

9. Vivian Yang, Economics	Definite Term Lecturer	Global Development, Microeconomics, Organizational Behaviour	Fall 2015
10. Fine Arts, tbd	Definite Term Lecturer	Graphics, Digital Design	Fall 2016
* teaches 2-3 courses/year at Stratford			

Publications, Grants, Involvement of Students in Research
Our faculty members' current research activities are in the areas of digital archiving and software development for humanities scholars, gamification, user experience design and research, security and privacy in the digital age, ethnography in gaming communities, video gaming and digital cultures, experimental sound and digital artistic expression. In 2013, we opened the Engage Lab for User Experience and Gamification Research. This space has become a centre for interdisciplinary research, accessible to faculty, students and industry partners. The Academic Director and recent hires will be developing a research plan that will provide added opportunities and exposure for MDEI students For a full list of recent research output of MDEI faculty, please see Appendix C.

4. Enrolment and Alumni

Our graduates are experiencing an extremely high placement rate (>90%) in jobs that position them for impact in digital marketing, social strategy and user experience. Their current employers are firms such as Amazon, Canadian Tire, CBC, Christie Digital Systems, Deloitte, Google, IBM, Samsung and the Stratford Festival. Please see Appendix A for a full job placement list of our alumni.

The program was initially capped at 20 students with 15 domestic and 5 international students. In 2011, we launched MDEI with 16 full-time students (no part-time option was available at that time) with 14 domestic and 2 international students. Due to demand, we have since increased the cap to 30 students with 20 domestic and 10 international and are anticipating an intake for 2015/16 of 34 students (30 FT and 4 PT) with 13 domestic and 21 international students. Though the number of international students has increased from 8 in 2014/15 (and 9 in 2013/14) to 21 for 2015/16, there is no indication that this jump represents a new trend. Please see Appendix D for a complete breakdown of numbers.

5. Facilities

The campus building was uniquely designed to encourage natural collaboration, the easy flow and exchange of ideas, and offers a range of project rooms and collaboration to our students. In addition to the Engage lab mentioned above, the purpose-built campus, which opened in October 2012, also houses a state-of-the-art audio recording and post-production lab, three video suites for post-production, one teaching lab equipped with 24 computer stations, one research lab equipped with 16 computer stations, a green room for photography, as well as an equipment rental library with extensive inventory in portable devices for photography, videography, software and app development.

Our 3-storey Christie Microtile Wall provides our students with a 58 million pixel digital canvas on which to display their creative work to the campus community and the public. Creating static, dynamic,

and interactive content for the Microtile wall is a significant component of the curriculum and gives students access not only to cutting edge projection technology, but also to the skills required to render visual content on such a large scale.

Stratford Campus students have access to the complete Tri-University Group of Libraries (TUG) book delivery system and to all paper and digital holdings. TUG print materials can be ordered through Primo and picked up at the Stratford Campus Reception Desk.

Conclusion

In sum, the Master of Digital Experience Innovation has matured into a graduate program with solid enrolment and a growing number of faculty members dedicated to maintaining its excellence and relevance in a fast-moving discipline. Given its professional nature and the demographic characteristics of the target student population, the program would likely benefit from a part-time online version. The location of the campus in Stratford represents a significant challenge to many students, in particular professionals and international students. We will be exploring opportunities to launch an online version of the program, or perhaps a hybrid version including some time spent on campus.

University of Waterloo
SENATE UNDERGRADUATE COUNCIL
Report to Senate
16 May 2016

Senate Undergraduate Council met on 12 April 2016, and on behalf of Senate approved new courses, course changes, course inactivations, and minor changes to plans and regulations. As well, Senate Graduate & Research Council met on 11 April 2016 and jointly recommends item #2 under academic program review reports. Council agreed to forward the following items to Senate for information. Council recommends that these items be included in the consent agenda.

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

FOR INFORMATION

CURRICULAR MODIFICATIONS

New courses, course changes, course inactivations, and minor plan/regulation changes were approved for the faculties of applied health sciences (applied health sciences; work report courses), arts (anthropology; applied language studies; classical studies; course load and INC grades; drama and speech communication; economics; English language and literature; fine arts; Germanic and Slavic studies; history; official grades on student record; philosophy; political science; psychology; religious studies; transfer credit allowance; work report courses), environment (environment, resources & sustainability; geography; geography and aviation; geography & environmental management; knowledge integration; planning; work report courses), science (aviation; biology; biomedical sciences; chemistry; general science; honours science; materials and nanosciences; science and business; work report courses), and the co-operative education council (professional development).

ACADEMIC PROGRAM REVIEW REPORTS

1. Two-Year Report for accounting and financial management (Attachment #1).
2. Two-Year Report for earth and environmental sciences (Attachment #2).

NEW UNDERGRADUATE AWARDS

Attachment #3 to this report contains a listing of newly-approved entrance scholarships/awards/bursaries, upper-year scholarships/awards/bursaries, international experience awards and athletic awards.

Mario Coniglio
Associate Vice-President, Academic

/mg

UNIVERSITY OF WATERLOO

Two Year Progress Report
Bachelor of Accounting and Financial Management (BAFM)
January 2016

This report summarizes progress and new issues that have arisen since the 2013 review of the AFM program. The reviewers, Professor Teri Shearer of Queen's University and Professor David Stangeland of the University of Manitoba visited in January of 2014.

We begin with the four recommendations made by the program reviewers.

1. Strive to incorporate international experiences into the program.

The School of Accounting and Finance has only a small number of international students because of its mandatory co-op structure. Domestic employers have been reluctant to hire foreign students and the School has been successful in filling its spaces with Canadians and permanent residents. Additionally, until relatively recently Generally Accepted Accounting Principles (GAAP) were country specific, and there remain country specific institutional elements that make a Canadian education less relevant for some international students. Nevertheless, the School has endeavoured to bring in more international opportunities for its students. We are working with our student society the Accounting and Finance Students Association (AFSA) and interested students to develop and promote international opportunities. There are three avenues that we have opened - curriculum, exchanges, and international co-op. First, we have now created program space within our curriculum for students to be able to take the International and Global Experience Certificate or a comparable international minor should it be created. We are exploring the possibility of creating an International Study Tour course common at business schools that could be part of the certificate or a minor. We are working to encourage more international exchanges and now have some students taking these opportunities. We have more than thirty students expressing an interest in international exchanges this year. Rather than forming our own specific exchange arrangements with other universities as suggested in the plan, we and our students are working through Waterloo International to find placements across the range of University partnerships.

We have been most successful in generating international co-op placements. We have increased the number and the proportion of students seeking or willing to consider

international co-op relative to earlier years. Historically this was due to the difficulty in matching international students with Canadian-based roles and international positions not being acceptable for professional accounting work experience with CPA Ontario. More students can now consider international co-op work opportunities because CPA-bound students can now accumulate accredited practical experience outside of Canada. Cost remains a problem. Additionally, the School has more graduates who aspire to move directly into finance and financial management positions for which international experience is valued. In particular, many seek out well paying positions in the U.S. financial services sector. We have begun to approach alumni working abroad in an attempt to grow the pool of high quality paid roles in countries where the labour market supports paid student work. The chart below shows the marked increase since 2010 in international job matches. Importantly, through 2011 students found international jobs on their own, but in 2014 only 27% of students found the international position on their own. The number of positions formally posted and found through our co-op system has risen significantly.

	2014	2013	2012	2011	2010	2009	2008
International Job Matches for-credit matches	37	39	46	34	18	21	8
total matches in year	1,390	1,167	1,300	1,198	1,024	886	806
international matches as percentage of total	3%	3%	4%	3%	2%	2%	1%
# of first time 'found own job' (ES,EJ)	10	15	14	22	16	19	8
first time found own international job as % of all international	27%	38%	30%	65%	89%	90%	100%

The School plans to continue to work to expand the number of exchange opportunities and the number and variety of international co-op placements. We also hope to encourage students to take the Certificate and create more international curricular opportunities for students.

The School has created the partnership noted in the review with the University of Texas at Austin for our Center for Taxation in a Global Economy. The first biennial conference was held in Austin Texas in 2014; the second will be held in Waterloo this September.

2. Strive to strengthen the Finance side of the AFM program.

The School has been working at this for a period of time, and we have made additional progress since the review. We note that philosophically, the School expects all of its students to have a strong grounding in each of accounting and finance. We have strengthened our course offerings, our extracurricular activities, have developed more co-op positions in finance and turned the Student Investment Fund into a series of one quarter credit courses (AFM 328, 329, 428, 429) that can be taken at succeedingly higher levels.

This investment fund structure fits well with our co-operative structure and has the significant benefit that many more students are able to participate than at investment funds at most business schools. Students begin as junior analysts in their first term in the fund, return as senior analysts, then as portfolio managers, and finally as fund managers. Combined with our expanded and enhanced course offerings and extra-curricular activities, students are developing significant finance knowledge.

The course offerings have been revised and better integrated. This applies to the three course opening sequence of AFM 121, AFM 273, and AFM 274. A new fourth course AFM 373 has been introduced to integrate using cases. We have revised our fixed income (AFM 425) course, our derivatives (AFM 322) course, and our equity investments (AFM 424) course, and created another new course that combines elements of derivatives and investments into a case course for CPA bound students. Additional courses that we offer that were not available before 2013 include International Finance, Mergers and Acquisitions, Private Equity Finance, Quantitative Foundations for Finance, and Topics in Financial Econometrics.

We have a major internal investment competition and our students participate in several external competitions, including the prestigious CFA investment competition. The School has won the Ontario division of the CFA competition four of the last six years beating MBA and Masters of Finance teams from other universities in the process. In one of those years we advanced to the final four of the Americas.

The School will be opening a new finance and analytics lab in March of 2016. Patterned on the Rotman lab which is considered to be the best in North America, the lab will be used for teaching classes and seminars and be available to students at other hours for assignments, projects, competitions and other endeavours. The lab should feature the availability of a complete set of data bases and software that is as good or better than those available at competing business schools. We are currently working to finalize arrangements with Thomson-Reuters to place their Eikon product at every terminal.

Both co-op and permanent placements in financial services have improved in number and quality. We are now placing students directly into sought after positions in the financial services industry in investment banking and financial analysis. We have placed students with Goldman Sachs, Jarislowsky Fraser, JP Morgan Chase, Manulife, Onex, RBC Capital Markets, and many others. The number of financial services co-op terms has risen from 203 in 2013 to 290 in 2014. This results from our program combining opportunities for application with strong theory and integration with accounting.

