University of Waterloo
SENATE
Notice of Meeting

Date: Monday 19 September 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 2-6 below.

2. Minutes of the 20 June 2016 Meeting Decision

3. Reports from Committees and Councils
   a. Graduate & Research Council Information
   b. Undergraduate Council Information

4. Report of the President
   a. Recognition and Commendation Information

5. Reports from the Faculties and Renison University College Information

6. Committee Appointment Decision

Regular Agenda

3:35

7. Business Arising from the Minutes

3:40

8. Teaching Presentation – Kelly Anthony, Lecturer, Teaching Fellow, School of Public Health and Health Systems Information

3:55

9. Reports from Committees and Councils
   a. Graduate and Research Council Decision
   b. Undergraduate Council Decision

4:05

10. Report of the President Information

4:20

11. Q&A Period with the President Information

4:35

12. Report of the Vice-President, Academic & Provost Information

4:45

13. Report of the Vice-President, University Research Information

4:50

14. Other Business

CONFIDENTIAL SESSION

4:55

15. Conflict of Interest Declaration

5:00

16. Minutes of the 20 June 2016 Meeting Decision

5:05

17. Business Arising from the Minutes Decision

5:10

18. Other Business Decision

29 August 2016
Logan Atkinson
JLA/kjj
University Secretary & General Counsel
University of Waterloo
SENATE
Minutes of the Monday 20 June 2016 Meeting


Guests: Bruce Campbell, Aldo Caputo, Emanuel Carvalho, Bill Chesney, Donna Ellis, Jennifer Harris, Shelley Hulan, Kate Lawson, Derek Madge, Nick Manning, Kevin McGuirk, Andrew McMurry, Marcel O’Gorman, Jennifer Simpson

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


*regrets

Organization of Meeting: Ian Orchard, vice-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.

2. MINUTES OF THE 16 MAY 2016 MEETING
Senate approved the minutes of the meeting.

3. REPORTS FROM COMMITTEES AND COUNCILS
Graduate & Research Council
Guidelines for Reappointment of Postdoctoral Fellows. Senate received the report for information.
Undergraduate Council
Senate received 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. COMMITTEE APPOINTMENTS
Senate approved appointments to the Senate Finance Committee (Robert Bruce, graduate student representative), Senate Long Range Planning (Samantha Shortall, graduate student representative, and Shannon Dea, Board of Directors of the Faculty Association of the University of Waterloo representative), Senate Graduate & Research Council (Jessica Brake, Lucy Vorobej, and Thouheed Abdul Gaffoor, graduate student representatives), Senate Undergraduate Council (Ian McKenzie, faculty representative from environment) and University Committee on Student Appeals (Robert Bruce, graduate student representative).

The question was called, and the motion carried.

Regular Agenda

7. BUSINESS ARISING FROM THE MINUTES
There was no business arising.

8. PRESENTATION
NAILA KELETA-MAE, ASSISTANT PROFESSOR, THEATRE AND PERFORMANCE, DEPARTMENT OF DRAMA AND SPEECH COMMUNICATION
Dr. Keleta-Mae informed Senators about her course “Beyonce and Beyond,” focusing on race, class and gender in her teaching. She commented on the overarching theme of her teaching, which she describes as a “pedagogy of justice.”


9. REPORTS FROM COMMITTEES AND COUNCILS
Graduate & Research Council
Senate heard a motion to approve the addition of a new “biomedical” field of research for research-based graduate programs in the Department of Electrical and Computer Engineering in the Faculty of Engineering.

Frank and Culham. Carried.

Senate heard a motion to approve the addition of a co-op option to the graduate diploma in design in the Department of Mechanical and Mechatronic Engineering in the Faculty of Engineering.

Frank and Culham. Carried.

Undergraduate Council
Senate heard a motion to approve a new diploma in Korean language and to approve a new level II certificate in Korean language in East Asian Studies at Renison University College.
These courses are taught in the East Asian Studies department, primarily by regular faculty.

Coniglio and Forstner. Carried.

Senate heard a motion to approve a new option in predictive analytics in actuarial science in the Faculty of Mathematics.

The question of integration of this new option with studies in the Faculty of Arts was raised, and Coniglio agreed to bring this back. Also, the question of the name of this option as “predictive analytics” as opposed to “data analytics” was reserved, and will be addressed at the next meeting of Senate.

Coniglio and Potter. Carried.

Senate heard a motion to approve a new bachelor of computer science plan in data science in computer science and a new bachelor of mathematics plan in data science in actuarial science in the Faculty of Mathematics.

Coniglio and Wolczuk.

Coniglio agreed to bring information back to Senate to address the lack of apparent interdisciplinarity in these programs.

Senate considered whether there is sufficient breadth in these programs. The proposal is intended to meet a request from students to develop a more specialized plan in data science, and the prospect of attracting students with a particular disciplinary interest.

It was observed that we must be careful with different faculties developing similar programs and plans with significant overlap, and this deserves attention. This is addressed to some degree at Deans’ Council, and discussions take place at Undergraduate Council where all faculties are represented.

The question was called, and the motion carried.

Senate heard a motion to approve a new option plan in finance for the mathematics/chartered professional accountancy co-op plan in the Faculty of Mathematics.

Coniglio and Wolczuk.

Coniglio was asked about the implications for scheduling through adding plans without also reviewing and possibly eliminating plans.

The question was called, and the motion carried.

10. REPORT OF THE PRESIDENT
In the absence of the president, there was no report.

11. Q&A PERIOD WITH THE PRESIDENT
In the absence of the president, there was no question and answer period.
12. REPORT OF THE VICE-PRESIDENT, ACADEMIC & PROVOST

Department Name Change. Senate heard a motion that Senate recommend to the Board of Governors changing the name of the Department of Drama and Speech Communication to the Department of Communication, Performance, and Design.

Forstner and Wray.

In discussion, Senators heard from Dr. Kate Lawson, chair of the Department of English Language and Literature. She spoke against the motion, saying that the proposed new name confuses areas of teaching and research in the Department of English Language and Literature. She pointed out that the consultations undertaken to support the change had no impact at all on the proposal, and that the proposal misleads students. She also emphasized the need for modifiers of the elements of the proposed name, distinguishing “design,” e.g., as it is understood in other units.

Senate also heard from Jennifer Simpson, Associate Professor in the Department of Drama and Speech Communication. She referred to the document circulated to Senate providing rationale for the proposal, and summarized the consultation by which the proposed name change was developed. Some overlap is unavoidable. There was a robust discussion at Faculty of Arts Faculty Council, and there was strong support for this proposal. Forty-four faculty members attended, and a majority supported.

In further discussion, the following comments were made and questions raised:

A question whether there is proper justification for the use of the word “Design” in the proposed name change. This is arguably inappropriate unless qualified to identify the audience more specifically. In response, it was observed that there is sufficient focus on design in the departmental offerings to justify use of the name.

There was suggestion that the report circulated to Senate may be misleading in that it does not reflect the divisions within the Faculty that are evident in debate at Senate.

The current name is thought by some to be limiting and misrepresentative of the current work of the department.

While there may have been robust discussion at Faculty Council, there is dispute as to whether or not there was robust deliberation. It is Senate, however, that is the body to make the recommendation to the Board of Governors. The name appears to be an elegant solution to the challenges with the name of this department, especially considering the external consequences of the proposed name change. This could have an impact on how departments are understood in relation to each other by external observers.

There may be resource implications as the terms in the proposed title may raise prospects that are not intended.

The name must be more than a patchwork of interests so as to give a clear message of the unit’s focus.

The process was followed and therefore Senate should respect that process. Senate should respect the time and effort that was put to developing the name by departmental faculty. It is difficult for Senators to fully understand the context out of which this proposal has emerged.

The question was called, and the motion was defeated.
**Course Hero Guidelines.** Coniglio advised Senate of the changes made to course outlines, Policy 71, and guidelines to faculty and students on communicating with outside entities where intellectual property is at stake. He reviewed the consultation path by which the guidelines and other changes were developed.

Some concerns were expressed about the changes in Appendix D to Policy 71, and the prospect of unintended consequences, especially the breadth of the phrase “unauthorized use.” The suggestion was made that some refinement of the phrase may be in order. Further, it is not entirely clear how approvals are to be obtained so as to claim “authorized use.”

The question of intellectual property in the final exam was raised, and Coniglio suggested that the guideline simply affirms what is already the case in this respect.

13. **REPORT OF THE VICE-PRESIDENT, UNIVERSITY RESEARCH**

Dixon advised that, consistent with the federal government’s promise to examine the manner in which research funding is delivered to the research community, and the “innovation infrastructure” in Canada, two committees have been struck to begin work in this respect, and they will be interested in receiving representation from interested parties.

14. **OTHER BUSINESS**

There was no other business.

Senate convened in confidential session.

21 June 2016

Logan Atkinson
University Secretary & General Counsel
Secretary to Senate
CONFIDENTIAL SESSION

Confidential minutes have been removed.
Confidential minutes have been removed.
Confidential minutes have been removed.
Senate Graduate & Research Council met on 13 June 2016, and on behalf of Senate approved course submissions, minor changes to plans and regulations, new graduate awards, and membership recommendations for research ethics committees. 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: https://uwaterloo.ca/secretariat/committees-and-councils/senate-graduate-research-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 (kinesiology; public health and health systems; recreation and leisure studies), arts (psychology), and environment (planning).

GRADUATE AWARDS
On behalf of Senate, council approved the Dr. Patrick Harrigan Graduate Scholarship, and the Edmund and Rosalie Appelt Graduate Scholarship.

NEW AND CONTINUING MEMBERSHIPS
On behalf of Senate, council approved the membership recommendations for the Clinical Research Ethics Committee and the Human Research Ethics Committee.

/mg
Jeff Casello George Dixon
Associate Provost, Graduate Studies Vice President, University Research
Senate Undergraduate Council met on 8 December 2015 and 21 June 2016, and Senate Graduate & Research Council met on 11 January 2016, and on behalf of Senate approved course submissions, minor changes to plans and regulations, and academic program review reports. Both councils 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

Course submissions and minor plan/regulation changes were approved for the faculties of arts (academic plan combinations; accounting & finance; anthropology; applied language studies; breadth requirements; classical studies; co-op requirements; East Asian studies; economics; English language proficiency requirement; fine arts; French studies; Germanic & Slavic studies; global business and digital arts; interdisciplinary topic specializations; international studies; liberal studies; music; philosophy; political science; psychology; religious studies; social development studies; social work; sociology and legal studies; studies in Islam; women’s studies), engineering (chemical engineering; mechatronics engineering; nanotechnology engineering), mathematics (actuarial science), science (biology; chemistry), and Renison University College (English for multilingual speakers; social work).

ACADEMIC PROGRAM REVIEW REPORTS

1. Final Assessment Report for geography and environmental management (Attachment #1).
   This report was approved by both councils in December 2015/January 2016, and was delayed in being brought forward to Senate due to an administrative oversight.
2. Final Assessment Report for knowledge integration (Attachment #2).
3. Two-Year Report for music (Attachment #3).
4. Two-Year Report for School of Public Health and Health Systems (Attachment #4).

Mario Coniglio
Associate Vice-President, Academic
Final Assessment Report of:
Geography and Environmental Management (Bachelor of Environmental Studies)
Geomatics (Bachelor of Environmental Studies)
Tourism (Master of Environmental Studies) and
Climate Change (Master of Climate Change)

December 2015

Introduction
In accordance with Waterloo’s Institutional Quality Assurance Process (IQAP), this final assessment report provides a summary and synthesis of (i) the external review of two Bachelor of Environmental Studies programs (Geography and Environmental Management and Geomatics), the Master of Environmental Studies program in Tourism and the Master of Climate Change program in Climate Change; (ii) the program (department) response to the external review; and (iii) an implementation plan for improvements that lists specific actions, timelines, required resources and responsibility.

The Department of Geography and Environmental Management offers the following undergraduate programs leading to a Bachelor of Environmental Studies:

- Geography and Environmental Management - Three-Year General
- Geography and Environmental Management - Four-Year Honours (Regular and Co-op)
- Honours Geomatics (Regular and Co-op)
- Honours Geography and Aviation (Regular)

The Geography and Aviation program has been recently reviewed separately, together with the Science and Aviation program.

The graduate Geography programs administered jointly with Wilfrid Laurier University (MA, MSc, MES, PhD) through the Waterloo-Laurier Graduate Program in Geography (W-LGPIG) are being reviewed separately. Graduate programs included in the current review are:

- Master in Climate Change (MCC), a coursework based degree that began with its first class in the fall term of 2013
- Master in Tourism (MES) degree, offered in cooperation with the Department of
Recreation and Leisure Studies in the Faculty of Applied Health Sciences. The department is moving to phase out this program due to persistently weak enrollments. No new Tourism students are being admitted in Fall 2015, although the Department of Recreation and Leisure Studies intends to admit a few students this fall and review the future of the program from their end. The reviewers evidently also determined this program was in trouble in their comment “we do not understand why the Master is Tourism is still an option. It does not seem to be a viable program”.

This report is one of three academic program reviews that have been prepared this year by GEM. In addition to the current report, GEM programs being reviewed include:

- the graduate programs offered by the Waterloo – Laurier Graduate Program in Geography; and
- the aviation degrees (Geography and Aviation, and Science and Aviation)

The last review of undergraduate and graduate programs administered by the department (including W-LGPIG) was undertaken in 2007. Eighteen recommendations were made, resulting in numerous improvements to curriculum (undergraduate and graduate), departmental web pages, student orientation, student recruiting, research and experiential learning opportunities for senior undergraduate students, oversight of space issues and computing resources.

**Department of Geography and Environmental Management**

From its 2013 strategic plan, the Department of Geography and Environmental Management is “committed to the discovery, innovation, dissemination, and application of geographic knowledge focused on the complex interactions within and between the human and natural environments. The Department embraces the goals of excellence in geographic research and excellence in geographic research-led teaching in undergraduate and graduate degree programs. It also seeks to stimulate and engage the sharing of geographic knowledge across the Faculty, University, and the wider global community.”

As of January 2014, the Department had 10 full professors, 12 associate professors, four assistant professors, and one continuing lecturer. There are currently 22 cross-appointed faculty to the Department. The cross-appointment is used primarily to allow these faculty to sit on graduate student committees.

The Department’s research and teaching activities fall into three broad areas: Earth System Science, Environment and Development, and Geomatics. Several cross-cutting research and teaching themes, such as climate change, are woven through all three of the theme areas. The Department’s reputation in Geomatics, GIS, Remote Sensing, Environmental Management, Economic Development, Tourism and International Studies distinguishes it from most other Geography programs. Unique to Geography at Waterloo are two new academic plans (Geomatics; Geography and Aviation) as well as two joint academic programs with Nanjing
University). Compared with other universities, the program at Waterloo provides breadth equal to other large undergraduate programs in Geography in Canada. Approximately 700 undergraduate students are enrolled in the various programs offered by the department, the second highest in the province, with over half of the undergraduate students in Geography in the co-op program. For graduate programs – including those that are part of W-LGPIG – Waterloo also has the second largest Geography graduate program in the province (39 at WLU, 70 at Waterloo).

The department’s QS rankings indicate that it has moved up through the past four years. Ranked in the 151-200 range in 2011, the department moved into the 101-150 range 2012, the 51-100 range for the years 2013 and 2014 and the top 50 in 2015.

**Self-Study Process and Site Visit**

The self-study was prepared by faculty and staff members of the Department of Geography and Environmental Management, with the chair of the department assuming primary responsibility for guiding the process. Statistical data related to faculty and student numbers, and finances were provided by IAP. In addition, departmental data on students were used to generate some of the tables, particularly in the sections on graduate students. An alumni survey was completed in 2013, by 111 individuals who graduated during the 2007-2014 period. Other information was obtained from publications of the Ontario Universities' Application Centre, the Canadian Association of Geographers, the Association of American Geographers and from web sites at UW and other universities.

The Department of Geography and Environmental Management submitted their self-study to offices of the Associate Vice President, Academic and Associate Provost, Graduate Studies on June 12, 2014. The site visit was conducted April 13-14, 2015. The external members of the review team were Professor Nigel Roulet, Chair and Professor of Biosciences, Department of Geography, McGill University and Professor Scott Lamoureux, Professor, Queen’s University, Department of Geography. The internal member was Professor Anindya Sen, Associate Chair, Graduate Studies, Department of Economics.

The review team met with program administrators and departmental faculty and staff, graduate and undergraduate students, the Faculty Dean and Associate Dean (Undergraduate Studies), the Associate Provost, Graduate Studies, the Associate Vice-President, Academic and representatives from the library and co-operative education. The reviewers also toured the Faculty of Environment buildings and the main map library.