The School is still working with the Department of Economics and IAP on the possibility of a Masters of Finance and Economics. We need to resolve some resource issues, especially space. The School is endeavouring to expand the number of domestic PhD students in accounting. At present we are not pursuing a PhD focused on finance although Finance faculty members contribute to our Accounting PhD program and PhD programs in the Faculty of Mathematics. We would like to expand our PhD program to cover finance; however, this will take additional resources and we would also need to expand the external recognition of the School as a leader in finance as well as accounting.

3. Consider decentralizing the Coop structure

As described in the Director's Response to the Report, the University would not entertain a decentralized co-op structure. The School has two staff who work well with Center for Co-operative Education and Career Action (CECA) in building a strong variety of co-op opportunities for our students. Our staff share responsibility for engaging and managing employer relationships and ensuring that all of our students can secure appropriate co-op positions.

The reviewers mentioned that students perceived that the centrally offered for-credit mandatory professional development components of the Co-op program lacked value because they were not tailored to Co-op placements for students in the SAF. This refers to the professional development courses offered by CECA that tend to be general in nature. It would be difficult and costly for CECA to produce courses tailored to specific departments; however, while tailored courses might have more value, we think that the general courses retain value and as well they are currently a necessary part of the University co-op structure. The School is revamping its work term reports to make them more meaningful to students.

4. Consider tracking final job placement outcomes

   We are working with our alumni people and CECA to strengthen our knowledge of final placements. This task is ongoing since the emphasis historically was on co-op and there was a presumption that co-op jobs became permanent ones. Given the greater diversity of our placements this is no longer true. Both the School and University need to devote more resources to securing and tracking permanent placements. The School is developing a survey for alumni that will provide us with a better base of information on permanent jobs. We are also working to enhance the value of the alumni association so that more alumni volunteer contact information. While the School is doing its best in this regard, a complete tracking of placements requires University leadership.

Other issues commented upon in the report.

1. The School Learning Model

   The reviewers commended the School on its learning model that integrates functional competencies, learning to learn, thinking and problem solving, leadership and collaboration, ethical conduct, and communications to provide students with the professional qualities they need to succeed. The School continues to have courses that emphasize the model and encourages all instructors to integrate the model into specific courses. We have a new Learning Outcomes Committee that will look at identifying, managing, and then measuring the achievement of important programmatic goals. Employers report that School students are more well-rounded and better prepared; however, the School needs to continue to reinforce these values with our faculty members and students by working with faculty members to integrate them into their courses and our extra-curricular activities.

2. Admission Requirements

   The reviewers were satisfied with the admission requirements. The School continues to evolve and adjusts its admission requirements accordingly. We have instituted an interview for 2016 to accompany the high school grades and the applicant information form. We are looking for students capable of communicating well, collaborating, and thinking creatively, and who are excited about careers in accounting and finance. Last year we raised the minimum acceptable grade on the three required courses English and two Mathematics courses to 75%. We are monitoring performance at the University and comparing it with performance on our application criteria.

3. Program Structure

The reviewers identified the tight structure, whereby many courses are offered only in one term, to be a problem for students wanting to do international activities, explore co-op alternatives, or because the student failed or for another reason fell out of sequence. We have instituted greater flexibility in selecting work terms for work terms two to four following the end of the second academic year. Accompanying this we now offer important courses in more than one term to facilitate students' ability to choose work terms and international experiences. We have also increased the number of elective courses available. All of the above enhance the students' educational experience; however, there are incremental costs attached to offering more course-sections overall.

4. Program Content

The reviewers expressed concern that the program offered insufficient opportunity to move outside the accounting and finance requirements and that the program may be too technical. Our commitment to the learning model described above has led us to improve gradually the professionally necessary, but less technical, abilities of our graduates. The reviewers' feedback also commented that we appeared to have a good plan in place to respond to the changes in professional education. We comment on the eventual outcome of this below.

We have made program changes that have increased the number of electives. In particular, we have made it possible for students to consider minors, and we are encouraging students to create an international focus or a focus in entrepreneurship. The structure that we envision would also permit students to take more traditional Arts electives or minors. In this regard, Arts minors currently require eight courses, four of which can be double counted. The ability of our students to take a more traditional Arts minor would be significantly enhanced if this could be changed to six courses, only two of which could be double counted. Obviously, this decision would be up to the Faculty of Arts and require balancing the maintenance of the integrity of minors with making Arts' minors more feasible.

The committee noted that we were at the time responding to the significant changes in professional accounting education following the unification of the three national accounting professional groups. In improving opportunities for diversifying students' educations, we need to insure that our graduates benefit from our comprehensive and integrated approach to financial management education and will be successful in professional positions during co-op and subsequent permanent positions, and in professional examinations. The School's redesign of several courses to meet the new

professional competencies faced a significant test this past fall when the first Common Final Exam of CPA Canada was written. The School's graduates did exceptionally well with 179 successful students and 11 honour roll students. Our students made up 22.5% of all passes in Ontario and 55% of all Ontario honour roll graduates.[1]

5. Assessment of Teaching and Learning

   The reviewers thought that the School was making acceptable progress with this issue. We continue to progress. We have revised our Learning Outcomes Committee to focus more on defining our most important learning goals and then providing reliable measurements. We are providing more support for teaching including peer support and are encouraging the use of teaching dossiers and taking greater advantage of opportunities with Center for Teaching Excellence (CTE). A recently retired faculty member returns for two terms per year to help faculty members with improving teaching and linking the Learning Outcomes Committee with teaching.

6. Resources

   The reviewers supported the creation of the new finance lab, additional breakout and study space, and predictable, transparent, and sufficient resources. The lab should be opened this March. The School building was built for a much smaller number of students, and space including adequate classroom space is a concern, especially given the expectations of students paying a premium tuition. The School currently operates under a pilot activity-based direct funding model that will be replaced by the new resource allocation model. It is difficult to plan absent any details on this new model, other than that the funding will no longer be direct.

Conclusion

The School has managed significant changes, both internal and external, over the past two years. The unification of the accounting profession with new professional competencies; a significant strengthening of our capacity to service the financial services industry; an economy that is both sluggish and changing rapidly; much more competition from other business schools in our original core area of accounting, especially with respect to professional accreditation; a shrinking demographic entering university accompanied by aggressive competition among different faculties and from external

[1] CPA Ontario prohibits the publication of pass rates by University. While we cannot provide a statistic, all School members were very proud of the success of our graduates

business schools. Given our high tuition, the School must excel to continue to attract students and maintain its position as a leader in accounting and finance.

Our progress on the issues identified above indicate that thus far, we are succeeding in continuing to provide excellent programs, outstanding research[2], and contributing financially to the University. In addition to the actions described above, our most pressing issues are sufficient space given the expansion in the number of students, a fair and reliable funding process that facilitates planning and delivering on our expected contributions, and the ability to establish a School brand that resonates with our external constituencies and allows us to compete effectively with major business schools.

[2] In the most recent Brigham Young University accounting research rankings the School is ranked sixth globally.

UNIVERSITY OF WATERLOO

Two Year Progress Report
Earth and Environmental Sciences (BSc/MA/PhD)
September 2015

Undergraduate Program:

The reviewers note that recruitment is generally an issue for Earth Science and Geology departments, and suggested several mechanisms to increase intake. Our undergraduate population has increased rapidly in recent years, from 156 students in 2012 to 268 students in 2014; this increase has been driven, in part, by an increase in '2+2' students in partnerships with China universities. These numbers represent Earth & Environmental Science students only and do not include students in Geological Engineering. We have managed to absorb this increase without compromising on quality of offerings, particularly with respect to experiential learning. Details follow.

Recommendation 1: *It is recommended that the Department and the University explore opportunities for recruitment from the Ontario college system credit transfer agreement.*

Acceptance of transfer credits from colleges is done routinely, but is not a major source of enrolment. Sir Sanford Fleming College is just one example of a college where transfer credit is possible (these courses tend to be part of geological technical programs). During 2012 to 2014 we accepted 14 transfers into our programs from other universities and colleges.

We have instituted an agreement with the Waterloo Region District School Board and provide advanced standing for Earth Science 121 (Introduction to Earth Science) through a dual credit high school course (Earth and Space Science). In 2013/14, 53 students wrote the test to get the credit. However, none ended up registering for our programs.

Recommendation 2: It is recommended that the Department ensure alignment of minimum program requirements with APGO standards for professional registration, and communicate APGO standards clearly to students.

Our EES programs all meet APGO standards for accreditation, and APGO provides an information session to students on campus each fall as well as an informative website approved by APGO for University of Waterloo students. As well, we counsel students in related programs (mostly Environmental Science) on how to use their electives to qualify for APGO accreditation.

Recommendation 3: It is recommended that the Department ensure that all undergraduate courses are integrated, and that faculty undertake to maintain an ongoing process of collaborative course renewal that ensures continuity while eliminating gaps and redundancy.

This is an ongoing process. We have instituted an annual teaching retreat as of 2015, and also annual meetings of people teaching in each of the three specializations for our Honours EES program to enhance information sharing with respect to teaching matters.

Recommendation 4: It is recommended that the Department undertake to expand opportunities for undergraduate students to engage in undergraduate thesis, co-operative work terms, or other research or employment experiences within the analytical research facilities.

Our EES program is offered in co-op format and 29% of our students elect to do a co-op degree. All of our EES programs require students to do either an undergraduate thesis (2 terms) or a project (1 term). Our research laboratories make extensive use of summer assistants from the undergraduate program, often but not always via the co-op program. On-line courses were discouraged by the reviewers, and we remain lightly invested in this form of course delivery although we are being encouraged to develop in this direction. Field trips and labs retain their prominence in our courses. We also subsidize students to attend the Prospectors and Developers Conference in Toronto each year, and as of last year we are sending a team to the World Mining Competition in Saskatoon.

Recommendation 5: It is recommended that the Geophysics Specialization be discontinued if no additional faculty expertise can be recruited to support the program.

This program continues to attract excellent students and held 24 students in 2014. The courses within the program are also very popular with our Geological Engineering students. We hesitate to cancel it for these two reasons. We are currently searching for a new Department Chair and recruiting a second geophysicist. In view of these opportunities, we wish to continue to offer the Geophysics Specialization. This specialization is designed to meet Association of Professional Geoscientists of Ontario (APGO) requirements and the department believes it provides a viable career trajectory.

Recommendation 6: It is recommended that the Geochemistry Specialization be discontinued.
This program is undersubscribed, but is in an area where we have considerable research strength and where we are mounting relevant courses that are well subscribed by students in other specializations. Until now the program has been run out of the Chemistry Department. We are in the process of rebuilding a Geochemistry specialization based in Earth Sciences that is better suited to the needs of geochemists. There has been a recognition that the geochemistry specialization requirements must (and do) meet the Association of Professional Geoscientists of Ontario (APGO) requirements and do not need to meet the Canadian Institution of Chemistry (CIC) requirements. This re-focusing of the program makes the program more attractive to students and provides a clearer career trajectory.