The external reviewers’ report was received on June 10, 2015 and the department’s response and implementation strategy, with timelines, responsibilities and resource needs assessment was received on August 20, 2015 and approved by the Dean of Environment on August 19, 2015.
This final assessment report is based on information extracted, verbatim in many cases, from the self-study, the reviewers’ report and the program response.

**Programs**
The external reviewers noted that the learning outcomes for the programs under review were clearly laid out, and also commented on the “stronger emphasis at the University of Waterloo’s Geography on educating graduates for employment.... and the programs associated with the co-ops seems to be very well developed and successful.”

**Undergraduate:**
The objectives of the Geography and Environmental Management and Geomatics programs are well expressed through UW’s eight Undergraduate Degree Level Expectations (UDLES). The overarching programmatic objective is best captured in the first of the UDLES, namely to “have knowledge and critical understanding of the key concepts, current advances, theoretical approaches and assumptions in the field of Geography and Environmental Management and its various specializations (Earth System’s Science; Development and Environment and Geomatics).” From the alumni survey, the majority of students agree that the Department’s undergraduate program learning outcomes are being realized. However, results suggest that the Department needs to consider implementing strategies to enhance student awareness of cultural diversity; to provide specific transferable skills and to provide additional field work opportunities.

**Graduate:**
The self-study articulates the six Graduate Degree Level Expectations (GDLEs) for both graduate programs.

The overarching programmatic objective of the Master of Climate Change (MCC) Program is to provide an academic environment that promotes open critical interdisciplinary inquiry of the scientific and socio-political complexities of climate change, and prepares highly qualified graduates for ethical, innovative and professional practice in diverse climate change careers in government, civil society, business and local/international development.

The overarching objective of the Master of Environmental Studies in Tourism is to provide a constructive, critical, and interdisciplinary education that prepares graduates in careers in government, business, tourism and recreation planning, and consulting.

**Programs Under Review – Strengths and Challenges**

**Undergraduate programs - general**

**Strengths:**
- Students have a broad diversity of courses to support their programs and interests. GEM offered 66 undergraduate courses in 2013-14.
Students report a consistently high level of satisfaction with courses that they take in the Department as well as overall high level of satisfaction with the teaching performance of instructors. Furthermore, a high percentage of the courses are taught by tenured or tenure track professors.

The Department encourages a vibrant learning community via seminars and conference opportunities, and opportunities to interact with graduate students as well.

Students continue to show strong interest in the co-op programs.

The Department’s honours programs are becoming increasingly attractive to foreign applicants.

Both the co-op GEM and co-op Geomatics programs have higher retention rates than the regular versions of these programs, and numbers are increasing over time.

Co-op employers give GEM and Geomatics students a rating of at least very good, with approaching half, in each case, assigning an excellent rating.

Co-op students are largely satisfied with their co-op experiences. During the reporting period, three-quarters of the Department’s co-op students (75.9%) rated their employees at least 8, on a 10-point scale.

Post-graduation outcomes are favourable for both GEM and Geomatics students – the majority of graduates continued their academic career following graduation, with 89% attending either a graduate or professional school. Most indicate working in an occupation that is closely related to their undergraduate program.

Specific to Geography and Environmental Management:
- There is growing interest in the GEM program by international students (5.3% were of international origin in 2007/2008, 10.7% in 2013/2014)
- Genders are evenly represented

Challenges:
- Both the regular GEM and regular Geomatics programs have retention issues Part of this could be explained by the transfer of students to other programs within Geography and Environmental Management
- Specific to Geography and Environmental Management:
  - Interest from high school students has become flat in recent years
- Specific to Geomatics:
  - Females are not well represented in Geomatics enrollments, although the proportion of females has increased slightly over time (from 10.5% to 14.7%;
  - Total applications to Geomatics have declined over the seven years (from 80 in 2007/2008 to 70 in 2013/2014), although annual fluctuations are observed. However, despite declining applications to the Geomatics program, first-year enrollment has increased, due to admission of students deflected from Computer Science.
  - From their meeting with Geomatics students, the reviewers heard that there was little guidance for course selection.
Graduate programs – general

Strengths:

- Graduate students are supervised by top-ranked, successful faculty, as measured by awards from various academic, research, or other organizations; significant funding from a variety of sources; peer-reviewed publications and other indicators of productivity; memberships in various editorial boards; executive roles and memberships in professional associations; etc.
- Programs attract international students, who enrich the program.
- The Department encourages a vibrant learning community for graduate students with numerous opportunities for graduate students to participate in conferences (including international), seminars, workshops, various public events and exposure to international scholars as visiting faculty.
- Specific to Master of Environmental Studies - Tourism
  - Quality of students coming into program has been very good
  - A number of students in the program have gone on to pursue doctoral studies, either at Waterloo or at other institutions.
  - The reviewers commented that “Plans for growth appear particularly timely given the recent announcement of major climate-policy initiatives in central Canada.”
- Specific to Master of Climate Change – Climate Change
  - The professional internship option provides an opportunity for experiential learning
  - The MCC student cohort exhibits extraordinarily great diversity in any metric which can be used to assess diversity. It includes a large proportion of internationally trained students (6/13) and gender balance (6 males, 7 females).
  - While the MCC Program has yet to graduate a student, initial employment prospects appear promising. Of the 13 students in the program, 10 have secured internships.

Challenges:

- Specific to Master of Environmental Studies - Tourism
  - Enrollments are weak – program will be phased out in Faculty of Environment
- Specific to Master of Climate Change – Climate Change
  - International students have difficulties identifying and securing internship opportunities in Canada.

External Reviewers’ Report

The reviewers were generally favourably impressed with the programs under review but there were several areas that were specifically mentioned in their report as being problematical.

“Since almost all professors in the program are traditional teacher-scholars, we were unable to assess at least fifty percent of their activities. We were not able to form any opinions of the great undergraduate experience that often comes from being an..."
undergraduate in a strong research department. ... We had little opportunity to form much of an impressions of the strengths in human geography. This puts the reviewers at a bit of a loss on what to suggest may be fruitful avenues to explore.

The final general aspect of our review that was unexpected was the almost complete lack of representation from the Geography Tourism Masters program. ... the general lack of details in the written report in comparison to the other graduate programs we reviewed, and the complete lack of any discussion during our two day visit, indicates to us that this program exists in name only. Without champions and supporting faculty we see little value of continuing with this program.”

The latter issue noted by the reviewers concerning the Tourism Masters program stems largely from plans to discontinue the program due to low enrollment. Even though the Department has not admitted any new students to this program for the fall of 2015, Applied Health Science’s Department of Recreation and Leisure Studies is still admitting Tourism Masters students. The final fate of the Tourism masters program will be determined following discussions with the Department of Recreation and Leisure Studies in the coming year.

Regarding admission criteria, the reviewers indicated those for the undergraduate programs were “fine” but “were very confused by the graduate admissions and the criteria for admitting students. ... the report and our discussions did not lead us to have a lot of confidence that GEM was striving to get the top students”.

The reviewers’ comments on the undergraduate curriculum led them to state that it reflects “to a large extent the current state of the discipline of Geography, or at least several thematic areas of Geography quite well. Clearly, to us the Geomatics program is probably the most complete and rigorous program in Canada.” With reference to physical geography, they observed that students graduating from the GEM programs earned a BES rather than a BSc and wondered as a result whether the lack of mandatory basic science courses in the curriculum (calculus, algebra, chemistry, physics, biology) put these students at a disadvantage in applying for graduate positions at other institutions where physical geography was more strongly underpinned by basic science at the undergraduate level.

The human geography theme area also prompted comment on several issues. “First, there was no coherent presentation of a program through curriculum mapping. It was not clear what the goals and objectives of the human geography offering were, or what a human geographer graduating from the University of Waterloo looks like.”

Regarding the theme of the geospatial analysis of public health, the reviewers noted that with the exception of one recent addition to the Faculty, “[N]one of the existing human geographers seem to have a particular strong emphasis in health geography”. They further commented that “Waterloo uniquely has an emphasis on many dimensions of public health, which should have a
very strong geographical component. Given the strength in Geomatics at Waterloo this might be an area worth exploring.”

Concerning resources, the reviewers paid a significant compliment to the Department’s staff and faculty in that the reviewers “were very surprised to not hear a long list of complaints about how under-resourced the GEM was”, which was not a reflection of having all the desired resources, but learning to do an excellent job with the resources at hand. Minor space concerns were raised, which the reviewers noted was a common complaint in universities in general.

The reviewers indicated that the “additional criteria” for graduate programs as described in the guidelines for reviewer “seem to be fine” and their comments regarding the Tourism program and Climate Change program have been articulated earlier in this report. The reviewers noted that, with respect to a possible Master in Geomatics program, “GEM has the faculty and the expertise to mount a high-end graduate program that we believe few other institutions could match” and they recommended this initiative be approached as a “co-op graduate program because we believe these students would be very attractive in industry and could, given the emergence of this field in the mainstream economy, could be business innovators.”

The reviewers concluded their report with a series of 11 recommendations that provided the basis for the program response.
Program response and implementation plan

**Recommendation 1:** We recommend that GEM consider a strategic visioning of the Department as a whole, to define future plans and identify priorities for faculty positions, undergraduate and graduate teaching programs, and resources.

**Response:** We agree with this recommendation. Discussions around the future of the department are ongoing. Currently, we are reviewing our experiential learning activities, our undergraduate recruitment activities, and the overall research and teaching focus of the department, with a particular emphasis on human geography. These activities will continue over the next year with the specific goals of: reviewing and revising the undergraduate and graduate curriculum, clarifying and improving our experiential learning activities, and arriving at a plan for future hiring, with a focus on human geography. These activities will be led by the department chair and associate chairs.

**Recommendation 2:** Undergraduate student advising and mentorship should be broadened within the department to include a wider range of faculty and on a more frequent basis.

**Response:** We will take this recommendation under advisement. The department has two associate chairs and two staff who are available to advise students on academic and curriculum matters. We are not aware of any complaints from students regarding a lack of access to academic advising. Further, we are concerned that other faculty in the department do not have sufficient knowledge of policies, procedures, and curriculum requirements to provide accurate and uniform advice. Over the next year, we will review and discuss our current academic advising activities with student representatives to determine if adjustments are required to improve the service we provide. This activity will be led by the department chair and associate chairs.

**Recommendation 3:** We strongly recommend the Department seek to improve communication with undergraduate students related to course enrollment. Determining Department course offerings prior to student registration would eliminate many challenges faced by students in meeting their program requirements. Additionally, given the complexity on offering courses due to the co-op programs, we recommend the Department consider multi-year course planning to improve student access to courses.

**Response:** We agree with this recommendation. We currently advise students of our term-by-term course offerings one year ahead of time. However, the specific scheduling of these courses in each term is handled by the Registrar’s Office, with notice of the schedule given about two months prior to the start of that term. This scheduling of classes and times is beyond the control of the department. We will review our communication of course offerings to students to improve the availability of this information and lengthen advance notice of course offerings. This activity will be led by the chair and associate chairs over the next year.
**Recommendation 4:** The program in Human Geography is in a transition period and we recommend initiating a review and visioning for the program to reflect the current faculty complement. We anticipate elements of the geography of health would be well supported by the expertise in the group, and natural linkages could be developed to the Geomatics and other units in the Faculty and across campus.

**Response:** We agree that the Department is in transition with respect to its strengths in Human Geography. We would note, however, that the Department’s combined strengths in the human and physical dimensions of climate change place are noteworthy, and the ways in which social science and natural science are integrated around this theme reflect an important aspect of Waterloo’s Geography programming, and that is Human and Physical Geography do not exist as two silos. That said, we agree that a review and visioning exercise is needed, with a particular focus on human geography, and this has been underway for the past year. These will continue with a view to outlining a vision for the Department that will guide future hiring. This activity will be led by the department chair and associate chairs.

**Recommendation 5:** The program in Geomatics has rapidly developed and appears poised for further growth. Increased promotion to incoming undergraduate students with interests in computing may further increase enrollments.

**Response:** We agree with this recommendation. We have recently struck a committee for undergraduate recruiting. This committee will develop a strategy that will include raising awareness of geomatics amongst high school students. Additional resources from the Dean’s Office may be required for promotional activities, such as the revival of the “Geomatics Roadshow” or the preparation of promotional materials. This activity will be led by the department chair, working with the undergraduate recruitment committee.

**Recommendation 6:** Development of a Masters program in Geomatics appears to hold strong potential. The existing faculty complement could support an advanced program that would be uniquely positioned to train students for research and development aspects of Geomatics. A co-op offering would be a logical consideration given the university strengths.

**Response:** We agree with this recommendation. Discussions regarding the development of a masters in geomatics have taken place in the past. The department will consult with the Dean of Environment to explore the feasibility of developing a co-op masters in geomatics.

**Recommendation 7:** The new Masters of Climate Change program has already built a strong international attraction and had positive feedback from students. Maintaining the “lead” of this program in a rapidly developing sector in Ontario and globally will require continuing to innovate in order to attract high quality students. We recommend considering the development of co-op and research program streams to better meet student career goals and to make sure that student expectations are being matched effectively.
Response: We agree with this recommendation. Over the next year, we will explore and discuss the possibility of adding a co-op stream to the MCC program. This initiative will be led by the Director of the MCC program, working with the department chair and associate chairs.

Recommendation 8: The Masters of Tourism appears to be at a crossroads, with declining enrollments and a change in the faculty complement that makes the viability of this program questionable.

Response: We agree with this observation. GEM has already decided to discontinue offering the Masters in Tourism. The Department of Recreation and Leisure Studies has decided to admit students to the Tourism program for the fall of 2015. However, they will review their commitment to the program over the next year. We will coordinate with them as they make that decision.

Recommendation 9: Based on feedback, we feel that the Department needs to invest in expanding cultural and related support for the programs that attract a sizable international cohort (2+2, Masters of Climate Change).

Response: We will take this recommendation under advisement. The Faculty of Environment has a full-time Coordinator of International Education who works with international students, and especially the 2+2 students, to support their adjustment to the Canadian academic environment. We will work with the Dean of Environment to review the activities of the coordinator and address any perceived needs.

Recommendation 10: Graduate student application review and acceptance practice in the Department appears to be heavily weighted towards support staff with limited academic oversight. The volume of applicants and the screening process should be reviewed to increase faculty involvement.

Response: We disagree with this assertion and recommendation. Support staff facilitate the review of graduate applications, but they do not make decisions with respect to the admission of graduate students. The final decision regarding the admission of each applicant is made by the potential faculty advisor of that student and the Associate Chair – Graduate Studies, under the supervision of the Associate Dean – Graduate Studies.

Recommendation 11: Support staff in the Department are in the process of developing documentation for best practices and procedures to enhance the continuity of staff support. We recommend continuing to support this positive initiative.

Response: We agree with this recommendation. This activity will be ongoing, under the supervision of the department chair.
Summary of the Program Review:

In accordance with Waterloo’s Institutional Quality Assurance Process (IQAP), this final assessment report provides a synthesis of the Department of Knowledge Integration’s self-study, external evaluation and the internal response of the program. The self-study was submitted to the Associate Vice President, Academic on June 25, 2015. Volume I presented the program descriptions and learning outcomes, an analytical assessment of the BKI program, and program data including feedback collected from students and alumni. Volume II included the CV’s of instructors associated with the Knowledge Integration (KI) program, and Volume III listed a number of arm’s-length external reviewers.

The suggested external reviewers were ranked and selected by the Associate Vice President, Academic. The reviewers were Dr. Frédéric Bouchard (Associate Professor, Department of Philosophy, Université de Montréal) and Dr. Alastair Summerlee (Professor, Department of Biomedical Science, University of Guelph). The internal reviewer was Dr. James Skidmore, Professor, Department of Germanic and Slavic Studies.

The reviewers examined the self-study documentation and participated in the site visit on November 12-13, 2015. The visit included interviews with the Associate Vice President, Academic, Mario Coniglio; the Dean of the Faculty of Environment, Jean Andrey; the Associate Dean, Undergraduate Studies, Jeff Casello; and Rob Gorbet, Chair of the Department of Knowledge Integration. Meetings were held with individuals working with Mapping, Analysis and Design (MAD) as well as Waterloo Unlimited (WU). Reviewers had lunches with current Knowledge Integration students and separately with KI faculty members, and breakfast with alumni. Staff members also had the chance to meet with the reviewers. In addition, the reviewers observed part of an INTEG 120 class in the Knowledge Integration Studio and toured the Faculty of Environment workshop.

The external reviewers’ report was submitted on December 3, 2015 and the department’s response and implementation strategy was received on February 23, 2016. Endorsement of the program response from the Dean of Environment was received via email on March 9, 2016.

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

Program characteristics:
Knowledge Integration is a four-year, regular (i.e., non-co-operative) honours undergraduate program. Students completing the program are awarded a Bachelor of Knowledge Integration (BKI) degree. As with most undergraduate programs at Waterloo, admission is by direct entry in first year, although students have transferred into KI from other programs. In addition, there are several options for students registered in other programs to get varying types of KI experience: concurrent degrees, joint honours with BKI, minor in Knowledge Integration and an option in Knowledge Integration. Approximately 25% of KI students complete a joint degree with another honours program. An additional 58% of KI graduates thus far have completed at least one minor in another area.

The department’s steady-state faculty complement is four. Current first-year intake is between 25 and 30 students, with an eventual target of 40 majors with another 10 minors. KI currently admits about 60% of their applicant pool, with about 50% of those confirming. In addition to the BKI undergraduate program, it runs the Waterloo Unlimited high-school outreach program on behalf of the University; it does not currently have a graduate program.

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

Strengths

BKI Students are:

- engaged, reflective and knowledgeable according to employers, fourth-year thesis supervisors, and faculty across campus with whom they interact through their elective courses
- well represented on the Dean’s Honours List (60%-70% of the graduating class each year, and a cumulative average over 83%)
- successfully completing their BKI degree (there is a 91% retention rate of students who are registered in KI in their 2A term)
- able to benefit from the connectivity this program has with the rest of campus through guest lecturers, breadth and elective courses taken across campus, upper-year thesis supervision, and other meaningful engagement of faculty outside the department and Faculty,
- able to enjoy a flexible program that:
  - enables them to think broadly across disciplines, acquire depth through their area of concentration and pursue their individual academic interests
  - is characterized by a small cohort size and intentional opportunities for cross-cohort interaction (e.g., INTEG10, museum field trip to Europe) that help build a tight community

Faculty are:

- dedicated to the success of the BKI program
- highly engaged in research, teaching, and service - two of their five faculty members have received Waterloo’s Distinguished Teaching Award two others (including the Senior Design Demonstrator) have been short-listed for this prestigious award

Challenges

- Student recruitment suffers from difficulty in identifying their target audience. The program’s 2012 strategic plan sets an annual enrolment target of 40 students in the KI
major and an additional 10 students doing the minor, which implies doubling the current cohort size

- Identifying suitable space to house the Museum Course projects during their public showing is an ongoing challenge
- the Waterloo Unlimited program supports KI, both as a tool for recruitment and as partial support for two of its staff positions (0.9 FTE total)

**Weaknesses**

- The department has a small number of faculty, half of whom are pre-tenure. Sessional instructors are recruited when faculty are on sabbatical
- Student feedback suggests the curriculum requires refinement to better articulate the connections between and sequencing of courses, and the program structure and goals
- Faculty, staff, and students indicate the weekly community seminar (INTEG 10) is not being used to its fullest potential
- There is no co-op version of the program although many existing KI students have been successful at finding their own summer internships

**Opportunities for Improvement and Enhancement:**

- Curricular improvements should include:
  - more scaffolding to help students make connections throughout the curriculum, either through changes to INTEG10 or possibly through the adoption of an e-portfolio exercise
  - better coordination of deadlines for course deliverables during Winter courses to assist both students and faculty
  - helping students identify an area of interest earlier on in the program, so it can frame selection of breadth electives and eventually career plans
  - development of KI courses for non-KI students would increase KI’s connections across campus through teaching
- KI should enhance marketing and awareness building of the program by profiling successful alumni
- KI should formalize an optional internship so that students who are interested in a co-op experience would consider the KI program
- Faculty research interests should be leveraged creatively to emphasize the value of interdisciplinarity in working on complex problems in the 21st century

**Summary of key findings from the external reviewers:**

Overall the external reviewers were very impressed with the KI program and considered it to be well conceived, executed and supported by a very dedicated, supportive faculty. Reviewers found that students and alumni were complimentary about the program, the faculty and the University, and the current resources available support the current program needs. The reviewers viewed the KI program as an innovative approach to the concept of a more
traditional ‘liberal arts undergraduate degree program’ and saw it as being entirely consistent with the external perception of the innovative solutions and programs provided at the University of Waterloo.

The reviewers identified a number of issues, however, and these are addressed below in the program response.

Program response to external reviewer recommendations

1. Consider a rebranding exercise for the program. The words “knowledge integration” are not necessarily readily understood, especially by applicants but also by parents and others involved in decision-making about programs to study at University. Coupled with the lack of clarity of the marketing of the program, there is an opportunity to find ways to simplify and solidify the messaging around the KI program. There is a need to explain why design thinking is directly and critically linked to the future of employability in the workforce which is currently lacking. There is already a sense that the program has branded itself by default as the “KI program” and there may be elements of that concept that could be developed. Creating a clearer brand and brand recognition will lead to more effective response to the next set of recommendations.

   Response

   KI agrees that this is an important priority that, as the reviewers point out, is distinct from marketing and will in fact make their marketing efforts more effective. In focus groups run during research for the self-study report, different students reported differences in the way the program was represented over time and by different staff or faculty. In the reviewers’ report, there are multiple comments which call for clarity on things such as the role of design thinking in the program and of “thinking with your hands,” and suggestions to clarify the goals of the program in language suitable for a 17 year-old applicant. We believe the reviewers have rightly identified a fundamental area for focus: identifying and clarifying the Knowledge Integration brand.

2. Adjustments to the marketing and advertising strategies for the KI program

   Reviewers suggested KI develop a more coherent marketing and advertising strategy for the program including integration of the messaging throughout all the media used to advertise the program. It is further recommended that proactive use of social media should be included in this exercise.

   In addition, there should be greater focus on the critical structural elements of the program including design thinking and prototyping. The descriptions of design thinking and its relevance to the workplace of tomorrow should be clearer in the advertising material. There should also be greater focus on important philosophical aspects of the programming including “solving real world problems”.

   Response
Once KI has completed a branding exercise, they intend to undertake a revision of their marketing and communication strategy and materials, including but not limited to: web redesign, social media strategy, and print materials. The reviewers specifically mentioned clarifying the description and focus on the relevance of Design Thinking philosophy and practice.

3. Curriculum

The reviewers suggested that KI rethink the name, aim and scope of the Museum Course. Physically bound knowledge mobilization exhibit stations are an excellent project to have and are a strength of the program, but limiting it to the museum context may limit its appeal and pertinence, and creates a dissonance with the pedagogical and professional goals tied to the program.

The reviewers recommended enhancing the opportunities for students in the program to reflect more carefully on career options through more effective academic course mapping. This could be achieved by restoring the academic curriculum mapping exercise that was originally present in the 1A core course or by deliberately creating an opportunity for all students to meet one-on-one with staff to discuss career and course choices at the end of each academic year.

It was also suggested that KI increase the presence of entrepreneurism and social entrepreneurism within the curriculum and its promotional material. The reviewers indicated that there were several oblique references to the importance of these topics but no clear reference to their presence in the core courses or the promotional materials.

Furthermore, the reviewers recommended exploring opportunities to create clearer links with the Faculty of Environment without making the connection too explicit. There are definitely contraindications for recruitment to label the program as connected with ‘environment’ too strongly. However, reviewers felt that there is an opportunity to steer some, if not all, of the fourth year projects towards local city and community-based activities.

Response

Knowledge Integration feels that their core and broader program curriculum are strong, while acknowledging the opportunities for improvement pointed out by the reviewers. They are planning a review of the scope and goals of the Museum Course, and have already been discussing formalizing student selection of an Area of Concentration at the end of 2B as well as regular reflections on course selection. In addition, they plan to expand their current integration of social entrepreneurship and environmental sustainability within their courses, and will consider mounting related elective courses.

Additional curricular projects include revisiting the goals and structure of INTEG10, introducing a Science, Technology and Society (STS) specialization, and increasing the explicit structure of the program. In addition, KI notes that it is important for them to
continue work on developing courses for delivery in large classes to students from across campus.

4. **Resources available to support the program**
   The reviewers indicated that KI should explore ways to create a better balance between the strong identity of the program and the intensity of current faculty ownership of the program. There are opportunities to expand faculty resources by encouraging adjunct/joint appointments with faculty in other parts of the university (a simple start would be an official designation for faculty who currently supervise students in the fourth year projects but the connections could be more substantial than that). Moreover, opportunities such as joint or team teaching the core courses should be considered by bringing in faculty from other units across campus, and recruiting faculty from other universities nearby who might be interested in teaching within the core courses of the program.

KI was encouraged to engage members of the wider University of Waterloo community by better advertising their Friday seminar and attracting people to take an interest in and thereby understand the KI program and its aspirations more effectively (i.e., broaden the base of faculty support for the program to a wider audience). The reviewers stated KI also might include in this advertising, conferences and presentations developed by the students in their final year projects.

Last, in regards to resources, reviewers stated that KI should consider developing a more effective and transparent financial modelling system for equipment replacement and upgrades in the MAD facilities.

**Response**
KI agrees with the reviewers, that the available resources are sufficient given the current program size. Questions raised by the reviewers about financial planning for the MAD workshop and plans to extend into more of a “maker space” are not within the purview of KI, though they will pass on the comments to the MAD Director and Dean. KI appreciated the reviewers’ strong encouragement, based on their experience and observations of activity-based budgeting at other institutions, that activity-based budgeting be “used for decision making at the Faculty level and above.” This will be critical for Knowledge Integration given the class size and pedagogical model, which sees their students taking a lot of courses from other units across campus.

There is currently strong support across campus from those who know about KI, including dozens of faculty members who enthusiastically teach and supervise KI students in their thesis work. The department recognizes that they could increase the understanding of KI among those who remain unaware of the program. This is a slow process, and revision of our approach to marketing internally will likely increase the
effectiveness of our current channels for advertising the seminar, conferences, and student projects such as the annual Museum Exhibit and fourth year thesis Symposium.

The department will consider suggestions for formal adjunct and joint appointments, within the framework of what’s possible at the University. The activities and budgeting of MAD are beyond the scope of KI’s mandate.

5. Faculty efforts

The reviewers encourage greater scholarship on the pedagogical impacts of “KI-thinking” and cognitive development among students. The reviewers recommended that the University seek to codify the process of the understanding of the ‘cross-appointment’ letter that is made available to faculty engaged in the KI program. It is the understanding of the reviewers that such a letter, whilst recognized as best practice in other institutions, is neither common nor codified in human resources practices at the University of Waterloo. This has the potential to expose the University in the event of a challenge in promotion and tenure processes.

Response

Several of the KI faculty are interested in SoTL research and appreciate the reviewers’ suggestions to study the effectiveness of the program within the Waterloo context. As resources become available for such research, we will plan to undertake it. KI strongly supports the implementation at Waterloo of best practices regarding MOUs for cross-appointments. We will pass on the comments to the Secretariat and will be happy to work with them and FAUW to share our research and practices to determine whether, and how best to, extend these campus wide.

6. Other aspects that could be considered

The Knowledge Integration program attracts some of the best students nationally and is competing against the highest level scholarships (often referred to as “President’s Scholarships”) in other institutions, but the KI program cannot match the dollars offered to these students. The reviewers stated that KI consider ways to provide high level scholarships for their students as a competitive recruitment tool.

They also indicated that KI consider developing a more active approach to placing the exhibits from the current third year “Museum Course” not only in other places in the University of Waterloo, but expand the reach and notoriety of the program by negotiating opportunities to display the exhibits in the city Museum and possibly in the museums of neighbouring cities.

Knowledge Integration should also consider capitalizing on the opportunities presented by the approach to problem-solving and design thinking used in the KI program to expand offerings to other groups of students. For example: the program could run transition programs for students entering any program at the University of Waterloo –
such activities may significantly help in the transition of students from high school to university. But similar offerings could be made as orientation to graduate programs where problem-solving skills and design thinking are at best very different among students.

Response
KI indicated that expanding the reach and partnerships related to the Museum Course beyond the University, is already underway. Two student exhibits are being shown at THEMUSEUM in Kitchener from March to May 2016 as a pilot, and the museum is interested in hosting all the projects in future years. We also have a strong collaboration with the Waterloo Regional Museum, with several students working there each summer and loan arrangements for objects for the student exhibits. A review of the course will need to consider an expanded project scope and identify potential corresponding partners.

The department will continue to monitor surveys of non-converts as well as including questions in exit interviews about the importance of large scholarships. With limited resources available, we continue to believe that spreading the funds widely is more effective than offering fewer large scholarships. We will of course continue development efforts to increase the funds available for KI entrance scholarships.
### Implementation Plan:

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| 1. **Complete a branding exercise for the program.** | We look forward to working with Faculty-level and University-level Marketing and Undergraduate Recruitment (MUR) units to identify the appropriate expertise on campus. Should it be necessary, we would look to the Faculty to provide resources to engage external expertise. | Chair                                                                  | December 2016 Plan in place (identify resources, develop detailed timeline)  
Oct 2017 Branding exercise complete in time for 2018 admissions cycle |
| 2. **Review and revise marketing and communication strategy and materials.** | The reviewers identified social media as a particular area in which we could do better, and we will seek out expertise within MUR and Communications (and externally if necessary) to help develop social media strategies and expertise within KI. | Chair                                                                  | Nov 2017 Any new initiatives (e.g., around Fall Open House) and updated web material developed  
Jan 2018 Social media strategy developed and implemented, including any necessary training  
Winter 2018 Updated print marketing materials developed for 2019 admissions cycle |
| 3. **Complete review of the Waterloo Unlimited structure and implementation** | One of the goals of the review is to identify a model that would allow the Waterloo Unlimited program to move to a more stable funding situation through budget restructuring and continuing development efforts. | Director of Waterloo Unlimited                                           | Mar 2016 Contact reviewers for clarification on their comments about Waterloo Unlimited  
Jul 2016 Confirm staffing for 2016-2017 programming  
Nov 2016 Clarify funding for 2017-2018 and beyond |
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<td>4. Implement work-integrated learning more formally (but still optionally) in the program.</td>
<td>Working with WatPD, we will pilot an optional WIL recognition program in Spring 2016. We will build on this pilot in subsequent years in order that our students can take best advantage of their summer work experiences, connecting them explicitly with knowledge and skills gained on campus, and with their career goals.</td>
<td>Chair</td>
<td>Apr 1 2016 Draft a proposal for a WIL pilot in Spring 2016, including suitability of existing WatPD courses. Apr 15 2016 Identify 5-10 students to participate in the WIL pilot. Nov 2016 Review of pilot and decision on path forward in time for 2017 recruitment activities/website.</td>
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<td>5. Increase the presence of entrepreneurship and social entrepreneurship within the curriculum. Review opportunities to better connect curriculum and student projects indirectly with Environment.</td>
<td>We will undertake discussions among the faculty to flesh out these suggestions, as well as consider the broader question of KI/Environment integration.</td>
<td>Chair</td>
<td>Jul 2017 Identify opportunities for curriculum integration and reflect on KI/Environment integration.</td>
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<td>6. Implement pending curriculum changes.</td>
<td>Rationalizing and leveraging our existing courses, including: offering popular special topics/elective courses on a two-year rotating cycle (e.g., Creative Thinking, Research Methods); introducing a Science, Technology and Society (STS) specialization; and reviewing the structure and purpose of the INTEG10 seminar. There may be minor implications for workload related to changes in INTEG10; these will be monitored.</td>
<td>Associate Chair Undergrad</td>
<td>June 2016 changes ready for implementation for the 2017-18 calendar cycle.</td>
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<td>7.</td>
<td>Increase the structure of the curriculum. This recommendation fits very well with opportunities for improvement already identified these include: requiring students to reflect periodically on the relationship between their past courses, those they plan to take, and their post-graduation interests; requiring students to submit a formal description of their area of specialization (whether or not this aligns with an existing option, minor, specialization, or joint degree), by the end of 2B; introducing more structure to first year, to require students to complete more of their breadth electives earlier in the program; considering the introduction of additional breadth electives (e.g., a course in conflict management) to the program.</td>
<td>Associate Chair Undergrad</td>
<td>June 2017 changes ready for implementation for the 2018-19 calendar cycle</td>
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<td>8.</td>
<td>Develop new course offerings designed for a campus-wide audience. We are currently pursuing the creation of a large 2nd year course on Collaboration (INTEG210), involving three upper-year KI students in that course design process. We are also considering the feasibility of providing an upper-year applied group design course for non-KI students, as part of the University’s proposed EDGE Certificate in experiential education. KI participation in the core of the EDGE Certificate is not yet finalized, but we intend to design and offer INTEG210 to students across campus, independent of the EDGE Certificate.</td>
<td>Associate Chair Undergrad (leading INTEG210) and Chair (leading EDGE connection)</td>
<td>Mar 2016 nature of KI’s EDGE Certificate participation confirmed (for Apr 12 2016 SUC meeting) Winter 2018 First offering of INTEG210</td>
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<td>9. Review the aims, title, and scope of the Museum Course. Consider placing the product of the Museum Course beyond the University.</td>
<td>We agree that the scope can be revised without losing the important aspects of knowledge mobilization, impactful engagement, and communication to lay audiences. In particular, there may be opportunities in this review to better connect to (or at least provide access to) environment-themed projects and partners (see Recommendation 5). This is a significant undertaking, as the “Museum Course” is actually a sequence of four courses (1.5 units) taken from 2B to 3B, including an international field trip. In terms of expanding the reach and partnerships related to the Museum Course beyond the University, this is already underway.</td>
<td>Museum Course instructor (who is also the current Department Chair)</td>
<td>Mar 2017 High-level revision of the goals and scope of the Museum Course&lt;br&gt;Sep 2017 Detailed revision of learning objectives, delivery model, partnership possibilities, field trip&lt;br&gt;Nov 2017 Detailed course re-design for INTEG230/231&lt;br&gt;Winter 2018 First cohort under revised course model starts the sequence, in their 2B term&lt;br&gt;Sep 2018 Detailed course re-design for INTEG320/321</td>
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<td>10. Enhance connections between KI and faculty across campus, as a way of increasing course offerings and understanding of the KI program.</td>
<td>Reviewers raise some interesting and novel suggestions for building community and connecting with faculty outside of KI. Some suggestions include “special designations,” and possible adjunct/cross-appointed status. We have also been considering some initiatives aimed at building community and connections both on campus as well as with the broader community, including a KI Teaching Fellow residency and creating a KI advisory board of UW faculty and other community partners.</td>
<td>Chair and Schweizer</td>
<td>April 2017 strike a working group to consider benefits and models&lt;br&gt;Sept 2017 produce a recommendation report</td>
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<td>11. <strong>Consider offering Collaborative Design courses to new audiences, e.g., transition courses for students entering Waterloo, incoming graduate students.</strong></td>
<td>The reviewers’ recommendation raises the possibility of repackaging many of the transferrable, professional skills education from the KI core into block courses or workshops for various audiences. If opportunities are identified and additional teaching resources can be secured, this is something KI could certainly build.</td>
<td>Associate Chair Undergrad and KI ENV Graduate Studies Council representative</td>
<td>Oct 2017 Produce a report outlining opportunities, benefits, and costs</td>
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| 12. **Encourage greater scholarship on the pedagogical impacts of “KI-thinking” and cognitive development among students.** | There is great opportunity to study the impact of the KI education on the cognitive skills of our students, especially relative to their peers in the same courses that they take as electives. Gorbet and Plaisance are interested in taking this on as a SOTL research project. Given other priorities, however, it remains low on the list. | Gorbet and Plaisance | Spring 2018 assess opportunities and establish a research question  
Jan 2019 study design complete  
May 2019 ethics approval complete  
Sept 2019 study ready for implementation starting in Fall 2019 |
<p>| 13. <strong>Investigate appropriate external metrics of program performance. Develop internal metrics of program performance and assess how these compare with institutional metrics.</strong> | A department committee will be struck to consider what is important to measure internally, and how best to capture those measures in the KI context. In addition, they will also survey external interdisciplinary rankings we should consider targeting (e.g., whether there are appropriate QS rankings). | Chair | Oct 2017 produce a report for the Department on relevant external comparative rankings and internal metrics |</p>
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<td>14. Ensure that all cross-appointed faculty members are listed as such on the web pages of their departments of cross-appointment.</td>
<td>We will investigate this and, to the extent possible, arrange for appropriate representation on departments’ web sites.</td>
<td>Individual faculty members. Program Coordinator to follow up.</td>
<td>Sept 2016</td>
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<td>15. Activity-based budgeting as a decision-making model should be limited to the Faculty level.</td>
<td>We understand this to mean that individual Faculty units should work in good faith to balance revenues and costs. We will continue our activities to increase KI-owned campus-wide offerings in order to help offset our low core enrolment (see Recommendation 8).</td>
<td>Not ours to lead</td>
<td>ongoing</td>
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<td>16. Consider developing a more effective and transparent financial modelling system for the MAD facilities. Extend the capabilities of the workshop towards a full-fledged “maker space”.</td>
<td>The Chair will communicate this support, along with the reviewers’ recommendations, to the Director of MAD.</td>
<td>Chair</td>
<td>May 2016</td>
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<td>17. The University should codify KI’s model of expectations and support frameworks for interdisciplinary cross-appointments.</td>
<td>The Chair will share this recommendation at the University level.</td>
<td>May 2016 Chair to communicate the recommendation to the Secretariat, Provost, and FAUW</td>
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<td>18. Consider ways to provide very high level scholarships for KI students as a competitive recruitment tool.</td>
<td>Recently changes and funds from a private donation, have ensured that a lack of scholarship funds is no longer a factor in an applicant’s acceptance of our offer. We continue to seek more scholarships, and maintain relationships with our donors.</td>
<td>Environment Director of Advancement</td>
<td>ongoing</td>
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The Department Chair/Director, in consultation with the Dean of the Faculty shall be responsible for monitoring the Implementation Plan.
Two Year Progress Report
Music (BA)
January 2016

RECOMMENDATIONS:
A) Program Issues & Curriculum Recommendations:

Recommendation 2. “If the Faculty of Arts reduces the number of required major courses from 20 to 16, that the Department of Music be exempt from this change.”

Plan Standardization is now in place for all Arts undergraduate programs and Music was not exempted from these requirements. However, changes to the Standardization plan requirements made during the discussions at UGAG met most of the department’s concerns. While the requirements for the Honours BA have been reduced from 20 to 16, an Intensive Specialization for Honours students requires an additional four term courses in Music bringing the total number of courses back up to 20.

An important component of the Honours Music degree program is the Ensemble requirement of six terms of participation in music ensembles, each worth 0.25 credits. Under Plan Standardization, the Department continues to be able to count these quarter-credits as additional to the 16 or 20 term-course requirement for the degree. We consider continuing to be able to do this essential to the integrity of the degree.

Recommendation 15. “As the Department members fully intend to do, revisit the mission and vision for the Department and ensure that the curriculum reflects both.”

A comprehensive review of the curriculum was undertaken during the 2014-15 academic year. This review entailed reviewing all existing courses and making adjustments to some course titles and descriptions. More significantly, the review resulted in the creation of two new Specializations, seven new courses and the dropping of one existing course, and changes to the degree requirements.

These changes were focused around the following emphases: strengthening the interdisciplinary character of the program, in keeping the liberal arts context of our teaching; strengthening social-contextual approaches the study of music; giving global (i.e., non-western) music a larger place in the curriculum; and integrating the curriculum more with the other degree program taught exclusively at Conrad Grebel, Peace and Conflict Studies.
These new emphases also reflect the particular strengths of full-time music faculty who have been hired in the last several years.

**New Courses**

1. **MUSIC 110: Music in Cultural Contexts**
   For many years the department has offered a single introductory course (MUSIC 100) which has served both as an elective and introductory course for future Music majors and minors. This course was offered five times per year.

   We now have two 100-level introductory courses, MUSIC 100, which continues as before, and the new MUSIC 110, which is intended for students planning to major or minor in Music and for those students with a stronger music background in place when they come to the university. MUSIC 100 will now be offered three times a year, and MUSIC 110 twice.

2 & 3. **MUSIC 245: World Music** has been dropped and two new 200-level courses in world music have been created. MUSIC 232: Music as a Global Phenomenon and MUSIC 233: Musical Rhythm in Global Perspective offer two differing and complementary approaches and perspectives on world music. Music majors are now required to take at least one of these two courses. MUSIC 245 had been offered as an elective.

4. **MUSIC 262: Music for Vocal Ensemble** is a further enrichment of the department’s emphasis on vocal (as opposed to instrumental) music. It had previously been offered as a Special Topics course and student response has led us to make it a regular course offering.

5. **MUSIC 333: Music and Landscape** is another course that approaches music from a contextual perspective, in this case geographical rather than cultural. It too has previously been offered as a Special Topics course.

6. **MUSIC 335: Perspectives in Music and Peace.** This course is also cross-listed as a PACS course and is team-taught by one faculty member from each of the Music and Peace and Conflict Studies departments.

7. **MUSIC 392: Special Topics in Global Music.** This course allows enrichment of the global music course offerings that can change from year to year.
New Specializations
The Department has created two new Specializations: ‘Music in Global Context’ and ‘Music and Peace’.

Music in Global Context is a package of seven courses including the two new 200-level global music courses, the new 300-level special topics in global music course or other global music-related course offerings, and two terms of participation in a global music performing ensemble.

Music and Peace is a package of five courses that includes the new 300-level music and peace course, one introductory PACS course, and three other related Music courses (or two other Music courses and an additional PACS course).

Program Changes
Program changes include:

1. making either MUSIC 100 or MUSIC 110 the prerequisite for upper-level music history and literature courses;

2. reducing the number of required courses in the history of western music by one and adding the requirement of taking one of the 200-level global music courses.

Recommendation 3. “Change the name of ‘Stage Band’ to ‘Jazz Band’ and consider the possibility of another large ensemble for woodwind and brass players, i.e., a Wind Ensemble, if the number of performers warrants it.”

The name of the Stage Band has been changed to “Jazz Ensemble” (“ensemble” rather than “band” because it sometimes includes vocalists).

A Wind Ensemble is more appropriate for Music programs with much larger numbers of wind players than we have. Most of our students are pianists and singers, with about one third playing all other instruments combined. We are making greater efforts to include wind players within the existing Instrumental Chamber Ensembles program.

Recommendation 5. “The Review Committee encourages the Department to continue its expansion of global/world music courses—in both the academic and performance streams.”

As mentioned in the response to Recommendation 15 above, three new courses in global music have been added to the curriculum, as well as a new Specialization, ‘Music in Global Context’. In addition, we are in the preliminary planning stage of offering a new music and culture travel...
course to Indonesia in the Spring of 2018. In the coming academic year (2016-17) we plan to offer a new global music ensemble in West African Drumming (in Winter 2017).

Recommendation 6. “Explore the area of music technology, in consultation with interested Computer Science faculty members at UW to create an interdisciplinary program with the Music Department.”

We think that it is inadvisable to develop such a program without a full-time faculty member within the Music Department to oversee and teach in it. It is possible that the person hired to fill the current vacancy in Music Theory will bring such expertise.

The course that we offer in this area (MUSIC 275) is taught by a part-time instructor and the students who enroll in it are mostly non-Music students who do not take any other Music courses. For an interdisciplinary program in music technology to be viable, we need to have a full-time Music faculty member who can help integrate this area of study with the larger Music program so that it serves Music students as well as non-music students.

Recommendation 7. “After the appointment of a tenure-track theorist in July 2014, the content of the four Music Theory courses needs to be examined. Concerns over whether all the various skills required in these courses (ear-training, sight-singing, and keyboard harmony) are receiving adequate instruction needs to be addressed, in light of the fact that all written and analytical elements have to be incorporated as well.”

A full-time music theorist joined the Music Department in July 2014, but resigned after one year, so we are again without a full-time music theorist. The search for a replacement has been deferred for one year because of the Chair of Music’s sabbatical during 2015-16. This recommendation can be addressed in 2016-17 once another music theorist has been hired.

B) Publicity and Recruitment:

Recommendation 1. “Create a joint strategy with the Faculty of Arts for the recruitment of students straight from high school into Music programs.”

Conversations between the Chair of Music, Conrad Grebel University College’s Dean, Conrad Grebel’s Recruitment Office and the Arts Recruitment Office have produced some improvement to the state of recruitment of potential Music majors to UW’s Faculty of Arts. Successful recruitment to Music requires that the Department be able to contact applicants who express an interest in Music at as early a stage as possible, mirroring the kind of response they receive from other, direct-entry music programs at other Ontario universities.
Recommendation 1 implies that we develop a process for direct entry to the Music degree program at UW, a step that the Music Department fully endorses. Such a development would require changes to the admissions process that the Arts Undergraduate Office may be unwilling to embrace. The Music Department is exploring a variety of options of how such changes could be accomplished. One possibility is that the Faculty of Arts permits Music to offer direct admission to the Music major. This question is part of the larger issue of Arts Undergraduate recruitment and admission policy and procedures which are currently under review at the faculty level, and needs to await the results on that review. The total number of students from the last three graduating classes are as follows: Honours (12), 4 year general (4), Arts & Business (10), Joint Honours (8), Music Minor (31).

Another possibility is the creation of a Bachelor of Music degree (which would by its nature be a direct admission program) offered under Faculty of Arts auspices. A third possibility, less likely to be practicable, would be a B. Music degree offered under the auspices of another Faculty. Whether or not we need to pursue one of these two other options will not be clear until after the Arts recruitment and admission review is completed.

**Recommendation 4. “Based on the very positive outcomes listed for the program in Section 6 and Appendix D of the Self Study, UW should consider promoting the Honours Music (Arts and Business) more in its recruitment strategies.”**

Implementing this recommendation requires on-going conversation with the Arts Undergraduate Office, which is taking place.

**Recommendation 14. “Create a public event that highlights the liberal-arts framework at the core of the Department’s mission.”**

In March 2015 we held a three-day public Music Symposium which combined a keynote presentation by University of Toronto ethnomusicologist Joshua Pilzer on Music and Traumatic Experience, workshops on Indian Music by Trichy Sankaran of York University, and student performances and paper presentations. The Department plans a similar public event for the 2016-17 academic year. During the current academic year, Scottish composer Sir James MacMillan will present a public lecture on ‘The Spiritual in Music’ and conduct the UW Chamber Choir in performances of his music.

Arising out of our experience with the March 2015 Symposium, the Department is also pursuing the idea of an annual public forum for senior students to present their theses and term projects. We are hoping to hold the first of these in Winter 2017.
C) Faculty and Staff Resources:

**Recommendation 8. “Maintain faculty complement of 5 and consider increasing to 6.”**

The unexpected resignation in July 2015 of the music theorist who was appointed as our fifth full-time faculty member, just one year after his appointment, has altered the context in which this recommendation was made. We expect to re-advertise this position in 2016-17 and make an appointment to begin July 2017, which will return us to a five-person complement of faculty. One of our faculty members will retire one year later, in June 2018, and our hope is to advertise for a replacement during 2017-18. The question of a sixth faculty member for Music is therefore a few years down the road.

**Recommendation 9. “Make the half-time Music Assistant staff position permanent.”**

This position was made permanent with the 2015-16 budget.

**Recommendation 10. “Create a new staff position dedicated to communications and marketing.”**

The administrative and staff structure at the College makes this recommendation unrealistic in its present form. Communication and marketing is handled through a central office at the College.

However since this recommendation was made, we have worked with the College’s Communications and Marketing office to produce newly designed full-colour poster templates, program covers, and bookmarks listing each term’s noon-hour and end-of-term concerts. We also now regularly advertise performances and new courses via the Info Screens on campus.

D) Space and Other Resources:

**Recommendation 11. “Make sure the Department of Music retains all of the spaces they have been using even as they acquire new space through the current construction project.”**

Accomplished.

**Recommendation 12. “Develop a firm plan with Conrad Grebel and the University of Waterloo to provide a dedicated performance space for the Department of Music.”**

Building a dedicated performance space has been a long-standing but elusive goal for a couple of decades. We are encouraged that this goal remains alive as demonstrated by the College’s
recently adopted five-year Strategic Plan, which lists the completion of a feasibility study regarding building a performance hall as one of its goals.

**Recommendation 13. “Have the library purchase a subscription to RILM.”**

‘RILM’ is an on-going annotated bibliographic data base which indexes the scholarly secondary literature on music, primarily periodicals. (RILM stands for Répertoire International de Littérature Musicale.) The Conrad Grebel University College Library currently subscribes to a similar resource called *The Music Index*, whose coverage is broader, but is not annotated. Ideally we would subscribe to both of these resources, and this remains a longer-term goal. However because our current annual subscriptions to Music Index and other online resources already takes up a very significant portion of our annual acquisitions budget, and with the decline in the purchasing power of the Canadian dollar (these resources are all priced in US dollars), we will not be able to respond to this recommendation in the foreseeable future. We believe that The Music Index is adequate to meet our current teaching needs and is actually more appropriate to the breadth of courses that we teach than RILM, which is somewhat more conservative in its coverage.