Recommendation 7: It is recommend that the Department identify essential core areas of foundational earth sciences as priorities in recruitment of faculty.
Retirements had eroded our strength in core areas of Earth Science. Recent recruits of our Department (Chris Yakymchuk – petrology and economic geology; John Johnston – sedimentology and stratigraphy; Brian Kendall – sedimentary geochemistry and metal isotope geochemistry) have addressed this. As well, we have had discussions with adjunct faculty recently retired from the Geological Survey of Canada about stronger involvement in the undergraduate side of the Department; dean approval has just been obtained for a part-time, definite-term appointment as an interim measure that will also support mentorship activity for new faculty. In time, the department will decide whether an additional hire is needed in this area.

Recommendation 8: We recommend expanding collaborative delivery of courses that meet the needs of both Geoscience and Ecology specializations within the Environmental Science program.
These two specializations have many courses in common, including a common first year. Thereafter, there are relatively few required Biology courses in the Geoscience specialization but ample opportunity for Biology electives in years 3&4. There are some Earth Science courses in the Ecology specialization, plus electives. We are about to enter discussions with Biology about a new joint Environmental Science specialization in Water Science, designed to be taught both here and in select Chinese universities in years 1 and 2. This discussion will also provide the opportunity for us to increase our collaboration in teaching the Environmental Science program. However, we do wish to continue to provide students in all of the Environmental Science specializations the scope to pursue their particular interests rather than mandate the mix of courses.

Recommendation 9: It is recommended that all faculty be encouraged to take part in Honours Thesis supervision.

Our increased enrollment is putting a major strain on thesis and project courses. Getting more project supervisors remains a significant challenge that we must overcome. Options that we have discussed include, in order of preference: 1) strongly encouraging faculty participation; 2) increased use of research faculty and possibly postdoctoral fellows as supervisors; 3) formal assignment of a quota of students to faculty members; 4) using teaching assistants; 5) eliminating the requirement for a project and/or restricting access based on grades. While post-doctoral fellows and graduate students contribute to the mentoring of undergraduate thesis students in an informal way, we have not considered asking them to be primary supervisors. Additional remuneration would likely be necessary if this did occur; however, we have no current plans to ask PDFs and graduate students to be primary supervisors. It should be noted that very few faculty do not participate, and most take on several students at a time. For the indolent, forcing them to take undergrad students may not be in the best interests of the students or the advisors. The current problem is actually driven by increasing enrollment and decreased faculty numbers. The options listed above may not all be necessary to solve our problem, but the issue certainly has our attention at the moment. To date, engaged faculty have been able to meet the demand for supervisors.

Recommendation 10: It is recommended that the University Administration re-evaluate admission and student-preparation practices for the China-Canada 2+2 program.

It is an ongoing challenge to improve communication skills and provide experiential learning to the China 2+2 students. A major initiative we launched in this direction is Earth 10, a non-credit course that focuses on communications and problem solving. While created for 2+2 students, all students are welcome to participate in their first year at UW. The Earth 10 model is now being replicated by other Science departments. As well, all EES students are required to take an English or communication course as their Arts core elective. More generally, many Earth courses include oral and written assignments giving students opportunity to improve their communication skills as they learn.

Recommendation 11: It is recommended that the Department continue to build relationships with its alumni, develop mechanisms for more effectively gathering student feedback on degree completion, and create a means for tracking careers of alumni.

Earth Science has strong ongoing relationships with many of its alumni. There are annual alumni events (Farvolden Day, PDAC Alumni Reception). We do not have a staff person devoted to this task, but Faculty of Science has two individuals who coordinate interaction with alumni. We are re-instituting an exit survey for graduating students as of this year.

Graduate Program:

Since the last external review several actions have been taken, some of which are still underway, to remediate shortcomings and strengthen graduate training in the Department. Below we provide a follow-up response to the recommendations outlined in the External Reviewers' Report.

Recommendation 12: Now is the time to realign graduate course offerings with the realities of existing departmental complement and expertise, and with desired student learning outcomes.

A purge of courses no longer offered was conducted in fall 2014. Three old courses are in the process of being deactivated and removed from the online list of courses. A total of five new graduate courses have also been added since. The graduate course offerings now better reflect the current expertise of the department.

Recommendation 13: It is recommended that the new graduate curriculum include a multidisciplinary "techniques" course that exposes students to diverse, advanced analytical techniques in the earth and environmental sciences.

The graduate committee considered this recommendation and found that, given the breadth of the department, targeted courses would be more appropriate. Some of these exist already (e.g., Earth 656, Groundwater Modelling; Earth 661, Analytical Methods; 671, Field Methods in Hydrogeology). We have added a course in Geographical Information Systems.

Recommendation 14: Graduate course delivery needs to be more equably distributed across the department.

Faculty in EES are expected to teach a graduate course annually, and this expectation is largely adhered to. We do not feel that the load is unfairly distributed at this time.

Recommendation 15: It should be absolutely a requirement that students meet with their complete supervisory committee within weeks of arrival, in order to lay out the necessary program of study, courses and research.

The Graduate Committee monitors students closely to ensure Committees are established within the recommended timelines at Waterloo and that committee meetings do occur at least once per year. Recent changes to the regular MSc program, such as the implementation of a formal thesis seminar course (Earth 695), is one new mechanism in place now to ensure committees are formed in the first two terms of a student's program and that the thesis project, research plan, and courses are discussed in a timely manner.

Recommendation 16: It is recommended that the requirement for remedial undergraduate training in earth science be re--evaluated at this time in order to allow for consideration of the context of a student's specific research plans, recognizing the increasingly interdisciplinary nature of earth science research and faculty specializations within the Department.

This is related to the previous recommendation, and although we agree that a student's background needs to be reviewed in light of their research project at the first committee meeting, a meeting within weeks of arrival is impractical.

Recommendation 17: It is recommended that the graduate admissions processes be investigated, with a view to elimination of unnecessary procedures and inefficiencies, and to rapid turnaround of offers of admission.

Timely processing of graduate applications remains a concern to some of our faculty, and may occasionally result in the loss of good students. However, the main problems are not at the Department level and we continue to discuss solutions with the Associate Dean of Science for Graduate Studies. A Task Force on Graduate Recruiting submitted (2013) a number of recommendations to improve key strategic recruitment practices.

Recommendation 18: It is recommended that the Department place a high priority on preparing a new, comprehensive Graduate Student Handbook.

Such a handbook was prepared in September 2014 and it is given to all incoming graduate students and is available in pdf format on the department website. The plan was to update this document once per year to ensure it stays up to date. There have been no changes to programs and rules since 2014, however we plan to review everything before fall 2016 to ensure that the handbook is consistent with the current calendar. An additional initiative that is being considered is to invite new graduate students twice a year (e.g., in September and January) to a meet and greet with the Graduate Committee and to run Q&A sessions about graduate studies.

Recommendation 19: It is recommended that the Department foster awareness of instructional support services available at the UW, and work with the Centre for Teaching Excellence to create opportunities for graduate students to increase their instructional skills.

The responsibility of communicating these services to graduate students is shared between Departments and the CTE itself. This is one of the things that could be discussed during the meet and greet with graduate students (cf. Rec 18 response). Another planned initiative is to send an email to all graduate students about the available resources and to encourage them to visit the graduate student page of the CTE for more information and to sign-up for their workshops. A separate email will be sent out to students on the TA list to remind them about these programs.

NEW UNDERGRADUATE AWARDS
for addition to the current Undergraduate Calendar web site

- submitted for April 12, 2016 meeting of Senate UG Council -

ENTRANCE SCHOLARSHIPS/AWARDS/BURSARIES:

Amrik Bhogal Undergraduate Scholarship
A scholarship, valued at $2,000, is awarded annually to an outstanding full-time undergraduate student entering Year One in the Nanotechnology program. Selection is made on the basis of academic excellence (minimum 80% admission average) and extracurricular achievements as assessed through the Admission Information Form. This fund is made possible by a donation from Amrik Bhogal.

Method of Financing: annual donation (five-year pledge)

Coulman-Tormasi Family Entrance Scholarship in Accounting and Finance
A scholarship, valued at $2,500, is awarded annually to an outstanding undergraduate student entering Year One in the Accounting and Financial Management program at the School of Accounting and Finance. Preference will be given to students who have demonstrated leadership in extracurricular and/or volunteer activities. This fund is made possible by a donation from Lisa Coulman, BA '88.

Method of Financing: annual donation (five-year pledge)

Kronos Accounting and Finance Award
An award, valued at $62,000 over four years, is presented to an outstanding student entering Year One in the Accounting and Financial Management program in the School of Accounting and Finance. Selection will be based on a combination of admission average (minimum 80%), results of the Accounting and Financial Management Admissions Assignment (AFMAA), the Admission Information Form and demonstrated financial need as assessed from the UW Entrance Bursary needs assessment. Preference will be given to students living in the City of Toronto in a *Neighbourhood Improvement Area* or who belong to an Aboriginal community, and to students who have demonstrated leadership in their school, community or family. To be considered, students must also complete a special application by May 1 demonstrating their challenges both financially and socially and explain what this award would mean to them. Continuance of the award beyond Year One is dependent on maintaining a 75% overall average in the Accounting and Financial Management program. In addition, the recipient will be provided with support in securing his or her first work term placement. This fund is made possible by an anonymous donor, who strongly believes in providing an opportunity for a hard-working talented student to attend University who might otherwise not have the chance due to limited finances.

Method of Financing: annual donation (four-year pledge)

Rico Mariani Women in Computer Science Scholarship
One scholarship, valued at $2,000, will be awarded annually to an outstanding female undergraduate student entering Year One in the David R. Cheriton School of Computer Science at the University of Waterloo. This fund is made possible by Rico Mariani (BMath '88) who is committed to removing barriers for women interested in studying Computer Science.

Method of Financing: annual donation (five-year pledge)

Lorne and Joyce Peters Bursary
Bursaries, valued at up to $1,000 each, may be awarded annually to undergraduate students enrolled in any year of any program in the Faculty of Mathematics who have a demonstrated financial need. Preference will be given to students who graduated from Banting Memorial High School in Alliston, Ontario, or to students from the town of New Tecumseth in Simcoe County. New students will be considered based on their application to the UW Entrance Bursary program, due April 15, while returning students should submit the UW Full-time Bursary application by October 15.