**New Initiatives.**

1. An Artist-in-Residence program was initiated for the current academic year and this appointment will be renewed for a further three-year term beginning September 1, 2016. İ Dewa Made Suparta is a Balinese musician who has been enriching our global music program through leading the gamelan ensemble and offering supplementary instruction to students outside of regular ensemble rehearsal times. This position has also made possible the establishment of a non-credit community gamelan which has attracted players not otherwise associated with the department or the university. We hope that through the outreach of the community gamelan we will broaden the base of support for the overall program.

2. During March 2016, Scottish composer and conductor Sir James MacMillan was the Sawatsky Visiting Scholar at Conrad Grebel. He presented a public evening lecture and a noon hour talk. He also rehearsed and conducted the UW Chamber Choir along with the Grand Philharmonic Chamber Choir in an afternoon concert of his and other composers’ music.

3. We have initiated conversation with the Arts Undergraduate Office about establishing a Music Co-op degree program to enhance the attractiveness of the program to prospective students.
We are very concerned about the creation of a new music degree program at WLU. It is a B.Mus. in Community Music. From what we have been able to learn about this program, it will compete directly for the pool of students we target for our program, with lower music performance standards than we have, but offering the more prestigious B. Mus degree. This makes conversations about the possibility of offering a B. Mus at UW more urgent.

Kenneth Hull, Acting Chair,
Music Department,
Conrad Grebel University College
Two Year Progress Report  
School of Public Health and Health Systems  
(BSc/BHP/MSc/PhD/MPH/MHE/MHI)  
May 2016

Background:

An augmented review of all SPHHS programs was completed in March, 2014. In the narrative of the report a number observations were made regarding strengths and challenges. These were summarized into 11 high level recommendations. The School in its initial response of May, 2014 provided lengthy, detailed responses to the report narrative and commented on many features of the external review above and beyond the 11 high-level recommendations. Tables identifying actions specific to the undergraduate and graduate degree programs were developed. These continue to inform internal discussions and activities. The School’s initial response was conveyed to Senate in June of 2014.

A new School Director, Craig Janes, was appointed effective July 1, 2014. Unexpectedly the AHS Dean resigned at the same time that the new Director took up his position. The incoming interim Dean, Jim Rush, then discussed how to proceed with the new Director. Given the extent of leadership turnover, and in consultation with the Associate Vice Provost for Graduate Studies, Sue Horton, who was overseeing the process, it was decided to focus initially on four key issues (which related to five of the eleven recommendations from the review), and to undertake to respond to these issues in the two-year plan. This abbreviated action plan was provided to and approved by Senate (17 November 2014). All actions specified in this two-year plan have been completed (see table below) and the School has made significant progress in addressing all 11 of the external reviewers’ recommendations.

Table 1: Interim Action Plan (reviewed and approved by Senate 17 November 2014)

<table>
<thead>
<tr>
<th>Two-Year Plan: Action steps</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Hold faculty retreat and review School plan; report to SGRC September 2016; at that time report as to response to other recommendations</td>
<td>Completed; retreat generated considerable modifications to undergraduate and graduate degree programs as stimulated by the external reviewers’ narrative comments.</td>
</tr>
<tr>
<td>2. Consolidate School offices into one location within AHS building (recommendation 1 – space) and consider longer term plan for more space</td>
<td>Completed in July 2015. Process for long-term planning for space needs has been established within the School and Faculty.</td>
</tr>
</tbody>
</table>
3. Examine workload such that senior faculty have more opportunity to teach undergraduates (Recommendation 7)

A new Teaching Workload Equity policy has been adopted by the School, and senior faculty are now assigned to teach across all levels of the curriculum, including, especially, our new enrollment-limited “undergraduate engagement seminars” offered at the 100- and 200-levels.

4. Revise faculty hiring plan: will also aid in consolidation of strengths rather than being spread thin; and provision of appropriate supervision for graduate students. (Recommendations 2, 5, 9)

We have hired four faculty in existing program areas: two lecturers to provide support to our teaching program (mainly undergraduate, but some graduate teaching as well), and two tenure-track faculty who will teach in current areas of strength in the undergraduate and graduate programs. Two additional hires to support existing program strengths are currently in process.

Progress toward the 11 recommendations in the original external review:

Recommendations

1. Space has become a significant issue for the School and new facilities are urgently needed to accommodate new faculty, an expanding graduate student body, and research collaborations.

   Status: completed
   Details: New space to permit consolidation of most of the School’s faculty, staff, and students was made available with the move of the UW-Propel Centre for Population Health Impact to Tech Town. Although this space is sufficient to meet current needs, anticipated growth will certainly place stress on this resource. The Faculty is aware of this and is working through a space committee to identify opportunities for renovations that would meet our needs. This said, it is likely that additional building space will be needed to accommodate anticipated future growth.

2. The School work with the Dean and Provost’s office to re-balance new hires to achieve a better complement of teaching faculty and faculty with practice experience in public health.

   Status: in progress
   Details: The School converted one open and approved tenure track position to a continuing lecturer position, hiring to that position was completed in July of 2015. An additional definite term lecturer was appointed at the same time (and is bridged to a lecturer retirement in 2017 and will be reviewed for transition to a continuing appointment). A third definite term lecturer was converted to a continuing lecturer position effective July 1, 2016. These three hires – all exceptionally strong teachers and scholars - have significantly enhanced our teaching capacity at both undergraduate and graduate levels.

   Because the School offers several graduate professional programs, additional “practice-based” hires in public health, health informatics, and health evaluation would enhance the quality of our programs. UW currently lacks a practice-oriented faculty stream, so we are currently...
investigating whether the clinical faculty stream could be appropriately used to provide practice-based support to our professional programs.

3. The apparent proliferation of new undergraduate and graduate degrees may exacerbate existing challenges of class size and the range of courses offered without sufficient faculty support. We recommend the School consider offering streams, concentrations, certificates, etc. rather than distinctive degree designations.

**Status: in progress**

**Details:** We have changed the undergraduate degree nomenclature from “health promotion” to the more appropriate and broader designation of “public health,” and have undertaken a wholesale revamping and rationalization of the undergraduate curriculum in order to realize efficiencies (e.g., common core courses required across both undergraduate degrees). We dropped plans to offer a third undergraduate degree program. This has modestly reduced the number/range of courses that we need to staff each term and given more focus to our undergraduate program.

Instead of developing new, specialized degree options at the graduate level, the School has opted to develop graduate diplomas, using current courses, as adjuncts to its current master’s and doctoral degrees, thus offering students specialized study options without need for creating additional courses or curricular plans.

4. Changes in the external supply and demand for training in public health in Canada may require substantial changes to the MPH program if it is to continue to meet enrollment targets with high quality students. We recommend the SPHHS monitor the external environment carefully and consider options such as accreditation if competition for students leads to a drop in student enrollment.

**Status: completed**

**Details:** We are carefully monitoring the MPH program to ensure that demand for the program by high quality students continues. So far we experience demand far in excess of our available spots (350+ applications for 40 FTE slots for the 2016-7 academic year). Beginning in Fall 2016 we will begin to offer an on-campus, blended instructional option for MPH students, and will open enrollment to new bachelor’s degree students who have completed an appropriate co-op placement in a public health setting. This will improve our ability to retain our best undergraduate students rather than lose them to other competing programs in the area (which is what currently occurs). Finally, we have proposed an accelerated Bachelor’s to MPH track that should also help us retain our top undergraduates.

While we continue to explore accreditation, it is clear from continuing demand that such an option is not necessary to maintain enrollments of high quality students. There are other reasons for accreditation, however, and we have identified available options for program accreditation should School faculty and students deem this to be a desirable goal. We will, regardless, continue to monitor student demand carefully and respond as needed to maintain the high quality and excellent reputation of our MPH program.
5. The rapid expansion of degrees and program requirements has resulted in a faculty complement spread too thin. We recommend that new hires be able to teach in the core areas of current degree programs rather than introducing new areas of teaching expertise.  
   **Status:** completed  
   **Details:** New faculty hired since 2014 (two continuing lecturers, and two tenure-track faculty) were selected to provide teaching support to core areas of undergraduate and graduate programs.

6. The MSc/PhD nomenclature be re-considered in order to attract high-quality MSc/PhD students to the areas of faculty research expertise.  
   **Status:** completed  
   **Details:** The nomenclature for the MSc/PhD degree was changed with Senate approval from “Health Studies and Gerontology,” to “Public Health and Health Systems.” Efforts are currently underway to expunge the “HSG” nomenclature from all corners of UW, including changes to course prefix codes.

7. The School and Faculty Dean indicate a clear commitment to valuing undergrad education and populating lower division classes with senior faculty.  
   **Status:** completed  
   **Details:** The School developed and endorsed a new Teaching Workload Equity policy that sets forth expectation for equitable teaching load across ranks, and this policy has been implemented successfully. In addition, a new series of lower division courses, limited enrolment 173/273 “engagement seminars” has been developed to feature faculty expertise, and will be taught by faculty in all ranks. “Senior” faculty are now teaching across the curriculum.

8. We recommend that the School and Faculty of Applied Health Sciences continue to work together to profile and strengthen the area of Aging and Health as an area of excellence across the Faculty, with core critical mass in the SPHHS.  
   **Status:** in progress  
   **Details:** The School has taken steps to fully integrate the collaborative program in Aging, Health and Well-Being into the administration of our graduate research programs so that students are not marginalized, provided with appropriate support, and to ensure that the area of aging and health is more visible in our recruiting materials. A new tenure-track faculty member with a specialization in this area was added to the faculty complement in 2014 just after the external review was completed. The School is currently in discussions as to how to enhance its graduate offerings in this important area of research and teaching strength, especially at the MSc level, and will likely propose a graduate diploma in aging and health in the near future (see below). The School has maintained its support for the undergraduate minor, option, and diploma programs in gerontology.
9. New leadership in the School should focus on the challenges faced by new faculty and ensure that workload and governance reflect equity and collegiality. This will require a period of consolidation rather than continued rapid growth.

**Status: completed**
**Details:** As indicated above, a number of steps have been taken to consolidate our programs, create efficiencies, and ensure equitable teaching workloads across the faculty ranks. The current Director has undertaken a number of steps to clarify collegial governance processes, for example developing the aforementioned teaching equity policy, developing School by-laws that specify standing committee terms and election processes, and establishing an Executive Committee that includes members elected at large (diverse by gender and rank) from the faculty. Additional steps underway are to meet regularly with new faculty to ensure that their needs and interests are represented in School decisions. Finally, the current Director has offered strong support for pre-tenure sabbatical leaves to ensure that new/junior faculty are provided the time and intellectual space needed to launch successful careers.

This item should likely always be considered to be “in progress” as we work continually to improve processes, collegiality, and create a positive workplace culture.

10. The School and Dean should encourage the formation of new “Research Centres” to provide infrastructure and administrative support to new faculty.

**Status: in progress**
**Details:** At present we have two “practice centres” in Health Informatics (in existence at the time of the review) and Health Evaluation (newly established and in development (these support the professional programs in these areas). Discussions are underway to establish a collaborative, cross-Faculty research Institute in Global Health. Several other possible developments remain under discussion: for example, research clusters in aging and health, and epidemiology and biostatistics. The practice centres provide considerable infrastructure and administrative support for new Faculty. In addition, new faculty have been provided considerable infrastructure and administrative support by the AHS-affiliated Propel Centre for Population Health Impact. We envision that the formation of research clusters will facilitate graduate student recruitment, visibility of research strengths, and enable collaborative research. Finally, all new faculty are provided with some level of infrastructure (space for graduate students, lab facilities, etc.) and administrative support as a matter of course.

11. Staff workloads should be reviewed and new hires be made as necessary to ensure appropriate support across all programs

**Status: completed**
**Details:** A new staff hire (addition to our staff complement) to support the practicum component of the professional programs and accreditation (if pursued) is in process.

**Explain any circumstances that have altered the original implementation plan:** None.

**Address any significant developments or initiatives that have arisen since the program review process, or that were not contemplated during the review:** None.
Updated Implementation Plan (including only items from the original recommendations that are currently incomplete and “in progress”):

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Proposed Actions</th>
<th>Responsibility for Leading and Resourcing (if applicable) the Actions</th>
<th>Timeline for addressing Recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The School work with the Dean and Provost’s office to re-balance new hires</td>
<td>Teaching faculty have been hired as recommended. We will investigate whether the “clinical faculty” stream could be modified or expanded to encompass practice-based faculty positions, and will recruit as required to support professional programs.</td>
<td>Director and Dean</td>
<td>To be determined in discussion with relevant University authorities and FAUW (may have implications for Policy 76 revisions, for example).</td>
</tr>
<tr>
<td>2. The apparent proliferation of new undergraduate and graduate degrees may</td>
<td>See updates above. School will propose several graduate diplomas based on current courses and research strengths for Senate consideration in the next academic year.</td>
<td>Director and Associate Directors of Graduate Research and Professional Programs</td>
<td>Diplomas approved by Fall 2017.</td>
</tr>
</tbody>
</table>
3. The School and Faculty of Applied Health Sciences continue to work together to profile and strengthen the area of Aging and Health as an area of excellence across the Faculty, with core critical mass in the SPHHS. The School will consider curricular innovations to strengthen aging and health within the School, including development of a graduate diploma in aging and health. Director and Associate Director of Graduate Research Programs Graduate Diploma in Aging and Health approved by Fall 2017.

4. We recommend that the School and Dean encourage the formation of new “Research Centres” to provide infrastructure and administrative support to new faculty. Cross-Faculty efforts underway to develop a research Institute in Global Health. Consideration of additional research clusters to be initiated in the coming AY. Ongoing review of infrastructure and administrative support needs of new faculty. Dean, Associate Dean-Research, Director, Associate Graduate Program Directors Research Institute in Global Health developed by the end of 2018. Research clusters identified and formalized by the end of 2017. Unmet infrastructure and/or administrative needs are met as required (none care currently identified).

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

Report on anything else you believe is appropriate to bring to Senate concerning this program:
None
FOR INFORMATION

Recognition and Commendation

Vice-President, Academic & Provost Ian Orchard has announced the winners of the 2015 Outstanding Performance Award. Effective May 1, 2005, in accordance with the 2003 Faculty Salary Settlement, the University established an Outstanding Performance Fund to reward faculty members for outstanding contribution in teaching and scholarship. The 2015 winners are: **Applied Health Sciences:** Jack Callaghan, Leeann Ferries, David Hammond, Heather Keller, Diana Parry, and Suzanne Tyas. **Arts:** Janice Aurini, Emma Betz, Emanuel Carvalho, Tara Collington, Martin Cooke, Joan Coutu, James Danckert, Shannon Dea, Andrew Faulkner, Myra Fernandes, Geoffrey Fong, Eric Helleiner, Jingjing Huo, Margaret Insley, Greta Kroeker, Kate Lawson, Patricia Marino, Bessma Momani, Marcel O’Gorman, Susan Roy, Jennifer Schulfenberg, Anindya Sen, Winfried Siemerling, Daniel Smilek, Tony Wirjanto, and Dinghai Xu. **Engineering:** Mark Aucoin, James Craig, Eric Croiset, Samir Elhedhli, Monica Emelko, Roydon Fraser, Fatma Gzara, Keith Hipel, Karim Karim, Robert McKillop, John McPhee, Kevin Musselman, Mansour Raafat, Catherine Rosenberg, Manoj Sachdev, Lola Sheppard, Stephen Smith, Gordon Stubley, Lin Tan, Ehsan Toyserkani, and Mark Weber. **Environment:** Derek Armitage, Sarah Burch, Claude Duguay, Brendon Larson, Markus Moos, and Stephen Murphy. **Mathematics:** Christopher Bauch, Byron Becker, Shai Ben-David, Timothy Chan, Bertrand Guerin, Kevin Hare, Matthew Kennedy, Katherine Larson, Alejandro Lopez-Ortiz, Bruce Richter, Marek Stastna, Justin Wing Lok Wan, Ruodu Wang, Bernard Wong, Grace Yi, and Mu Zhu. **Science:** Avery Broderick, Zheng-Yu Chen, Andrea Edginton, Shaun Frape, Nadine Furtado, Elizabeth Irving, Rohan Jayasundera, Juewen Liu, Elizabeth Meiering, Kirsten Muller, Josh Neufeld, Kevin Resch, Marlee Spafford, and Benjamin Thompson. (Daily Bulletin, 1 June 2016)

For the first time, a doctoral student from the University of Waterloo has won the national Three Minute Thesis (3MT) competition, which sees graduate students from across the country explain the breadth and significance of their research to a non-specialist audience in three minutes or less. **Gab-June Won**’s winning presentation features his research as a PhD student in both the School of Optometry and Vision Science and the Department of Biology in Waterloo’s Faculty of Science. His presentation, “The Development of an Antibody-Drug Conjugate to Specifically Target and Soften the Crystalline Lens,” won first among more than 200 master’s and PhD students at the University of Waterloo 3MT competition. He won the provincial 3MT competition before taking the top spot as the national 3MT champion. Won’s research focuses on drug treatments for presbyopia, a condition that eventually affects everyone. With time, our eyes lose the ability to focus on nearby objects, leading to a need for bifocals, or reading glasses. Won’s research proposes a pharmaceutical eye drop that softens the eyes’ crystalline lens in order to restore near vision that would otherwise worsen as we age. “Three Minute Thesis is a friendly contest between graduate students, but above all else, it challenges young researchers to be clear, concise, and captivating about their work,” said Won. “I strongly encourage all graduate students to compete, regardless of the stage they’re at in their thesis.” Won acknowledges his supervisor in Optometry and Vision Science, Dr. Vivan Choh, for her encouragement and mentorship. (Daily Bulletin, 7 June 2016)

Communicators from across campus have had their content celebrated with national and international recognition from the Canadian Council for the Advancement of Education (CACE) and the Council for Advancement and Support of Education (CASE). On Wednesday, June 8, CASE recognized three University of Waterloo publications among their Circle of Excellence award winners, including: A **Gold Medal** win in the Promotional Publications (Print) category for the CECA International Brochure. A **Bronze Medal** win in the President’s Reports & Annual Reports (Print) category for the State of the University Report, Facts and Figures, and Entrepreneurs Thrive Here. A **Bronze Medal** win in the Strategic Communication - Public Relations and Community Relations Projects category for Building our Community — Community Impact Report. (Daily Bulletin, 16 June 2016)
A renowned Waterloo hydrogeology professor, who helped set global standards for safely disposing hazardous waste, received the 2016 Lee Kuan Yew Water Prize in July. John Cherry, now a distinguished professor emeritus, is the first Canadian to receive the prestigious prize. Cherry, who spent his career dedicated to groundwater management and protection, received the honour in the company of water experts from around the world, including a Waterloo delegation, at Singapore International Water Week. The honour came with a prize of more than $280,000 CDN. “It is a great honour for me to be the 2016 recipient of the Lee Kuan Yew Water Prize,” Cherry said in his acceptance speech. “I am most pleased because this prize granted to me draws attention to the importance of groundwater in the global water crisis.” Cherry, who joined Waterloo’s Department of Earth and Environmental Sciences in 1971 when it was known as the Department of Earth Sciences, worked to set
benchmark criteria for choosing safe disposal sites for hazardous industrial and nuclear waste that were later adopted into regulatory frameworks around the world. Cherry says he plans to use some of the prize money to update, translate and publish his *Hydrogeologists Without Borders* textbook online. In 1979, Cherry co-authored the book under the title *Groundwater*. (Daily Bulletin, 12 July 2016)

Three professors from Waterloo Engineering have been cited for recognition by their peers at a gala that will bring together industry innovators, business leaders and policy makers in November. Organized by the Ontario Society of Professional Engineers and Professional Engineers Ontario, the prestigious annual event will showcase the contributions engineers make to economic growth and technological advances through their work as innovators and entrepreneurs. The award recipients from Waterloo are: **Lin Tan**, electrical and computer engineering: winner of a medal for young engineers. Cross-appointed with computer science, her research interests include software reliability and security, software engineering and systems. **Susan Tighe**, civil and environmental engineering: winner of a medal for research and development. She is a Canada Research Chair, Norman W. McLeod Chair and Director of the Centre for Pavement and Transportation Technology. **John Yeow**, systems design engineering: winner of a medal for engineering excellence. He is a Canada Research Chair with interests in micro/nanoelectromechanical systems, microassembly and nanodevices for biomedical applications. Tan, Tighe and Yeow are among 10 winners to be honoured in Mississauga on November 19 at the 2016 Ontario Professional Engineers Awards, which have been running for almost 70 years. (Daily Bulletin, 21 July 2016)
A. APPOINTMENTS

Probationary term appointments

DEVRIES-ABOUD, Michaela, Assistant Professor, Department of Kinesiology, September 1, 2016 – June 30, 2019. PhD, McMaster University, 2008, BSc, University of Guelph, 2002. Dr. Devries-Aboud’s area of research in clinical exercise is an excellent fit within the Department and she will be able to provide excellent leadership and opportunity to make a significant clinical impact on health and wellness.

SNELGROVE, Ryan, Assistant Professor, Department of Recreation and Leisure Studies, August 1, 2016 – June 30, 2019. Bachelor of Business Administration (BBA), Wilfrid Laurier, 2001, Master of Human Kinetics, University of Windsor, 2006, PhD, University of Waterloo, 2012. Dr. Snelgrove’s research is in the area of youth sport and event management. Dr. Snelgrove’s expertise will complement the Department and he is well suited to contribute to the undergraduate and graduate curricula which fits well with the department academic programs.

WOOD, Laura, Assistant Professor, Department of Recreation and Leisure Studies, August 1, 2016 – June 30, 2019. Honours Bachelor of Kinesiology, McMaster University, 2004, M.H.K., University of Windsor, 2006, PhD, The University of Western Ontario, 2011. Dr. Wood’s research is in the areas of sport marketing and leisure studies. Dr. Wood’s area of expertise fits well with the departmental academic programs.

FERRO, Mark, Assistant Professor, School of Public Health and Health Systems, September 1, 2016 – June 30, 2019. BSc (Hon) McMaster University, 2004, MSc, University of Saskatchewan, 2006, PhD, Western University, 2011, postdoctoral fellow, Western University, 2011 and McMaster University, 2014. Assistant professor, McMaster University 2014-2016. Dr. Ferro’s research is in the area of public mental health and epidemiology with particular focus on children’s mental health. Dr. Ferro has been nominated for a Tier 2 Canada Research Chair.

MORITA, Plinio, Assistant Professor, School of Public Health and Health Systems, September 1, 2016 – June 30, 2019. B.Eng. Electrical Engineering (Biomedical Engineering), University of Campinas, Brazil, 2006, M.Sc., Biomedical Engineering, University of Campinas, Brazil, 2009; PhD. Human Factors Engineering, University of Waterloo, 2014; postdoctoral fellow and research lead 2014-6, Centre for Global E-Health Innovation, University Health Network, University of Toronto. Dr. Morita’s research focuses on health promotion through the application of health technology, with a goal of facilitating independent living and chronic disease management. Professor Morita will hold the J.W. Graham Information Technology Emerging Leader Chair in Applied Health Informatics.

Definite-term appointment – full-time

BOYKO, Jennifer, Research Assistant Professor, Propel Centre for Population Impact, Faculty of Applied Health Sciences, July 4, 2016 – January 31, 2017. [BA, Brock University, 1999, MHSce, University of Toronto, 2002, PhD, McMaster University, 2010].
Definite-term reappointment, full-time
HILBRECHT, Margo, Research Assistant Professor, Canadian Index for Wellbeing, Faculty of Applied Health Sciences, July 1, 2016 – June 30, 2018. BA, Recreation, Dalhousie University, 1983; MSc, Physical Education & Recreation, Dalhousie University, 1985; PhD, Recreation and Leisure Studies, University of Waterloo, 2009.


SATVAT, Elham, Lecturer, School of Public Health and Health Systems, August 31, 2016 – August 30, 2017. [B.A. (honours), Wilfrid Laurier University, Psychology, 2003; M.Sc., Wilfrid Laurier University, Psychology, Brain & Cognition, 2004; Ph.D., Wilfrid Laurier University, Psychology, Behavioural Neuroscience, 2009].

Change in joint appointment
HORTON, Sue, Professor, School of Public Health and Health Systems (.51) Faculty of Applied Health Sciences and Department of Economics (.49), Faculty of Arts, effective May 1, 2016.

Adjunct appointments
Graduate Supervision and Research
CRAVEN, Catherine, Associate Professor, Department of Kinesiology, July 1, 2016 – June 30, 2019.

CRIZZLE, Alexander, Assistant Professor, School of Public Health and Health Systems, June 30, 2016 – December 31, 2018.

Graduate Supervision
JONES-BITTON, Andria, Associate Professor, School of Public Health and Health Systems, July 15, 2016 – December 31, 2017.


Graduate Supervision and Research
WELLS, Richard, Professor Emeritus, Department of Kinesiology, July 1, 2016 – June 30, 2019.

Adjunct reappointment
Research
BROWN, Stephen, Assistant Professor, Department of Kinesiology, July 1, 2016 – Dec. 31, 2016.

Undergraduate Instruction
BURNS, Robert, Lecturer, Department of Kinesiology, July 1, 2016 – June 30, 2019.

Graduate Supervision
CARSON, Valerie, Assistant Professor, School of Public Health and Health Systems, September 1, 2016 – August 31, 2017.

FRIES, Brant, Professor, School of Public Health and Health Systems, July 1, 2016 – December 31, 2017.
Graduate Supervision and Research

HARRINGTON, Daniel, Assistant Professor, School of Public Health and Health Systems, September 1, 2016 – August 31, 2019.

Graduate Supervision

KENNEDY, Ryan, Assistant Professor, School of Public Health and Health Systems, January 1, 2017 – December 31, 2018.

NELSON, Aimee, Associate Professor, Department of Kinesiology, July 1, 2016 – Dec. 30, 2017.

SELISKE, Patrick, Associate Professor, School of Public Health and Health Systems, July 1, 2016 – August 31, 2017.

SERAFINI, Toni, Associate Professor, School of Public Health and Health Systems, September 1, 2016 – April 30, 2017.

Special appointments

DOLSON, Mark, Lecturer, School of Public Health and Health Systems, September 1, 2016 – December 31, 2016.

ELLIOTT, Jacobi, Co-lecturer, School of Public Health and Health Systems, January 1, 2017 – April 30, 2017.

GHEORGHIU, Cristina, Lecturer, School of Public Health and Health Systems, September 1, 2016 – December 31, 2016.


VANDERLEE, Lana, Lecturer, School of Public Health and Health Systems, September 1, 2016 – December 31, 2016.

VINE, Michelle, Lecturer, School of Public Health and Health Systems, September 1, 2016 – December 31, 2016.

Cross appointments

CRONIN, Duane, Professor, Mechanical & Mechatronic Engineering to Department of Kinesiology, July 1, 2016 – June 30, 2019.

Cross reappointments

BASKERVILLE, Neill Bruce, Research Associate Professor, Propel Centre for Population Health Impact, Faculty of Applied Health Sciences to School of Public Health and Health Systems, September 1, 2016 - August 31, 2021.

HILBRECHT, Margo, Research Assistant Professor, Associate Director, Research, Canadian Index of Wellbeing, Faculty of Applied Health Sciences, to Department of Recreation and Leisure Studies, July 1, 2016 – June 30, 2018.

MINAKER, Leia, Research Assistant Professor, Propel Centre for Population Health Impact, Faculty of Applied Health Sciences to School of Public Health and Health Systems, September 1, 2016 - August 31, 2021.
YESSIS, Jennifer, Research Assistant Professor, Propel Centre for Population Health Impact, Faculty of Applied Health Sciences to School of Public Health and Health Systems, September 13, 2016 – September 12, 2021.

Post-doctoral fellow to research appointments
GIFFS, Jenna, Department of Kinesiology, August 1, 2016 – October 31, 2018.

KING, Emily, Department of Kinesiology, July 1, 2016 – June 30, 2018.


Visiting appointments
CHEPULIS, Lynne, School of Public Health and Health Systems, September 6, 2016 – December 31, 2016.

B. RETIREMENTS
WELLS, Richard, Professor Emeritus, Department of Kinesiology, effective July 1, 2016.

C. RESIGNATIONS
AZAGBA, Sunday, Research Assistant Professor, Faculty of Applied Health Sciences, Propel Centre for Population Health Impact, effective August 31, 2016.

For Approval by the Board of Governors

D. SABBATICAL LEAVES
AROCHA, Jose, Associate Professor, School of Public Health and Health Systems, January 1, 2017 – December 31, 2017, one year at 100% salary.

LAIRD, Brian, Assistant Professor, School of Public Health and Health Systems, January 1, 2017 – June 30, 2017, “special early” six month leave at 100% salary.

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

A. APPOINTMENTS

Probationary Term Appointments

BAUER, Andrew (BA 2002 MA 2003 PhD 2011 University of Waterloo), Assistant Professor, School of Accounting & Finance, May 1, 2017 to June 30, 2020. Andrew worked for six years with the accounting firm EY following his undergraduate degree obtaining his CPA designation in 2005. He then earned a PhD in accounting with a specialization in tax. He has been on faculty at the University of Illinois (Urbana-Champaign) since 2011. He is a thoughtful and innovative instructor. He has published successfully and should enhance our research productivity in the area of tax. We expect that he will significantly contribute to the School of Accounting and Finance and our Center for Taxation in a Global Economy.

FULFER, Katy (BA 2006 Freed-Hardeman University, MA 2008 Georgia State University, PhD 2012 University of Western Ontario), Assistant Professor, Department of Philosophy, July 1, 2016 to June 30, 2019. Dr. Fulfer comes to Waterloo from a position as Sophia M. Libman NEH Professor of the Humanities at Hood College, where she established a record as an excellent undergraduate teacher and scholar. Her research is in the areas of feminist philosophy (in particular the investigation of intersections between gender and other aspects of oppression) and applied ethics. Her recent work has focused on a host of difficult ethical, legal, and policy issues raised by the large-scale practice of commercial contract pregnancy in India. She is the first regular faculty member ever hired at Waterloo whose primary undergraduate teaching duties will be in support of the Women’s Studies program, which is now housed in the Philosophy Department. Her graduate teaching and supervision will largely be in the recently approved PhD program in Applied Philosophy.

HENNE, Kathryn (BA 2004 Temple University, MA 2009 California State University, PhD 2011 University of California (Irvine)), Assistant Professor, Department of Sociology & Legal Studies, July 15, 2016 to June 30, 2019. Most recently Senior Lecturer, School of Regulation and Global Governance, Australian National University, Dr. Henne is an expert in biometrics, surveillance, embodiment and gender. Her work, which is social policy-oriented, focusses on the interdisciplinary study of regulation and governance and contributes to research in the areas of human rights, the law, health, safety, and social justice. Dr. Henne will contribute to two of the department’s specializations: 1) Crime, Law and Security and 2) Social Inequality and Public Policy.

Definite Term Appointments

BALABAN, Steven (BMath 2006 University of Waterloo, BBA 2006 Wilfrid Laurier University, CFA 2010). Steve holds the CFA designation and has ten years’ experience in the financial services industry specializing in investments. He has teaching experience with the University of Waterloo and other institutions. He has been active at the University assisting with extra-curricular activities in finance and advised the Waterloo team that won the global championship at the CFA Institute Research Challenge. Steve will lecture in finance and help to introduce more opportunities for our students to learn about investing in venture capital and private equity.

CARTY, Lynn (BA 1990 University of Waterloo, CMA 1995, MEd 2014 St. Francis Xavier University), Lecturer, School of Accounting & Finance, May 1, 2016 to June 30, 2017. Lynn holds her CPA designation and has eight years work experience across several positions in accounting and finance. Since 2001 she has been teaching at the business schools at Wilfrid Laurier and Guelph. She earned a Masters of Education in 2014 from Saint Francis Xavier University. She has taught a wide variety of courses in both financial and
managerial accounting. She is interested in teaching innovation and will be participating in enhancing our teaching and improving learning outcomes.

**Definite Term Reappointments**

SPELTZ, Andrea, Assistant Professor, Department of Germanic & Slavic Studies, January 1, 2019 to December 31, 2020.

**Visiting Reappointment**

BENKO, Aleksandra Srsa, Visiting Lecturer, Department of Germanic and Slavic Studies, September 1, 2016 to April 30, 2017.

**Adjunct Appointments – Instruction**

COCARLA, Sasha, Lecturer, Department of Philosophy, September 1, 2016 to December 31, 2016.

KLANN, Julia, Lecturer, School of Accounting and Finance, September 1, 2016 to December 31, 2016.

MCDERMOTT, Neil, Lecturer, Department of Psychology, September 1, 2016 to December 31, 2016.