Method of Financing: annual donation (four-year pledge, to fund bursaries for 10 to 20 years)

Turkstra Lumber Arts Bursary
Two bursaries, valued at $2,500 each, are awarded to two full-time undergraduate students enrolling in Year One of any program in the Faculty of Arts who have a minimum admission average of 80% and who have a demonstrated financial need. To be eligible, candidates must be residents of a town no more than 25 km from a Turkstra Lumber location. Locations are: Fort/Erie/Ridgeway, Niagara Falls, Smithville, Dunnville, Hamilton, Stoney Creek, Waterdown, Dundas, Cambridge, Brantford, or Simcoe. Students must complete the UW Entrance Bursary Application by April 15th to be considered. This fund is made possible by a donation from Peter and Karen Turkstra and Turkstra Lumber Company who, by their generosity, will enable deserving students to achieve their academic goals.

Method of Financing: one-time gift (non-endowed)

Waterloo Region Science & Engineering Olympia Scholarship
Scholarships, valued at $500 each, are awarded to senior-level participants of the winning team at the annual Waterloo Region Science & Engineering Olympia competition. The scholarships are tenable upon enrollment in first-year studies in any undergraduate program at the University of Waterloo.

Method of Financing: University funds (on-going, subject to annual review)

Ronald and Dorothy Webb Entrance Scholarship
One scholarship, valued at $2,000, is awarded annually to an outstanding undergraduate student entering Year One in the Accounting and Financial Management program in the School of Accounting and Finance. This fund is made possible by a donation from Alan Webb, in honour of his parents, Ronald and Dorothy Webb.

Method of Financing: annual donation (five-year pledge)

UPPER-YEAR SCHOLARSHIPS/AWARDS/BURSARIES:

Jack Adams Memorial Scholarship in Global Business and Digital Arts
One scholarship, valued at $1,200, is awarded annually to a full-time student undergraduate entering Year Four of the Bachelor of Global Business and Digital Arts program in the Faculty of Arts, Stratford Campus. Selection will be based on academic achievement (minimum 80% cumulative average). This fund is made possible by donations from Jack's family: Helen Adams, Judith Adams & Robert Black, Catherine Adams and Salvatore Di Bella. No application is necessary.

Method of Financing: endowment

Ali Arts Entrepreneurship Award
An award, valued at $2,500, is provided annually to a full-time undergraduate student enrolled in Year Two, Three, or Four in the Faculty of Arts. Selection will be made on the basis of academic achievement (minimum 75% cumulative average) and demonstrated involvement in developing an entrepreneurial idea. Interested students should submit an application by October 1 and provide a minimum 250-word essay on the scope of the entrepreneurial activity and how the award will help in furthering the implementation of the business concept. This fund is made possible by a donation from alumnus Mr. Tanveer Ali, (BA, '09) who experienced firsthand how an Arts education can provide a solid foundation for success in the business world.

Method of Financing: annual donation (four-year pledge)

Anthropology Citizenship Award
Each year, the Department of Anthropology recognizes one or two outstanding and well-rounded students who have shown exceptional commitment to the Department and the University of Waterloo as a whole. Successful candidates will have demonstrated enthusiasm, respectfulness, a positive attitude, hard work, and academic excellence while progressing toward a degree majoring in Anthropology. Recipients will receive a monetary award of $250.

Method of Financing: Departmental funds (on-going)

Cadesky Tax Award
An award, valued at $2,500, is provided annually to a full-time undergraduate student enrolled in Year Four in any program in the School of Accounting and Finance. Selection will be made on the basis of academic excellence in AFM 362 and AFM 363 (tax courses) and extracurricular involvement including sports and/or volunteer activities. Interested students should submit an application by October 1. This fund is made possible by a donation from Cadesky and Associates LLP 'Cadesky Tax.'

Method of Financing: annual donation (four-year pledge)

Dematic Scholarship for Excellence in Supply Chain Optimization
Two scholarships valued at $2,500 each are provided annually to full-time undergraduate students enrolled in Year Three or Four of Management Sciences Engineering on the basis of academic achievement (minimum 80% cumulative average) and demonstrated interest in the area of supply chain management or related optimization technologies. Preference will be given to students who can describe how they would use optimization and analytical tools and concepts to design solutions for global supply chain management. Interested students should submit an application by February 1. This fund is made possible by a donation from Dematic Corporation.

Method of Financing: annual donation

IBM Upper Year Award
An award, valued at $4,000, is provided annually to a full-time undergraduate Aboriginal student enrolled in Year Three or Four in the Faculties of Mathematics or Engineering on the basis of academic achievement (minimum 75%). This fund is made possible by a generous donation from IBM Canada Ltd.

Method of Financing: annual donation (two-year pledge)

Ethan Latifpoor-Keparoutis Scholarship
A scholarship, valued at $2,000, is awarded annually to a full-time undergraduate student enrolled in Year Three in any program in the Faculty of Environment who has achieved a minimum overall average of 80%. This fund is made possible by a donation from Vladas Keparoutis and Maryam Latifpoor-Keparoutis in the name of their son Ethan Latifpoor-Keparoutis, to inspire and support the next generation of students.

Method of Financing: annual donation (five-year pledge)

Joe C. Lee Mathematics Entrepreneurial Scholarship
A scholarship, valued at up to $1,200, is awarded annually to a full-time undergraduate student enrolled in Year Two or Three in any program in the Faculty of Mathematics (excluding Computing & Financial Management and Software Engineering). Selection will be based on scholastic excellence (minimum 80% average), a demonstrated passion for entrepreneurship, involvement in the community, and related extracurricular activities, e.g., completion of side business projects, participation in competitions, etc. Interested students should submit an application by November 1. This fund is made possible by a donation from alumnus Joe C. Lee (BMATH 1998, MACC 1998) to recognize and reward entrepreneurial-minded students who embody some of Joe C. Lee's core values of trying non-conventional approaches, being innovative, and caring about social impact.

Method of Financing: endowment

Palantir Scholarship for Women in Computer Science

A scholarship, valued at $2,000, is awarded annually to a full-time female undergraduate student enrolled in Year Four in the David R. Cheriton School of Computer Science. Selection is made on the basis of completion of CS 341 (Algorithms), CS 343 (Concurrent and Parallel Programming), and CS 350 (Operating Systems), within the past year and with the highest major average. No application is required. This fund is made possible by a donation from Palantir Technologies Inc.

Method of Financing: annual donation (five-year pledge)

Parry – Glover Academic Excellence Scholarship
A scholarship, valued at $2,000, is awarded annually to a full-time undergraduate student with the highest academic average following the completion of their first year in the Department of Recreation and Leisure Studies. This fund is made possible by a gift from Diana Parry and Troy Glover.

Method of Financing: annual donation (five-year pledge)

University of Waterloo Alumni@BDO Dunwoody Scholarship
One scholarship, valued at up to $2,000, is awarded annually to an outstanding student entering Year One of an Accounting program in the Faculties of Arts, Mathematics, or Science. This fund is made possible by donation from University of Waterloo alumni employed at BDO Dunwoody.

Method of Financing: endowment

Wahl Family Scholarship for Community Involvement
One scholarship, valued at $2,000, is awarded annually to a full-time undergraduate student enrolled in Year Two, Three, or Four in the Faculty of Arts (excluding Accounting & Financial Management). Selection will be made on the basis of academic achievement (minimum cumulative average of 80%), as well as demonstrated leadership in service to others, the community, or the world at large. Interested students should submit an application by February 15. This fund is made possible by a donation from Bettina and Scott Wahl.

Method of Financing: one-time donation to cover award for five years

ATHLETIC AWARDS:

Coolman Family Athletics Excellence Award
One award, valued at $2,000, is given to a female varsity athlete on any team. This award recognizes athletic talent and contribution to Warrior Athletics, their team, and the school. This fund is supported by Jason and Jill Coolman.

Method of Financing: annual donation and matching funds (five-year pledge)

Forum Athletic Basketball Excellence Award
Two awards, valued at $4,500 each, are given to members of the varsity men's basketball and varsity women's basketball teams. This award recognizes athletic talent, contribution to Warrior Athletics, their team and the school, and contributions to their local community. This fund is supported by Forum Athletic Products.

Method of Financing: annual donation and matching funds (four-year pledge)

T. Litzen Sports Athletic Excellence Award
Three awards, valued at $3,000 each, are given to two female varsity athletes and one male varsity athlete. These awards recognize athletic talent and contribution to Warrior Athletics, their team, and school. This fund is supported by T. Litzen Sports, the official outfitter of Waterloo Warrior Athletics.

Method of Financing: annual donation and matching funds (three-year pledge)

Matthew Mains Swimming Excellence Awards
Two awards, valued at $1,200 each, are given to a male and female member of the varsity swimming team. These awards recognize athletic talent, contribution to Warrior Athletics and their team, and strong leadership skills. This fund is supported by University of Waterloo alumnus Matthew R. Mains.

Method of Financing: annual donation and matching funds (five-year pledge)

Parry – Glover Women's Athletics Excellence Award
One award, valued at $2,000, is given to a student athlete who is a member of any women's varsity team. This award recognizes athletic talent and contribution to Warrior Athletics, their team and the school. This fund is supported by Diana Parry and Troy Glover.

Method of Financing: annual donation and matching funds (five-year pledge)

Pita Pit Football Excellence Award
One award, valued at $4,500, is given to a member of the varsity football team. This award recognizes athletic talent and contribution to Warrior Athletics, their team and the school. This fund is supported by the Northfield Drive, Waterloo Pita Pit and its owner, Ted Siountres.

Method of Financing: annual donation and matching funds (four-year pledge)

Routes Transport Group Football Athletic Excellence Awards
Four awards valued at $4,500 each and one award valued at $2,000 will be given to members of the varsity football team. These awards recognize athletic talent, contribution to Warrior Athletics and their team, and strong leadership skills. This fund is supported by Routes Transport Group.

Method of Financing: annual donation and matching funds (five-year pledge)

Twin Cities Football Excellence Awards
Two awards, valued at $2,000 each, are given to two members of the varsity football team who completed the most recent season with the Twin Cities Minor Tackle Football Association's Varsity Predators. These awards recognize athletic talent, a commitment to good sportsmanship on and off the field, a commitment to being a positive contributor to the community, and contribution to Warrior Athletics and Warrior Football. This fund is supported by the Twin Cities Minor Tackle Football Association.

Method of Financing: annual donation and matching funds (five-year pledge)

Urosevic Men's Basketball Award
One award, valued at $4,500, is given to a member of the varsity men's basketball team. This award recognizes athletic talent, contribution to Warrior Athletics and their team, and strong leadership skills. This fund is supported by University of Waterloo alumnus Bob Urosevic and his family.

Method of Financing: annual donation and matching funds (five-year pledge)

Warrior Women's Student Athlete Excellence Award
One award, valued at $2,000, is given to a female varsity athlete on any team. This award recognizes athletic talent and contribution to Warrior Athletics, their team, and the school. This fund is supported by Chris Read and his family.