**Adjunct Appointments – Graduate Supervision**

HOFFMANN, Matthew, Professor, Department of Political Science, June 1, 2016 to May 31, 2019.

REIMER, Susanna, Clinical Supervisor, Department of Psychology, September 1, 2016 to August 31, 2017.

SPENCER, Steve, Professor, Department of Psychology, August 1, 2016 to July 31, 2019.

**Adjunct Reappointments – Instruction**

ADAMS, Russell, Lecturer, Department of Anthropology, September 1, 2016 to December 31, 2016.

ATOCHE, Cristina, Lecturer, Department of Spanish and Latin American Studies, September 1, 2016 to December 31, 2016.

BALTRUSAITIS, Jonathan, Lecturer, Stratford Programmes, September 1, 2016 to December 31, 2016.

BIRKE, Lisa, Lecturer, Department of Fine Arts and Stratford Programmes, September 1, 2016 to December 31, 2016.

BULLOCH, Dean, Lecturer, Department of Psychology, September 1, 2016 to December 31, 2016.

CHASMAR, Hugh, Lecturer, School of Accounting and Finance, September 1, 2016 to December 31, 2016.

DE ROOIJ-MOHLE, Margreet, Lecturer, Department of Germanic and Slavic Studies, September 1, 2016 to December 31, 2016.

DUCHARME, Roberts, Lecturer, School of Accounting and Finance, September 1, 2016 to December 31, 2016.

FATIMA, Nafeez, Lecturer, Department of Economics, September 1, 2016 to December 31, 2016.

FOERSTER, Alan, Lecturer, School of Accounting and Finance, September 1, 2016 to December 31, 2016.

GAMEZ, Hector, Lecturer, School of Accounting and Finance, September 1, 2016 to December 31, 2016.
HUNTER, Natalie, Lecturer, Department of Fine Arts, September 1, 2016 to December 31, 2016.

HUTTER, Daniel, Lecturer, Department of Classical Studies, September 1, 2016 to December 31, 2016.

JAVED, Hira, Lecturer, Stratford Programmes, September 1, 2016 to December 31, 2016.

JONES, Catherine, Lecturer, School of Accounting and Finance, September 1, 2016 to December 31, 2016.

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

KERNOHAN, Sarah, Lecturer, Department of Fine Arts, September 1, 2016 to December 31, 2016.

KUMASE, Wokia, Lecturer, Department of Economics, September 1, 2016 to December 31, 2016.

LAiken, Stan, Professor (Professor Emeritus), School of Accounting and Finance, September 1, 2016 to December 31, 2016.

LAM, Ibis, Lecturer, Department of Spanish and Latin American Studies, September 1, 2016 to December 31, 2016.

LIN, David, Lecturer, School of Accounting and Finance, September 1, 2016 to December 31, 2016.

LONEY, Grace, Lecturer, School of Accounting and Finance, September 1, 2016 to December 31, 2016.

MANNING, Thomas, Lecturer, School of Accounting and Finance, September 1, 2016 to December 31, 2016.

MCCAULEY, Eva, Lecturer, Department of Fine Arts, September 1, 2016 to December 31, 2016.

MCgowan, Rosemary, Lecturer, Department of Political Science, September 1, 2016 to April 30, 2017.

MILLOY, John, Lecturer, Department of Political Science, July 1, 2016 to June 30, 2017.

MURRAY, Neil, Lecturer, Department of Psychology, September 1, 2016 to December 31, 2016.

NABERT-CHUBB, Rebecca, Lecturer, Department of Political Science, September 1, 2016 to December 31, 2016.

NUNEZ, Camelia, Lecturer, Department of Economics, September 1, 2016 to December 31, 2016.

O'HARA, Kathleen, Lecturer, Faculty of Arts, September 1, 2016 to December 31, 2016.

PECKHAM, William, Lecturer, Department of Psychology, September 1, 2016 to December 31, 2016.

PIROUZ, Raymond, Lecturer, Stratford Programmes, September 1, 2016 to December 31, 2016.

PORTER, Robert, Assistant Professor, (Assistant Professor Emeritus), Department of Classical Studies, September 1, 2016 to December 31, 2016.

RAJSIC, Predrag, Lecturer, Department of Economics, September 1, 2016 to December 31, 2016.
ROGOZYNski, Daniel, Lecturer, School of Accounting and Finance, September 1, 2016 to December 31, 2016.

RUFFUDEEN, Zamal, Lecturer, School of Accounting and Finance, September 1, 2016 to December 31, 2016.

SCHWEITZER, David, Lecturer, Department of History, May 1, 2016 to August 31, 2016.

SIEBEL-ACHENBACH, Sebastian, Lecturer, Faculty of Arts, September 1, 2016 to December 31, 2016.

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

STETTNER, Shannon, Lecturer, Department of Philosophy, September 1, 2016 to December 31, 2016.

THARMALINGAM, Pirapa, Lecturer, Department of Economics, September 1, 2016 to December 31, 2016.

TIMBERG, Robert, School of Accounting and Finance, September 1, 2016 to December 31, 2016.

VILOA, Maria, Lecturer, Department of Economics, September 1, 2016 to December 31, 2016.

WOOD, Peter, Lecturer, School of Accounting and Finance, September 1, 2016 to December 31, 2016.

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

DAGG, Anne, Associate Professor, (Associate Professor Emerita), Department of Philosophy, May 1, 2016 to April 30, 2021.

HOLMES, John, Professor, (Professor Emeritus), Department of Psychology, September 1, 2016 to August 31, 2019.

ROSS, Michael, Professor, (Distinguished Professor Emeritus), Department of Psychology, April 1, 2016 to March 31, 2019.

Sedra, Mark, Assistant Professor, Department of Political Science, April 1, 2016 to December 31, 2018.

Adjunct Reappointments – Graduate Supervision

Beharry, Edward, Assistant Professor, Department of Psychology, September 1, 2016 to August 31, 2017.

Beharry, Pamela, Assistant Professor, Department of Psychology, September 1, 2016 to August 31, 2017.

Bieling, Peter, Assistant Professor, Department of Psychology, September 1, 2016 to August 31, 2017.

Dodgson, Philip, Assistant Professor, Department of Psychology, September 1, 2016 to August 31, 2017.

Lane, Christopher, Assistant Professor, Department of Psychology, September 1, 2016 to August 31, 2017.

Mikail, Samuel, Assistant Professor, Department of Psychology, September 1, 2016 to August 31, 2017.
MITTELSTAEDT, Walter, Director, Campus Wellness, Department of Psychology, September 1, 2016 to August 31, 2017.

ORR, Elizabeth, Clinical Supervisor, Department of Psychology, September 1, 2016 to August 31, 2017.

TOMAN, Philip, Assistant Professor, Department of Psychology, September 1, 2016 to August 31, 2017.

Graduate Students Appointed as Part-Time Lecturers
MAMO, Kaleab, School of Accounting and Finance, September 1, 2016 to December 31, 2016.

Staff Appointments to Faculty
HAYDEN, Jayne, Lecturer, Faculty of Arts, September 1, 2016 to April 30, 2017.

MANDEL, Jordan, Lecturer, Stratford Programmes, September 1, 2016 to December 31, 2016.

SCHMIDLIN, Karin, Lecturer, Stratford Programmes, September 1, 2016 to December 31, 2016.

B. ADMINISTRATIVE APPOINTMENTS

Administrative Appointments
KAMINSKAIA, Svetlana, Associate Chair, Undergraduate Studies, Department of French Studies, July 1, 2016 to June 30, 2017.

KROEKER, Greta, Associate Chair, Undergraduate Studies, Department of History, September 1, 2016 to June 30, 2017.

MACDOUGALL, Heather, Acting Chair, Department of History, July 1, 2016 to June 30, 2017.

ROBERTS-SMITH, Jennifer, Associate Chair, Undergraduate Studies (Drama), Department of Drama and Speech Communication, July 1, 2016 to June 30, 2017.

Administrative Appointments – Change in Dates
BOEHRINGER, Michael, Acting Chair, Department of Germanic & Slavic Studies, from January 1, 2016 to June 30, 2016 to January 1, 2016 to July 31, 2016.

LIEBSCHER, Grit, Chair, Department of Germanic & Slavic Studies, from July 1, 2016 to June 30, 2018 to August 1, 2016 to June 30, 2018.

C. RETIREMENTS

RUSSELL, Grant, Associate Professor, School of Accounting & Finance, effective July 1, 2016.

THAGARD, Paul, Professor, Department of Philosophy, effective October 1, 2016.

D. RESIGNATIONS

GEOFFREY, Craig, Lecturer, School of Accounting & Finance, effective June 30, 2016.

HOCHSTETLER, Kathryn, Professor, Department of Political Science, effective August 31, 2016.

KELLY, Khim, Associate Professor, School of Accounting & Finance, effective September 30, 2016.
SPENCER, Steven, Professor, Department of Psychology, effective July 31, 2016.

E. SABBATICAL LEAVES

For approval by the Board of Governors:

BOEHRINGER, Michael, Associate Professor, Department of Germanic & Slavic Studies, January 1, 2017 to December 31, 2017, twelve months at 85% salary.

DUBEAU, Catherine, Associate Professor, Department of French Studies, January 1, 2017 to December 31, 2017, twelve months at 85% salary.

FIOLLEAU, Krista, Assistant Professor, School of Accounting & Finance, January 1, 2017 to June 30, 2017, six months at full salary.

FUGELSANG, Jonathan, Professor, Department of Psychology, January 1, 2017 to June 30, 2017, six months at full salary.

KOELER, Derek, Professor, Department of Psychology, January 1, 2017 to June 30, 2017, six months at 85% salary.

KUZNIAR, Alice, Professor, Department of Germanic & Slavic Studies, January 1, 2017 to June 30, 2017, six months at 85% salary.

O'NEILL, Daniela, Professor, Department of Psychology, January 1, 2017 to June 30, 2017, six months at 85% salary.

POMEROY, Bradley, Assistant Professor, School of Accounting & Finance, January 1, 2017 to June 30, 2017, six months at full salary.

WEBB, Alan, Professor, School of Accounting & Finance, January 1, 2017 to December 31, 2017, twelve months at full salary.

WHITE, Katherine, Assistant Professor, Department of Psychology, January 1, 2017 to June 30, 2017, six months at 85% salary.

Douglas M. Peers
Dean, Faculty of Arts
UNIVERSITY OF WATERLOO
REPORT OF THE DEAN OF ENGINEERING TO SENATE
September 19, 2016

For information:

A. APPOINTMENTS

Probationary Term

GHADDAR, Bissan, Assistant Professor, Department of Management Sciences Engineering, August 1, 2016 – June 30, 2019. PhD University of Waterloo 2011; MASc University of Waterloo 2007; BEng American University of Beirut 2005. Bissan Ghaddar has research and teaching interests in data analytics with applications at the interface of operations research and information systems, two of the three areas that constitute the department of Management Sciences.

GURFINKEL, Arie, Associate Professor, Department of Electrical & Computer Engineering, September 1, 2016 – June 30, 2019. PhD University of Toronto 2007; MSc University of Toronto 2003; BSc University of Toronto 2000. Arie Gurfinkel is being hired into the computer software area. His most recent appointment was as a Principal Researcher at the Carnegie Mellon Software Engineering Institute. His research interests lie in the intersection of formal methods and software engineering, with an emphasis on automated reasoning about software systems.

HUTTON, Jane, Assistant Professor, School of Architecture, July 1, 2016 – June 30, 2019. MA University of Toronto 2004; BSc McGill University 1999. Jane Hutton is a landscape architect with research, design work and publications in Material Ecologies, Public Materiality, as well as Urban Change and Political Economy. She is an excellent fit in Waterloo Architecture, a School dedicated to excellences in design and built upon the proposition that architecture is a field of cultural speculation. Her appointment brings new strengths across all streams with particular emphasis on Technology and Environment, and Urbanism and Landscape. Her work in landscape architecture and ecology complements expertise that exists in the School without duplication.

KAPRE, Nachiket, Assistant Professor, Department of Electrical & Computer Engineering, September 21, 2016 – June 30, 2020. PhD California Institute of Technology 2010; MS Computer Science California Institute of technology 2006; MS Electrical Engineering California Institute of Technology 2005; BE University of Pune, India 2002. Nachiket Kapre is being hired into the computer hardware area. Dr. Nachiket Kapre was previously an Assistant Professor at Nanyang Technological University, Singapore in the School of Computer Engineering and CTO at Plunify, Inc. in Singapore. He is primarily interested in understanding and exploiting the potential of parallel, spatial architectures such as Field-Programmable Gate Arrays for energy-efficient computing.

SHARDT, Yuri, Assistant Professor, Department of Chemical Engineering, September 1, 2016 – June 30, 2019. PhD University of Alberta 2012; BSc University of Alberta 2008.

Probationary Term Reappointment

ALUMUR ALEV, Sibel, Assistant Professor, Department of Management Sciences, July 1, 2017 – June 30, 2020. PhD Bilkent University, Turkey 2009; MS Bilkent University 2004; BS Middle East Technical University, Turkey 2001.
Definite Term Appointment (full-time)
ANDERSON, William, Research Associate Professor, Department of Civil & Environmental Engineering, September 1, 2016 – December 31, 2017. PhD University of Waterloo 2004; BA University of Regina 1979. Within the Department of Civil and Environmental Engineering, Dr. Anderson has changed affiliations from Dr. Huck’s NSERC Industrial Chair (IRC) in Water Treatment to Dr. Emelko’s Water Science, Technology, & Policy Research Group. Dr. Anderson has 36 years of experience in drinking water research and was instrumental in the continued success of Dr. Huck’s NSERC IRC. He will now collaborate with Dr. Emelko to create an NSERC Strategic Network entitled “forWater: NSERC Network for Forested Drinking Water Source Protection Technologies” and a new NSERC IRC in Water Science, Technology, & Policy. If successful, these initiatives will position CEE to continue to be a strong presence in the field of drinking water research.

BORLAND, Matthew, Lecturer, Department of Systems Design Engineering, September 1, 2016 – August 31, 2019. PhD University of Waterloo 2014; MASc University of Waterloo 2009; BASc University of Waterloo 2006. Dr. Matthew Borland has been hired as lecturer in Systems Design Engineering to support our teaching in the Systems Design, Biomedical, and Mechatronics undergraduate programs. Of particular importance is Dr. Borland's breadth of teaching experience, particular in engineering design, which he has taught six times for Systems Design over the past five years.

SADEGHIMAKKI, Bahareh, Research Assistant Professor, Department of Electrical & Computer Engineering, May 1, 2016 – April 30, 2018. PhD University of Waterloo 2012; MASc Khajeh Nasir Toosi University and Technology, Tehran, Iran 2003; BASc Shahid Beheshti University, Tehran, Iran 1999. Bahareh Sadeghimakki’s main theme of research is nanotechnologies for photovoltaics. She will be responsible for the internal management of the ReMAP (Refined Manufacturing Acceleration Process) project and the Network project co-funded by ReMAP, Celestica, and S2E Technologies.

Definite Term Reappointment (part-time)
KHALVATI, Farzad, Research Assistant Professor, Department of Systems Design Engineering, August 1, 2016 – November 30, 2017.

Visiting Appointments

AL BADI, Mohammed Hamdan, Associate Professor, Department of Electrical & Computer Engineering, August 1, 2016 – August 31, 2017.

ASHRAFIZADEH, Seyed, Assistant Professor, Department of Mechanical & Mechatronics Engineering, September 1, 2016 – August 31, 2017.

BAKRI-KASSEM, Maher, Assistant Professor, Department of Electrical & Computer Engineering, June 16, 2016 – September 16, 2016.

BATEZINI, Rafael, Researcher, Department of Civil & Environmental Engineering, August 10, 2016 – November 11, 2016.

BHASKAR, Harish, Assistant Professor, Department of Systems Design Engineering, June 1, 2016 – August 12, 2016.
CENK, Murat, Scholar, Department of Electrical & Computer Engineering, June 20, 2016 – September 19, 2016.

CHAMAANI, Somayyeh, Assistant Professor, Department of Electrical & Computer Engineering, July 15, 2016 – October 15, 2016.


CHEN, Zhe, Scholar, Department of Chemical Engineering, October 1, 2016 – September 30, 2017.

CHIRMANOV, Vadim, Scholar, Department of Chemical Engineering, August 1, 2016 – November 1, 2016.

CHITTARANJAN, Jeerushian, Scholar, Department of Mechanical & Mechatronics Engineering, May 2, 2016 – August 31, 2016.