Method of Financing: annual donation and matching funds (five-year pledge)

Roly and Brigitte Webster Athletic Excellence Award
One award, valued at $2,000, is given to a female varsity athlete on any team. This award recognizes athletic talent and contribution to Warrior Athletics, their team, and school. This fund is supported by Roly and Brigitte Webster.

Method of Financing: annual donation and matching funds (four-year pledge)

University of Waterloo
SENATE
Report of the President
16 May 2016

FOR INFORMATION

Recognition and Commendation

The 2015 Co-op Students of the Year Awards were held on Tuesday, March 15 in the Tatham Centre. Six students, one from each Faculty, were recognized for their outstanding achievements in co-operative education. One student was also honoured with the rare "co-op triple crown", by winning the Faculty, provincial, and national Co-op Student of the Year awards. **Rachel McDonald**, from the Faculty of Applied Health Sciences, was recognized by the Canadian Association for Co-operative Education (CAFCE) as the winner of the national Co-op Student of the Year Award and by Education at Work Ontario (EWO) as the winner of the provincial Co-op Student of the Year Award. She received these top awards for her work with Sunnybrook Health Sciences Centre, where she coordinated a radiotherapy program for people in the advanced stages of cancer. The 2015 Co-op Students of the Year are: **Vinita Dhir,** Faculty of Science, **Jordan Grant,** Faculty of Engineering, **Andrew MacDonald,** Faculty of Environment, **Rachel McDonald,** Faculty of Applied Health Sciences, **Joey Pereira,** Faculty of Mathematics, **Emily West,** Faculty of Arts**.** In addition, Abhirup Chatterjee (Applied Heath Sciences), Kai Slaughter (Engineering), and Emma Hawley-Yan (Environment) received honourable mentions for Waterloo's 2015 Co-op Students of the Year Awards. (*Daily Bulletin*, 18 March 2016)

On Thursday, March 24, the University of **Waterloo's United Way Campaign** won the **Leadership Campaign Award** at the Community Spirit Awards ceremony. Waterloo was nominated for awards in two categories: Leadership Campaign and Campaign Team. The University's United Way campaign raised more than $260,000 this year, and Waterloo has been supporting the cause since 1983. (*Daily Bulletin,* 29 March 2016)

A systems design engineering professor and team of graduate students are the recipients of two Magna Cum Laude awards presented at the 2016 Annual Meeting of the Imaging Network of Ontario held in Toronto at the end of March. **Alexander Wong**, the Canada Research Chair in Medical Imaging Systems, and systems design engineering graduate students **Audrey Chung, Mohammad Javad Shafiee, Devinder Kumar,** along with their collaborators at Sunnybrook Health Sciences Centre, were recognized for their research in the area of radiomics-driven oncological clinical decision support. Wong and his team in collaboration with clinical researchers at Sunnybrook Health Sciences have introduced a breakthrough strategy to quicker and more effective cancer identification. Known as discovery radiomics, the concept allows for the identification of a large number of imaging-based features that act as quantitative biomarkers for capturing highly unique tumor traits and characteristics beyond what can be captured using predefined feature models. (*Faculty of Engineering News*)

Two faculty members in the Department of Combinatorics and Optimization have been named Fellows of the international Society for Industrial and Applied Mathematics (SIAM). Professor **Thomas Coleman**, who served as Dean of the Faculty of Mathematics from 2005 to 2010, is now a member of the SIAM Fellows Class of 2016. He was honoured "for contributions to large-scale, sparse numerical optimization, financial optimization, and leadership in mathematics education and engagement with industry." Professor **Henry Wolkowicz** became a SIAM Fellow in 2015, honoured "for contributions to convex optimization and matrix theory." SIAM Fellowships "honor SIAM members who are recognized by their peers as distinguished for their contributions to the discipline." (*Daily Bulletin*, 6 April 2016)

Five University of Waterloo students are celebrating their win at the global championship of the CFA Institute Research Challenge. **Brent Small** (AFM), **Adnan Khan** (AFM), **Daniel Zhang** (Biotech/CPA), **Kamaljot Dhaliwal** (CFM) and **Rudder Zhang** (BMath) are all smiles as this victory marks the first Canadian team to win this prestigious international title. The annual financial analysis competition draws more than 4,000 students world-wide from more than 865 universities in 70 countries. The School of Accounting and Finance (SAF) student team spent hours preparing to present and defend detailed equities research report on a publicly traded

company to a panel of industry experts. The SAF team advanced through several rounds to reach the Global Finals in Chicago, where they beat out University of Georgia, Ateneo de Manila University, and Politecnico di Milano, to capture the championship and a $10,000 prize. (*Daily Bulletin,* 18 April 2016)

Gah-Jone Won, a PhD candidate in Vision Science and Biology, was selected as the winner of the Ontario Provincial Three Minute Thesis (3MT) competition. Won advanced to the provincial final, held April 14 at Wilfrid Laurier University, after being chosen from among 200 graduate students who took part in the 3MT competition at University of Waterloo. Won's research focuses on the development of a pharmaceutical treatment for presbyopia, an age-related condition that causes the eyes to lose the ability to focus on nearby objects. The treatment specifically targets and softens the crystalline lens in order to restore nearby vision. The 3MT competition challenges graduate students to explain their research to a non-specialist audience in three minutes, using a single static slide and no props. The provincial competition included 20 universities from across Ontario. Won's presentation is now in the running for the national 3MT prize, sponsored by the Canadian Association for Graduate Studies (CAGS). The national competition will take place online. (*Waterloo Stories,* 15 April 2016)

University of Waterloo
REPORT OF THE DEAN OF APPLIED HEALTH SCIENCES TO SENATE
May 16, 2016

FOR INFORMATION

A. APPOINTMENTS/REAPPOINTMENTS

Definite Term Reappointment
WILSON, Austin (Wade), Lecturer, Department of Kinesiology, May 1, 2016 – April 30, 2017. BA (Sports Psychology), Laurentian University, 2005, Master of Human Kinetics (MHK), University of Windsor, 2007, PhD, Recreation and Leisure Studies, University of Waterloo, 2015.

Continuing Lecturer Appointment
WILLIAMS, Diane, Lecturer, School of Public Health and Health Systems, effective July 1, 2016 from Definite Term Lecturer, July 1, 2013 – June 30, 2016. B.S., Electrical Engineering and Computer Science, Massachusetts Institute of Technology, 1992, Ph.D., Speech and Hearing Bioscience and Technology, Harvard-MIT Division of Health Sciences and Technology, Massachusetts Institute of Technology, 2003.

Adjunct Appointment
SAGE, Michael, Lecturer, Department of Kinesiology, May 1, 2016 – August 31, 2016.

Adjunct Reappointments
ALMEIDA, Quincy, Professor, Department of Kinesiology, July 1, 2015 – December 31, 2016.

BRYDEN, Pamela, Professor, Department of Kinesiology, July 1, 2015 – December 31, 2016.

POSS, Jeff, Associate Professor, School of Public Health and Health Systems, May 1, 2016 – December 31, 2017.

Special Appointments
SCHUMILAS, Theresa, Lecturer, School of Public Health and Health Systems, May 1, 2016 – August 31, 2016.

Postdoctoral Fellows appointed as Research
ALENABI, Seyedeh Talia, Department of Kinesiology, March 1, 2016 – February 28, 2017.

B. ADMINISTRATIVE APPOINTMENTS

MOCK, Steven, Associate Chair, Undergraduate Studies, Department of Recreation and Leisure Studies, July 1, 2016 – June 30, 2019.

DUPUIS, Sherry, Associate Chair, Graduate Studies, Department of Recreation and Leisure Studies, July 1, 2016 – June 30, 2019.

James W.E. Rush, Dean
Faculty of Applied Health Sciences

UNIVERSITY OF WATERLOO
REPORT OF THE DEAN OF THE FACULTY OF ARTS TO SENATE
May 16, 2016

FOR INFORMATION

A. APPOINTMENTS

Probationary Term Reappointments
MITCHELL, Timothy (BSc 1987 Auburn University, PhD 2008 University of Kentucky**),** Assistant Professor, School of Accounting and Finance, July 1, 2016 to June 30, 2019.

Definite Term Reappointments
CARSON, Linda, Lecturer, Department of Fine Arts, August 1, 2016 to July 31, 2018.

Adjunct Appointments – Instruction
BENVENUTI, Courtney, Lecturer, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

Adjunct Appointments – Miscellaneous (research, consultations, etc.)
DOLSON, Mark, Assistant Professor, Department of Anthropology, July 1, 2016 to June 30, 2019.

Adjunct Reappointments – Instruction
ADAMS, Russell, Assistant Professor, Department of Anthropology, May 1, 2016 to August 31, 2016.

BAMBRICK, Victoria, Lecturer, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

CUMMINGS, Ruth, Lecturer, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

DE ROOIJ-MOHLE, Margreet, Lecturer, Department of Drama and Speech Communication, May 1, 2016 to August 31, 2016.

DIGNAN, Paul, Lecturer, Department of Fine Arts, May 1, 2016 to August 31, 2016.

DUCHARME, Roberts, Lecturer, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

EVERINGHAM, Scott, Lecturer, Department of Fine Arts, May 1, 2016 to August 31, 2016.

FATIMA, Nafeez, Lecturer, Department of Economics, May 1, 2016 to August 31, 2016.

GAMEZ, Hector, Lecturer, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

GHAZIASKAR, Mohamad, Lecturer, Department of Economics, May 1, 2016 to August 31, 2016.

HE, Zhen, Lecturer, Department of Economics, May 1, 2016 to August 31, 2016.

HUNTER, Natalie, Lecturer, Department of Fine Arts, May 1, 2016 to August 31, 2016.

KROEKER, Ronald, Assistant Professor, Department of Classical Studies, May 1, 2016 to August 31, 2016.

KUMASE, Wokia, Lecturer, Department of Economics, May 1, 2016 to August 31, 2016.

LAIKEN, Stan, Professor, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

LEUNG, May, Lecturer, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

LIAQAT, Zara, Lecturer, Department of Economics, May 1, 2016 to August 31, 2016.

LIN, David, Lecturer, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

MANNING, Thomas, Lecturer, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

NEEDHAM, Brent, Lecturer, Department of Political Science, May 1, 2016 to August 31, 2016.

PEROS, Rosemary, Lecturer, Department of Economics, May 1, 2016 to August 31, 2016.

RAJSIC, Predrag, Lecturer, Department of Economics, May 1, 2016 to August 31, 2016.

ROGOZYNSKI, Daniel, Lecturer, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

ROSE, David, Lecturer, Department of Economics, May 1, 2016 to August 31, 2016.

RUFFUDEEN, Zamal, Lecturer, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

SHIELDS, Tobin, Lecturer, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

SIEBEL-ACHENBACH, Sebastian, Lecturer, Faculty of Arts, May 1, 2016 to August 31, 2016.

STETTNER, Shannon, Lecturer, Department of Philosophy, May 1, 2016 to August 31, 2016.

STEVENSON, Michael, Lecturer, Department of Political Science, May 1, 2016 to August 31, 2016.

TIMBERG, Robert, Lecturer, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

WENSLEY, Karen, Lecturer, School of Accounting and Finance, May 1, 2016 to August 31, 2016.

Graduate Students Appointed as Part-Time Lecturers
CARROLL, James, Department of Germanic and Slavic Studies, May 1, 2016 to August 31, 2016.

B. ADMINISTRATIVE APPOINTMENTS

Administrative Appointment – Change in Dates
WALKER, James, Associate Chair, Graduate Studies, Department of History, **from** November 1, 2015 to October 31, 2016 **to** November 1, 2015 to March 31, 2016.

Douglas M. Peers
Dean, Faculty of Arts

UNIVERSITY OF WATERLOO
REPORT OF THE DEAN OF ENGINEERING TO SENATE
May 16, 2016

For information:

A. APPOINTMENTS

Probationary Term Appointments

KIM, Na Young, Associate Professor, Department of Electrical & Computer Engineering and working at the Institute for Quantum Computing, March 21, 2016 – June 30, 2019. PhD Stanford University, Stanford, California USA 2006; BS Seoul National University, Seoul, Korea 1998. Prior to joining Waterloo, Dr. Kim was the chief engineer at Tech153 in Suwon, Kyonggi-do, South Korea. Her research interests are in large-scale solid-state quantum computer and quantum simulator for quantum information processing and communications. In particular, she is currently designing and fabricating wafer-scale molecular optoelectronic circuits using carbon-based low-dimensional materials and fundamental quantum devices.

New Definite Term Appointments – full-time

JIN, Chao, Research Assistant Professor, Department of Systems Design Engineering, April 1, 2016 – March 31, 2017. PhD University of Waterloo 2015; MASc Harbin Institute of Technology, Harbin, China 2009; BASc Harbin Institute of Technology 2007. Dr. Chao Jin will be spearheading an interdisciplinary project, focused on imaging and water quality, in which he will be collaborating with Prof. Monica Emelko (Civil Engineering) and Prof. Alex Wong (Systems Design Engineering). Dr. Jin has a background in nano-materials, and will be using methods of computational imaging in exploring and understanding the transport of these materials in natural and engineered aquatic systems.

Visiting Appointments

FAZAELI, Razieh, Associate Professor, Department of Chemical Engineering, July 5, 2016 – July 4, 2017.

HAN, Na, Scholar, Department of Chemical Engineering, May 26, 2016 – August 27, 2016.

KHAZRAEI, Sephr, Scholar, Department of Chemical Engineering, April 1, 2016 – January 1, 2017.

LIU, Hao, Scholar, Department of Chemical Engineering, May 1, 2016 – April 30, 2017.

MIRJALILI, Fatemeh, Scholar, Department of Chemical Engineering, October 1, 2016 – March 31, 2017.

TIAN, Yanhong, Professor, Department of Mechanical & Mechatronics Engineering, August 1, 2016 – July 31, 2017.

YE, Qian, Scholar, Department of Chemical Engineering, August 1, 2016 – July 31, 2017.

ZECHMAIR, Michael, Scholar, Department of Electrical & Computer Engineering, April 1, 2016 – October 1, 2016.

Visiting Reappointments

ABEDI, Daryoush, Scholar, Department of Chemical Engineering, March 20, 2016 – March 19, 2017.

KARIMINIAAE HAMEDANNI, Hamid-Reza, Associate Professor, Department of Chemical Engineering, April 1, 2016 – November 30, 2016.

Special Appointments – Undergraduate Instruction

DEHART, Brandon, Lecturer, Department of Mechanical & Mechatronics Engineering, January 1, 2016 – April 30, 2016.

HOSSEINKHANI, Yasin, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2016 – August 31, 2016.

Special Appointments – Graduate Instruction

ALAEFOUR, Ibrahim, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2016 – August 31, 2016.

Special Reappointments – Undergraduate Instruction

GRIFFITHS-FULTON, Karl, Lecturer, Department of Systems Design Engineering, May 1, 2016 – August 31, 2016.

MATHER, David, Lecturer (ME459), Department of Mechanical & Mechatronics Engineering, May 1, 2016 – August 31, 2016.

MATHER, David, Lecturer (ME599/CIVE497/ME760), Department of Mechanical & Mechatronics Engineering, May 1, 2016 – August 31, 2016.

Adjunct Appointments – Graduate Supervision and Research

CRYSTAL, Pavel, Associate Professor, Department of Electrical & Computer Engineering, February 1, 2016 – January 31, 2019.

Adjunct Appointments – Research

BICUDO, Jose, Professor, Department of Civil & Environmental Engineering, March 1, 2016 – February 28, 2018.

Cross Appointments

TSEN, Adam Wei, Assistant Professor, Department of Chemical Engineering to Department of Electrical & Computer Engineering, January 1, 2016 – December 31, 2018.

B. SABBATICAL LEAVES

For Approval by the Board of Governors

AUCOIN, Marc, Associate Professor, Department of Chemical Engineering, January 1, 2017 – December 31, 2017, twelve months at 100% salary.

ELKAMEL, Ali, Professor, Department of Chemical Engineering, May 1, 2017 – October 30, 2017, six months at 85% salary and May 1, 2018 – October 30, 2018, six months at 85% salary.

KWON, Hyock-Ju., Associate Professor, Department of Mechanical & Mechatronics Engineering, January 1, 2017 – June 30, 2017, six months at 100% salary.

OPAL, Ajoy, Professor, Department of Electrical & Computer Engineering,
May 1, 2017 – April 30, 2019, two years at 89.9% salary.

TAN, Zhongchao, Professor, Department of Mechanical & Mechatronics Engineering,
September 1, 2016 – February 28, 2017, six months at 100% salary.

Wayne Parker
Acting Dean, Faculty of Engineering

University of Waterloo
REPORT OF THE DEAN OF ENVIRONMENT TO SENATE
May 16, 2016

FOR INFORMATION

A. APPOINTMENTS

Probationary Term Appointment

HABIB, Komal, Assistant Professor, School of Environment, Enterprise and Development, July 1, 2016 to June 30, 2019: PhD, University of Southern Denmark, 2015; MSc, Aalborg University, Denmark, 2011; BS, Lahore College for Women University, Pakistan, 2008. Currently a Postdoctoral Fellow with the Centre for Life Cycle Engineering at the University of Southern Denmark, Dr. Habib's research is on critical resources under current and future framework conditions, mapping the societal stocks and flows of critical resources, and LCA of hydrogen-based upgrading technologies for biogas. She is one of the first researchers working in the rapidly growing field of resource criticality assessment and is strongly connected to the range of debates and research in industrial ecology, particularly those related to sustainable production. Dr. Habib promises to be a very strong fit with the research and teaching goals of the School.

Adjunct Appointments

Graduate Supervision

BERKES, Fikret, Professor, Faculty of Environment, March 1, 2016 to February 28, 2017.

McGRATH, Darby, Assistant Professor, School of Environment, Resources and Sustainability, April 1, 2016 to March 31, 2019.

RIVERO, Sergio, Associate Professor, Department of Geography and Environmental Management, April 1, 2016 to March 31, 2019.

Special Appointments

Instruction

HERREMANS, Irene, Lecturer, School of Environment, Enterprise and Development, May 1, 2016 to August 31, 2016.

PHAN, Thang Chau, Lecturer, School of Environment, Enterprise and Development, May 1, 2016 to August 31, 2016.

RICHARDSON, Paul, Lecturer, School of Environment, Resources and Sustainability, May 1, 2016 to August 31, 2016.

SMACHYLO, Julia, Lecturer, School of Planning, May 1, 2016 to August 31, 2016.

Cross Appointment

MOOS, Markus, Associate Professor, School of Planning to the Department of Geography and Environmental Management, July 1, 2016 to June 30, 2021.

Graduate Students Appointed as Part-Time Lecturers

LAYCOCK, Katherine, School of Planning, May 1, 2016 to August 31, 2016.

SILVER, Amber, Department of Geography and Environmental Management, May 1, 2016 to August 31, 2016.

B. ADMINISTRATIVE APPOINTMENTS

CLARKE, Amelia, Director, Master of Environment and Business (MEB) Program, School of Environment, Enterprise and Development, May 1, 2015 to December 31, 2017.

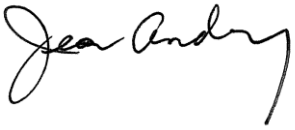
LYNES, Jennifer, Director, Environment and Business Program, School of Environment, Enterprise and Development, January 1, 2016 to December 31, 2018.

PLAISANCE, Kathryn, Associate Chair, Undergraduate Studies, Department of Knowledge Integration, July 1, 2016 to June 30, 2019.

WEBER, Olaf, Director, Master of Environmental Studies in Sustainability Management (MESSM) Program, School of Environment, Enterprise and Development, January 1, 2016 to June 30, 2016.

YOUNG, Steven, Director, Master of Environmental Studies in Sustainability Management (MESSM) Program, School of Environment, Enterprise and Development, July 1, 2016 to June 30, 2019.

YOUNG, Steven, Graduate Officer, School of Environment, Enterprise and Development, July 1, 2016 to June 30, 2019.



Jean Andrey
Dean

University of Waterloo
REPORT OF THE DEAN OF MATHEMATICS TO SENATE
May 16, 2016

FOR INFORMATION

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

Continuing Appointments
LUSHMAN, Bradley (BMath, 2000; MMath, 2002; Certificate in University Teaching, 2007; PhD, 2007, all from the University of Waterloo, Lecturer, July 1, 2016. Dr. Lushman will teach five undergraduate courses per year and student advising.

Definite Term - Appointments
GROSSMAN, Maura (AB (Hons), 1980, Brown University; MA, 1982; PhD, 1984, both from Adelphi University; J.D. (*magna cum laude),* 1999, Georgetown University Law Center), Research Professor, David R. Cheriton School of Computer Science, June 1, 2016 – May 31, 2019.

Definite Term - Reappointments
GAMACHE, Alain, Lecturer, Office of the Dean, August 1, 2016 – July 31, 2017.

MOHAMMAD, Nagham, Lecturer, Dept. of Statistics and Actuarial Science, December 31, 2016 – December 29, 2018.

Visiting Appointments
CHEN, Shumin (Guangdong University of Technology), Researcher, Dept. of Statistics and Actuarial Science, January 1, 2017 – December 31, 2017.

Adjunct Appointments
Research
SANTOPRETE, Manuele (Wilfrid Laurier University), Associate Professor, Dept. of Applied Mathematics, March 1, 2016 – February 28, 2019.

Grad Committee
WANG, Lin (University of Jinan), Associate Professor, David R. Cheriton School of Computer Science, May 1, 2016 – April 30, 2018.

Adjunct Reappointments
Instructor
KARABINA, Burcu, Lecturer, Office of the Dean, May 1, 2016 – August 31, 2016.

McKINNON, Jennifer, Lecturer, Office of the Dean, May 1, 2016 – August 31, 2016.

Graduate Students reappointed as Part-time Lecturers
KOTHARI, Nishad, Dept. of Combinatorics and Optimization, May 1, 2016 – August 31, 2016.

Postdoctoral Fellows appointed as Part-time Lecturers

MAFTULAEC, Daniela, David R. Cheriton School of Computer Science, June 1, 2016 – November 30, 2016.

MATULIC, Fabrice, David R. Cheriton School of Computer Science, May 1, 2016 – April 30, 2017.

NAGY, Akos, Dept. of Pure Mathematics, July 1, 2016 – June 30, 2018.

SHARMA, Divyun, Dept. of Pure Mathematics, September 1, 2016 – August 31, 2018.

TANG, Dameng, Dept. of Statistics and Actuarial Science, July 1, 2016 – June 30, 2017.

B. SABBATICALS (for approval by the Board of Governors)

BEN-DAVID, Shai, Professor, David R. Cheriton School of Computer Science, November 1, 2016 – April 30, 2017, with 85% salary.

CLARKE, Charles, Professor, David R. Cheriton School of Computer Science, July 1, 2016 – June 30, 2017, with 85% salary.

CSIMA, Barbara, Professor, Dept. of Pure Mathematics, September 1, 2016 – August 31, 2017, with 85% salary.

LANK, Edward, Associate Professor, David R. Cheriton School of Computer Science, September 1, 2016 – August 31, 2017, with 85% salary.

MUNRO, Ian, Professor, David R. Cheriton School of Computer Science, January 1, 2017 – December 31, 2017, with 100% salary.

Stephen M. Watt
Dean

UNIVERSITY OF WATERLOO
REPORT OF THE DEAN OF SCIENCE TO SENATE
May 16, 2016

For information:

A. *APPOINTMENTS*

New Probationary Term

KHAN, Shamrozé, Assistant Clinical Professor, September 1, 2016 to June 30, 2019. [B.Sc., University of Waterloo (2007); OD, University of Waterloo (2007); Ph.D., University of Waterloo (in progress). Dr Khan was a UW optometry graduate before completing a residency in Low Vision and Ocular Disease in Chicago. She has been a part-time clinical supervisor at the School for a number of years as well as being in private practice for the past 9 years. She brings a wealth of experience especially in the areas of low vision and primary care.

Definite Term Reappointment – Full-Time

PINHEIRO, Marcel, Lecturer, Department of Biology, August 1, 2016 to July 31, 2019.

REZANEZHAD, Fereidoun, Research Assistant Professor, Department of Earth and Environmental Sciences, May 1, 2016 to April 30, 2019.

Visiting Reappointment

LEGGETT, Anthony J., Professor, Department of Physics and Astronomy and Institute for Quantum Computing, May 12, 2016 to July 12, 2016.

Adjunct Appointments

Research

ALODHAYB, Sami, Assistant Professor, School of Optometry and Vision Science, April 1, 2016 to March 31, 2019.

Undergraduate Instruction and Research

PALMAY, Lesley, Assistant Professor, School of Pharmacy, January 1, 2016 to December 31, 2017.

Adjunct Reappointments

Graduate Supervision

CHARLET, Laurent, Professor, Department of Earth and Environmental Sciences, April 1, 2016 to March 31, 2019.

DEVLIN, J.F. (Rick), Assistant Professor, Department of Earth and Environmental Sciences, April 1, 2016 to March 31, 2019.

TETREAULT, Gerald R., Assistant Professor, Department of Biology, May 1, 2016 to April 30, 2019.

Graduate Supervision and Research

FRANK, Richard A., Assistant Professor, Department of Biology, April 1, 2016 to March 31, 2019.

HEWITT, L. Mark, Assistant Professor, Department of Biology, May 1, 2016 to April 30, 2019.

LUMSDEN, John S., Professor, Department of Biology, February 29, 2016 to March 31, 2019.

ZHANG, Xu (Shine), Assistant Professor, Department of Biology, September 1, 2016 to August 31, 2019.

Graduate Instruction/Graduate Supervision/Research

SORKIN, Rafael, Professor, Department of Physics and Astronomy, May 1, 2016 to April 30, 2021.

VIDAL, Guifre, Professor, Department of Physics and Astronomy, May 1, 2016 to April 30, 2021.

Cross Reappointment

BIZHEVA, Kostadinka, Associate Professor, Department of Physics and Astronomy, cross appointed to School of Optometry and Vision Science, March 25, 2016 to March 24, 2019.

B. ***ADMINISTRATIVE APPOINTMENT***

STANBERRY, Andre, Clinic Director, School of Optometry and Vision Science, May 1, 2016 to April 30, 2019.

ADMINISTRATIVE REAPPOINTMENTS

IRVING, Elizabeth, Interim Clinic Director, School of Optometry and Vision Science, August 1, 2015 to April 30, 2016.

LIN, Shoufa, Associate Dean, International Programs, Faculty of Science, September 1, 2016 to December 31, 2016.

FOR APPROVAL BY THE BOARD OF GOVERNORS

C. ***SABBATICAL LEAVE***

CHOH, Vivian, Associate Professor, School of Optometry and Vision Science, September 1, 2016 to August 31, 2017, 85% salary arrangement.

R.P. Lemieux
Dean

UNIVERSITY OF WATERLOO

MEMORANDUM

To: Senate

From: James S Frank, Associate Provost, Graduate Studies

Copy: Sarah Hildebrandt, Director, Graduate Studies Academic Services

Date: April 11, 2016

Re: Graduate Degree – Senate – April 18, 2016

Student name: **Samet Guler**

Degree: Doctor of Philosophy, Mechanical & Mechatronics Engineering
Conferral date: March 30, 2016

The above student has been approved for early issuance of his degree to support his employment outside of Canada. This degree will be issued according to the Senate directive which delegates to the President, the Registrar, and the Associate Provost, Graduate Studies authority to grant a degree/diploma/certificate when circumstances necessitate outside the normal schedule for such approvals by Senate.

James S Frank,
Associate Provost, Graduate Studies

University of Waterloo
SENATE
16 May 2016

FOR APPROVAL

_____

Committee Appointments
Motion: To approve the following appointments:

- **Senate Nominating Committee on Honorary Degrees:** Christos Lolas (president, Federation of Students) and Alexander Wray (undergraduate senator, environment) as undergraduate student representatives, term to 1 May 2016 to 30 April 2017.

University of Waterloo
SENATE GRADUATE & RESEARCH COUNCIL
Report to Senate
16 May 2016

Senate Graduate & Research Council met on 11 April 2016 and agreed to forward the following items to Senate for approval. This report is recommended for inclusion in the regular agenda.

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

FOR APPROVAL

CHANGES TO ACADEMIC PLANS

Faculty of Science
Earth Sciences

1. **Motion:** To approve the addition of a thesis proposal milestone in the doctor of philosophy plan in earth sciences.

   Rationale: This milestone will add a 30 minute seminar presentation for doctoral students' proposed research and will occur approximately mid-way through their program. This will provide greater profile and attention to the process and development of the thesis proposal.

Physics - Nanotechnology

1. **Motion:** To approve the removal of a thesis proposal milestone in the master of science plan in physics - nanotechnology.

   Rationale: This milestone was inadvertently included for Physics and Astronomy students during the initial plan approval process. This is not an essential or required part of the student's studies in nanotechnology.

/*mg*

George Dixon
Vice-President, University Research

Jim Frank
Associate Provost, Graduate Studies

University of Waterloo
SENATE UNDERGRADUATE COUNCIL
Report to Senate
16 May 2016

Senate Undergraduate Council met on 12 April, and considered a proposal for two new academic plans. Council agreed to forward the following items to Senate for approval. Council recommends this item be included in the regular agenda.

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

FOR APPROVAL

NEW ACADEMIC PLANS

▶ Faculty of Arts
Classical Studies

1. **Motion:** To approve the new minor plan in medieval studies as presented and effective 1 September 2016.

   Students enrolled in any degree program may pursue a minor designation in Medieval Studies.

   The Medieval Studies Minor requires successful completion of a minimum of four academic course units (eight courses) from the list of approved Medieval Studies courses with a minimum cumulative average of 65%, including:
   - one of CLAS 105/MEDVL 105, HIST 115/MEDVL 115
   - one of CLAS 205/MEDVL 205, HIST 260/MEDVL 260
   - list of Medieval Studies approved courses:
     - Classical Studies: CLAS 104, CLAS 202, CLAS 205/MEDVL 205, CLAS 231, CLAS 232, CLAS 242/FINE 242, CLAS 252/HIST 252, CLAS 261/PHIL 250A, CLAS 325/RS 315, CLAS 327, CLAS 361/PHIL 380, CLAS 390, CLAS 461/PHIL 403
     - English: ENGL 200A, ENGL 208H, ENGL 305A, ENGL 305B, ENGL 309A, ENGL 309B, ENGL 310A, ENGL 310B, ENGL 310C, ENGL 361
     - Fine Arts and Music: FINE 212, FINE 214, FINE 242/CLAS 242, FINE 342/CLAS 342, MUSIC 253, MUSIC 363/RS 357
     - History: HIST 115/MEDVL 115, HIST 211, HIST 235/RS 240, HIST 236, HIST 252/CLAS 252, HIST 262, HIST 304/MEDVL 304/RS 342, HIST 317, HIST 329, HIST 347, HIST 379/RS 343, MEDVL 250R/SI 250R, MEDVL 251R/SI 251R
     - Latin: LAT 101, LAT 102, LAT 201, LAT 202, LAT 331, LAT 332, LAT 341, LAT 351, LAT 381, LAT 421, LAT 422, LAT 451
     - Modern European Languages: FR 151, FR 152, FR 192A, FR 192B, FR 291, FR 296, FR 410, GER 101, GER 102, GER 271, ITAL 101, ITAL 102, ITAL 155, ITAL 201, ITAL 202, ITAL 311/ITALST 311, ITALST 291, ITALST 360, RUSS 101, RUSS 102, REES 271, SPAN 101, SPAN 102, SPAN 445, SPAN 446W (see Laurier calendar)
     - Philosophy: PHIL 283/CLAS 261, PHIL 380/CLAS 361, PHIL 382, PHIL 403/CLAS 461, PHIL 404, PHIL 451J
     - Religious Studies: RS 110, RS 131, RS 132, RS 133, RS 134, RS 213, RS 214, RS 233, RS 240/HIST 235, RS 250, RS 315/CLAS 325, RS 342/HIST 304/MEDVL 304, RS 343/HIST 379, RS 354, RS 357/MUSIC 363

   Rationale: This proposal responds to student demand for a minor in this discipline and the proposed plan allows students to combine their main degree academic plan with a meaningful concentration in a topic that often elicits strong personal interest.

▶ **Professional Development Program**
Experiential Education Certificate

2. Motion: To approve the experiential education certificate plan as presented in Attachment #1 and effective 1 September 2017.

Rationale: This new certificate plan will support graduate outcomes for students in regular plans of study (not co-op) by integrating work and community-based experiential education opportunities with course work. The plan leverages numerous strengths at the university including processes and best practices for experiential education established within Co-operative Education and Career Action, existing work and community-based experiential education courses offered across campus, and the suite of professional development courses offered through WatPD.

Mario Coniglio
/mg Associate Vice-President, Academic

To: Senate Undergraduate Council

From: Experiential Education Theme Group

Re: Proposal to create new experiential education certificate program

Effective date: September 1, 2017

Rationale: to support graduate outcomes for students in regular (non co-operative) programs through a certificate program that integrates work and community based experiential education opportunities with course work in order to enable students to identify and articulate their skills

As stated in its strategic plan, the University of Waterloo aspires to "be the world leading university in co-op education and other forms of experiential and work-integrated learning."[1] In support of this goal, the experiential education theme group devised a specific action of "developing professional skills courses to benefit non co-op undergraduate students."[2] The EDGE program (Experiential Education Certificate) addresses this specific action by providing a curriculum which supports and recognizes work and community based experiential learning for students in regular (non co-operative) programs. EDGE leverages numerous strengths at the University including processes and best practices for experiential education established within Co-operative Education and Career Action, existing work and community based experiential education courses offered across campus, and the suite of professional development courses offered through WatPD.

Certificate requirements:

Students wishing to obtain the certificate will be required to complete the following components:

- one (1) skills identification and articulation workshop delivered in class or through the Centre for Career Action
- one (1) career development course
- three (3) experiential education (EE) courses each with a work or community based learning component. For each EE course and experience, students will be required to complete a reflection and to receive a performance appraisal from their work or community based partner
- one (1) capstone workshop or online module

Process for obtaining the certificate:

Students can indicate their interest in obtaining the Experiential Education Certificate either by enrolling in PD1 or by contacting the WatPD office. Tracking of each component will be completed by WatPD with support from the Registrar's Office. Students who complete all components of the certificate program will receive both a notation on their transcript and a separate certificate.

---

[1] "Experiential Education For All." 2013. Accessed March 29, 2016. https://uwaterloo.ca/strategic-plan/eight-themes/experiential-education-all.

[2] *A Distinguished Past - A Distinctive Future: University Of Waterloo Strategic Plan 2013*. 2013. PDF. Waterloo. https://uwaterloo.ca/strategic-plan/sites/ca.strategic-plan/files/uploads/files/c002637_strategicplan2013.sept3_.lowres_final-s.pdf.

Certificate coordinator: Waterloo Professional Development Program (WatPD)

Resource planning: We have worked with IAP on financial projections for the program. Funding has been approved for the necessary incremental positions to support the launch of the program. We are engaged with the Space Planning Office and have been ensured that there is sufficient space for the incremental requirements associated with the EDGE program.

Note on collaboration with CECA: As the EDGE program is implemented, we are committed to working with CECA to ensure appropriate alignment of resources, practices, and policies. We will work with CECA to manage relations with internal and external stakeholders, particularly employers, so that these critical relationships are maintained and fostered.

We will carefully monitor the EDGE program for any impacts to co-op programs and/or relationships and will make any necessary adjustments to protect and preserve these existing strengths.

Proposed calendar text:

Experiential Education Certificate Requirements

The Experiential Education certificate (EDGE program) recognizes and supports work and community based experiential education. Through completion of the certificate program, students acquire essential career seeking skills, learn to identify and articulate the skills gained through experiential education opportunities, and reflect on their interests, skills, goals, and experiences to identify post-graduation options. The certificate program is open to undergraduate students enrolled in regular (non co-operative) programs and is completed in tandem with their degree programs. The EDGE program is managed by the Waterloo Professional Development Program (WatPD).

The certificate consists of four components:

1. Skills identification and articulation workshop
2. One (1) career development course
3. Three (3) experiential education courses
4. Capstone component

---

1. **Skills identification and articulation workshop** – Students earn this milestone by attending a skills identification and articulation workshop offered by the Centre for Career Action or by successfully completing any course which offers the Skills Awareness and Identification workshop as part of the course content.
2. **Career development course** – Students fulfill this component by successfully completing either PD1: Career Fundamentals or an alternative from the Career Development Courses list.
3. **Experiential education (EE) courses** – Students fulfill this component by successfully completing Work or Community Based Experiential Education Courses. Alternatively, students may pair a Professional Development (PD) Course with an approved extra-curricular or co-curricular experiential education opportunity. For each of the experiences associated with the EE courses, students must submit a performance appraisal completed by their work or community based supervisor (or approved delegate). Upon completion of each experiential education opportunity, students produce a reflection assignment.
   Specific requirements follow:

   a. Students can complete any combination of three (3) Work or Community Based Experiential Education Courses or Professional Development (PD) Courses paired with an approved experience.
   b. Students must indicate their interest in counting Work or Community Based Experiential Education Courses towards the Experiential Education certificate by the end of the course add period.
   c. Students pursuing co-curricular or extra-curricular opportunities must have their opportunities approved and must be registered in a PD course by the end of the course add period.

d. To qualify for the Experiential Education certificate, co-curricular and extra-curricular activities must involve a minimum of 36 hours in any given term.
e. With the exception of PD1, PD courses can be taken only when paired with an approved co-curricular or extra-curricular opportunity.
f. Students wishing to take a Work or Community Based Experiential Education Course or Professional Development (PD) course which would exceed their approved course load may do so with permission of their undergraduate advisor.
g. Work or Community Based Experiential Education courses may be double counted towards the Experiential Education certificate and one other credential (see Double Counting of Courses).
h. Although Professional Development (PD) courses carry credit weight, they cannot be counted towards a student's primary degree.
i. There are many courses that provide optional opportunities for work and community based EE. With the approval of the WatPD Director or delegate, courses other than those on the approved Work or Community Based Experiential Education list may be used towards the course component of the certificate. Students are responsible for demonstrating the experiential nature of their course work.

4. **EDGE capstone** – students earn this milestone by completing an online module or by participating in EDGE capstone workshops. Students must have completed at least two (2) experiential education courses before attempting the capstone component.

Students can learn more about the EDGE program and register for the certificate on the EDGE website: http://uwaterloo.ca/edge.

<Lists of approved courses will be maintained on the EDGE website>

Skills Identification and Articulation Courses

The following courses offer a skills identification and articulation workshop as part of the course content or provide learning activities that achieve similar learning outcomes.

HLTH/KIN/REC 107	Sociology of Activity, Health, and Well-being
ENGL 119R	Communications in Mathematics & Computer Science
PSCI 299	Political Science Beyond the Classroom

<Lists of approved courses will be maintained on the EDGE website>

Career Development Courses

ARTS 111	Career Development and Decision Making
PSCI 299	Political Science Beyond the Classroom

<Lists of approved courses will be maintained on the EDGE website>

The following academic credit courses offer opportunities for students to engage in work or community based experiential education.

Work or Community Based Experiential Education Courses

DRAMA 206	Production Participation 1
DRAMA 207	Production Participation 2
DRAMA 243	Technical Production 1
DRAMA 244	Technical Production 2
DRAMA 306	Production Participation 3
DRAMA 307	Production Participation 4
DRAMA 316	Production Participation 5
DRAMA 317	Production Participation 6
DRAMA 400	Collaborative Performance Project
DRAMA 406	Production Participation 7
DRAMA 407	Production Participation 8
DRAMA 410	Collaborative Performance Project
DRAMA 416	Production Participation 9
DRAMA 417	Production Participation 10
ERS 340	Ecosystem Assessment
ERS 341	Professional Conservation and Restoration Practice I
ERS 382	Ecological Monitoring
FINE 243	Topics in Fine Arts Experiential Learning
FINE 343	Topics in Fine Arts Experiential Learning
GBDA 301	Global Digital Project 1
GBDA 302	Global Digital Project 2
GBDA 401	Cross-Cultural Digital Business 1
GBDA 402	Cross-Cultural Digital Business 2
GER 407	Applied Apprenticeship
HLTH 481	Community Learning Project
INDEV 401	International Development Placement 1
INDEV 402	International Development Placement 2
INTEG 452A	Real World Problem Solving A
INTEG 452B	Real World Problem Solving B
KIN 492A	Clinical Kinesiology -- Cardiac Rehabilitation Practicum
KIN 492B	Clinical Kinesiology -- Cardiac Rehabilitation Practicum
KIN 493	Clinical Kinesiology: Movement Assessment Practicum
PACS 390	Internship
PACS 395	Peace and Conflict Studies Travel Course
PSCI 498C	Civic Engagement Experience
PSYCH 465	Applied Apprenticeship

PSYCH 466	Emergent Literacy
PSYCH 467	Human Resources Apprenticeship
REC 253	Practicum in Therapeutic Recreation
REC 312	Practicum in Recreation, Sport, and Tourism
REC 450	Internship for Therapeutic Recreation
SCBUS 223	Science and Business Workshop 2
SDS 370R	International Learning Experience
SDS 496R	Applied Apprenticeship in Social Development Studies
SMF 460	Practicum and Professional Ethics
SMF 461	Practicum and Applied Theory
SMF 490	Practicum and Professional Ethics
SMF 491	Practicum and Applied Theory
SOC 434/LS 434	Sociology of At-Risk Youth

<Lists of approved courses will be maintained on the EDGE website>

Professional Development Courses (PD)

The following elective PD courses are available to students pursuing the Experiential Education certificate:

PD3	Communication
PD4	Teamwork
PD5	Project Management
PD6	Problem Solving
PD7	Conflict Resolution
PD8	Intercultural Skills
PD9	Ethical Decision Making
PD10	Professional Responsibility in Computing

University of Waterloo
SENATE
16 May 2016

FOR APPROVAL

Roster of Graduands

Since the roster of graduands will not be available until after the regular meeting of Senate in May and approval is required before the June meeting, the following motion is proposed:

Motion:

That Senate delegate such approval to its Executive Committee for its 6 June 2016 meeting.