DOU, Fengqian, Scholar, Department of Mechanical & Mechatronics Engineering, September 1, 2016 – August 31, 2017.

DU, Yuncheng, Scholar, Department of Chemical Engineering, May 1, 2016 – August 31, 2016.

ERMIS, Kemal, Scholar, Department of Mechanical & Mechatronics Engineering, June 16, 2016 – September 15, 2016.

FANI, Mehrnaz, Researcher, Department of Systems Design Engineering, September 1, 2016 – February 28, 2017.

FAROOQ, Muhammad Umar, Scholar, Department of Chemical Engineering, June 1, 2016 – August 31, 2016.

FATHI, Ehsanollah, Researcher, Department of Electrical & Computer Engineering, June 1, 2016 – May 31, 2018.

FENG, Yan, Scholar, Department of Mechanical & Mechatronics Engineering, November 1, 2016 – October 31, 2017.

GHADIRI, Majid, Researcher, Department of Civil & Environmental Engineering, September 1, 2016 – August 31, 2017.

GOKCE, Baris, Assistant Professor, Department of Mechanical & Mechatronics Engineering, September 17, 2016 – September 16, 2017.

HASSAN, Hassan, Scholar, Department of Mechanical & Mechatronics Engineering, July 4, 2016 – September 30, 2016.
HOU, Dongliang, Scholar, Department of Chemical Engineering, September 16, 2016 – September 15, 2017.

HUANG, Xiaomiao, Scholar, Department of Chemical Engineering, August 20, 2016 – August 19, 2017.

JIANG, Xi, Researcher, Department of Civil & Environmental Engineering, August 25, 2016 – February 24, 2017.


KEGANG, Zhao, Scholar, Department of Mechanical & Mechatronics Engineering, August 20, 2016 – August 19, 2017.


LI, Geng, Scholar, Department of Mechanical & Mechatronics Engineering, December 5, 2016 – December 4, 2017.


LING, He, Scholar, Department of Mechanical & Mechatronics Engineering, August 15, 2016 – August 14, 2017.


MOHAMED, Maram, Scholar, Department of Mechanical & Mechatronics Engineering, July 4, 2016 – September 30, 2016.

SAFFIHI, Fayc al, Assistant Professor, Department of Electrical & Computer Engineering, May 20, 2016 – August 20, 2016.


WANG, Hongliang, Associate Professor, Department of Mechanical & Mechatronics Engineering, December 1, 2016 – November 30, 2017.

WEI, Liu, Scholar, Department of Mechanical & Mechatronics Engineering, November 1, 2016 – October 31, 2017.

WEN, Chao, Scholar, Department of Civil & Environmental Engineering, March 1, 2016 – February 28, 2017.
YAMASHITA, Shotaro, Researcher, Department of Mechanical & Mechatronics Engineering, June 1, 2016 – August 31, 2016.

YANG, Lanian, Scholar, Department of Civil & Environmental Engineering, September 1, 2016 – August 31, 2018.

ZHAO, Shulin, Scholar, Department of Chemical Engineering, September 1, 2016 – August 31, 2017.

**Visiting Reappointments**

ANGAMMANA MOHOTTIGE, Chitral, Scholar, Department of Electrical & Computer Engineering, June 1, 2016 – May 31, 2017.


BAEK, Ji-Yoo, Scholar, Department of Chemical Engineering, April 1, 2016 – August 31, 2016.

GERKOPULOS, Ryan, Scholar, Department of Electrical & Computer Engineering, June 1, 2016 – May 31, 2017.


YEGUAL, Mustafa Fatih, Scholar, Department of Management Sciences, July 1, 2016 – June 30, 2017.

ZHANG, Lei, Scholar, Department of Chemical Engineering, July 8, 2016 – December 31, 2016.

**Special Appointments – Undergraduate Instruction**

ELLINI, Christian, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

BETTIO, Walter, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

BISSETT, Tara, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

GHAREH AGHAJI ZARE, Ata, Lecturer, Department of Management Sciences, September 1, 2016 – December 31, 2016.

GEORGE, Elizabeth, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

GUNAWAN, Sarah, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

KOHAR, Christopher, Lecturer, Department of Mechanical & Mechatronics Engineering, May 1, 2016 – August 31, 2016.

LEVITT, Janna, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

LUKACHKO, Alex, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

LUZAR, Brigitte, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.
MANNING, Thomas, Lecturer, Department of Management Sciences, September 1, 2016 -December 31, 2016.

MORYOUSSEF, Anya, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

NAHANGI, Mohammad, Lecturer, Department of Civil & Environmental Engineering, September 1, 2016 – December 31, 2016.

NAKAMURA, Hajime, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

REETZ, Adrian, Lecturer, Department of Management Sciences, September 1, 2016 – December 31, 2016.

SAAD, John, Lecturer, Department of Electrical & Computer Engineering, September 1, 2016 -December 31, 2016.

SCOTT, Tim, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

SHELLEY, Elise, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

SJAARDS, Matthew, Lecturer, Department of Civil & Environmental Engineering, September 1, 2016 – December 31, 2016.

SORLI, Scott, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

SYME, Paul, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

ZURELL, Cory, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

Special Appointments – Graduate Instruction

ABDELGALIL, Tarek, Lecturer, Department of Electrical & Computer Engineering, May 1, 2016 – August 31, 2016.

BHATTACHARYA, Lecturer, Department of Electrical & Computer Engineering, May 1, 2016 – August 31, 2016.

EL-SHATSHAT, Ramadan, Lecturer, Department of Electrical & Computer Engineering, January 1, 2016 – April 30, 2016.

FOERSTER, Allan, Lecturer, Conrad Business, Entrepreneurship and Technology Centre, September 1, 2016 – December 31, 2016.


KAZERANI, Mehrdad, Lecturer, Department of Electrical & Computer Engineering, January 1, 2016 – April 30, 2016.

MARTIN, Tim, Lecturer, Conrad Business, Entrepreneurship and Technology Centre, September 1, 2016 – December 31, 2016.

ROHANI-TABATABAI, Mina, Lecturer, Department of Management Sciences, September 1, 2016 – December 31, 2016.

SAFAYENI, Frank, Lecturer, Department of Management Sciences, September 1, 2016 - December 31, 2016.

SHAH, Muhammad Umair, Lecturer, Department of Management Sciences, September 1, 2016 – December 31, 2016.

SORKHABI, Ali Ashasi, Lecturer, Department of Civil & Environmental Engineering, September 1, 2016 – December 31, 2016.

Special Reappointments – Undergraduate Instruction

ATKINS, Andrea, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

BESSI, Thomas, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

BLAKE, Clifford, Lecturer, Department of Management Sciences, September 1, 2016 – December 31, 2016.

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

KOHAR, Christopher, Lecturer, Department of Mechanical & Mechatronics Engineering, September 1, 2016 – December 31, 2016.

LIM TUNG, Fiona, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

NASSAR, Mohammed, Lecturer, Department of Electrical & Computer Engineering, September 1, 2016 – December 31, 2016.

TOWN, Chloe, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

YEKRANGIAN, Delnaz, Lecturer, School of Architecture, May 1, 2016 – August 31, 2016.

Special Reappointments – Graduate Instruction

ALLARAKHAIA, Minna, Lecturer, Department of Management Sciences, September 1, 2016 – December 31, 2016.

Special Reappointments – Other


Adjunct Appointments – Graduate Instruction, Supervision & Research

AHMED, Mohamed, Assistant Professor, Department of Electrical & Computer Engineering, June 1, 2016 – May 31, 2019.
KAZEMZADEH, Farnoud, Professor, Department of Systems Design Engineering, June 20, 2016 – June 19, 2019.

Adjunct Appointments – Graduate Supervision
BONAKDAR, Ali, Assistant Professor, Department of Mechanical & Mechatronics Engineering, July 1, 2016 – June 30, 2020.

REYNOLDS, David, Assistant Professor, Civil & Environmental Engineering, May 1, 2016 – April 30, 2018.

Adjunct Appointments – Graduate Supervision & Research
ARAGHI, Mojtaba, Assistant Professor, Department of Management Sciences, August 1, 2016 – July 31, 2019.

CHILANA, Parmit, Assistant Professor, Department of Management Sciences, September 1, 2016 – August 31, 2019.

LEE, Denny, Professor, Department of Electrical & Computer Engineering, June 1, 2016 – May 31, 2018.

PILEGGI, Vince, Assistant Professor, Department of Civil & Environmental Engineering, September 1, 2016 – August 31, 2018.

THULASIRAMAN, Krishnaiyan, Professor, Department of Electrical & Computer Engineering, July 1, 2016 – June 30, 2018.

ZHAO, Xuan (Jen), Associate Professor, Department of Management Sciences, September 1, 2016 – August 31, 2019.

Adjunct Appointments – Graduate Instruction & Research
FADER, Christine, Professor, Department of Management Sciences, September 1, 2016 – August 31, 2019.

SIDHU, Tarlochan, Professor, Department of Electrical & Computer Engineering, June 1, 2016 – May 31, 2018.

Adjunct Appointments – Research
GOODMAN, Steve, Assistant Professor, Department of Civil & Environmental Engineering, June 1, 2016 – May 31, 2018.

RAYMOND, Darrell, Associate Professor, Department of Management Sciences, September 1, 2016 – August 31, 2019.

Adjunct Reappointments – Graduate Instruction & Research
KUDSIA, Chandra, Professor, Department of Electrical & Computer Engineering, September 1, 2016 – August 31, 2019.

Adjunct Reappointments – Graduate Supervision & Research
ABDELGALIL, Tarek, Assistant Professor, Department of Electrical & Computer Engineering, March 1, 2016 – February 28, 2019.
AZIMIFAR, Zohreh, Assistant Professor, Department of Systems Design Engineering, October 1, 2015 – September 30, 2018.

CHAUDHURI, Sujeet, Professor, Department of Electrical & Computer Engineering January 1, 2017 – December 31, 2019

KOUWEN, Nick, Professor, Department of Civil & Environmental Engineering, July 1, 2016 – June 30, 2018.

MOSHIRI, Behzad, Professor, Department of Electrical & Computer Engineering, May 1, 2016 – April 30, 2018.

OBEIDI, Amer, Assistant Professor, Department of Management Sciences, July 1, 2016 – June 30, 2019.

OZALTIN, Osman, Assistant Professor, Department of Management Sciences, September 1, 2016 – August 31, 2019.


Adjunct Reappointments – Research
DERBENTSEVA, Natalia, Assistant Professor, Department of Management Sciences, September 1, 2016 – August 31, 2019.

Adjunct Reappointments – Graduate Supervision
WILSON, William, Professor, Department of Electrical & Computer Engineering, June 1, 2016 – May 31, 2019.

Cross Appointments
FIDAN, Baris, Associate Professor, Department of Mechanical & Mechatronics Engineering to Department of Electrical & Computer Engineering, September 1, 2016 – August 31, 2019.

LEE, Syung-Sool, Assistant Professor, Department of Civil & Environmental Engineering to Department of Chemical Engineering, June 1, 2016 – May 31, 2019.

MALHOTRA, Shavin, Associate Professor, Conrad Business, Entrepreneurship and Technology Centre to Department of Management Sciences, July 1, 2016 – June 30, 2019.

SPARKES, Douglas, Continuing Lecturer, Conrad Business, Entrepreneurship and Technology Centre to Department of Management Sciences, September 1, 2016 – August 31, 2019.

WAITE, Michael, Associate Professor, Department of Applied Mathematics, Faculty of Mathematics to Mechanical & Mechatronics Engineering, August 1, 2016 – July 31, 2019.

Cross Reappointment
DALZIEL, Margaret, Associate Professor, Conrad Business, Entrepreneurship and Technology Centre to Department of Management Sciences, September 1, 2016 – August 31, 2019.
Changes in Appointments

AUCOIN, Marc, Administrative Appointment, Academic Director, WatPD-Engineering, Department of Chemical Engineering was May 1, 2016 – April 30, 2019 changed to May 1, 2016 – December 31, 2016.

CANIZARES, Claudio, Administrative Appointment, Associate Chair Research, Department of Electrical & Computer Engineering, was September 1, 2015 – June 30, 2016 changed to September 1, 2015 - August 31, 2016.

WEI, Lan, Probationary Term Appointment, Assistant Professor, Department of Electrical & Computer Engineering, was January 2, 2014 – June 30, 2017 changed to January 2, 2014 – June 30, 2018.

ADMINISTRATIVE APPOINTMENTS

ABOUEE MEHRIZI, Hossein, Associate Chair of Graduate Studies, Department of Management Sciences, July 1, 2016 – June 30, 2017.

BORDELEAU, Anne, Director, School of Architecture, May 1, 2016 – April 30, 2020.

DAVISON, Dan, Acting Academic Director, WatPD-Engineering, Department of Electrical and Computer Engineering, January 1, 2017 – December 31, 2017.

GAUDET, Vincent, Chair, Department of Electrical & Computer Engineering, July 1, 2016 – June 30, 2020.

HAAS, Carl, Interim Chair, Department of Civil & Environmental Engineering, May 1, 2016 - December 31, 2016.

LAM, Patrick, Director, Software Engineering Program, Department of Electrical & Computer Engineering, September 1, 2016 – August 31, 2019.

LONG, John, Associate Chair, Research, Department of Electrical & Computer Engineering, September 1, 2016 – August 31, 2018.

SAINI, Simarjeet, Associate Chair of Undergraduate Studies, Department of Electrical & Computer Engineering, July 1, 2016 – June 30, 2019.

ADMINISTRATIVE REAPPOINTMENTS

ARMITAGE, Howard, Associate Director, Virtual Incubation Project (VIP), Conrad Business, Entrepreneurship and Technology Centre, September 1, 2016 – August 31, 2017.

AUCOIN, Marc, Academic Director, WatPD-Engineering, Department of Chemical Engineering, January 1, 2018 – April 30, 2019

BARBY, Jim, Senior Associate Chair, Department of Electrical & Computer Engineering, September 1, 2016 – August 31, 2017.

CAMPBELL, Scott, Director, Centre for Society Technology and Values (CSTV), Department of Systems Design Engineering, September 1, 2016 – August 31, 2018.
CASCANTE, Giovanni, Associate Chair of Graduate Studies, Department of Civil & Environmental Engineering, July 1, 2016 – June 30, 2019.

HELLINGA, Bruce, Associate Dean, Graduate Studies, Department of Civil & Environmental Engineering, July 1, 2016 – June 30, 2018.

JAYARAM, Shesha, Director, High Voltage Lab, Department of Electrical & Computer Engineering, May 1, 2016 – April 30, 2019.

MANSOUR, Raafat, Director, the Centre for Integrated RF Engineering (CIFE), Department of Electrical & Computer Engineering, May 1, 2016 – April 30, 2019.

OWEN, William, Associate Director of First Year Engineering, September 1, 2016 – August 31, 2021.


SHEN, Sherman, Associate Chair of Graduate Studies, Department of Electrical & Computer Engineering, September 1, 2016 – August 31, 2017.

SIVOTHTHAMAN, Siva, Director, Centre for Advanced Photovoltaic Devices & Systems (CAPDS), May 1, 2016 – April 30, 2019.

C. RESIGNATIONS
BRISTOW, Michele, Definite Term Lecturer, Department of Systems Design Engineering, August 31, 2016.

CHAMAANI, Somayyeh, Visiting Assistant Professor, Department of Electrical & Computer Engineering, August 27, 2016.

LIU, Qiao, Visiting Researcher, Department of Electrical & Computer Engineering, September 1, 2016.

FOR APPROVAL BY THE BOARD OF GOVERNORS

D. SABBATICALS
DALZIEL, Margaret, Associate Professor, Conrad Business, Entrepreneurship and Technology Centre, January 1, 2017 – June 30, 2017, six months at 85% salary.

DIETL, Werner, Assistant Professor, Department of Electrical & Computer Engineering, January 1, 2017 – June 30, 2017, six months at 100% salary.

DIMITROV, Stanko, Associate Professor, Department of Management Sciences, November 1, 2016 – April 30, 2017, six months at 85% salary.

HUISJOON, Jan, Professor, Department of Mechanical & Mechatronics Engineering, January 1, 2017 – December 31, 2017, twelve months at 100% salary.

TZOGANAKIS, Costas, Professor, Department of Chemical Engineering, January 1, 2017 -June 30, 2017, six months at 100% salary.
VECHTOMOVA, Olga, Associate Professor, Department of Management Sciences, January 1, 2017 – December 31, 2017, twelve months at 100% salary.

WONG, William S., Professor, Department of Electrical & Computer Engineering, January 1, 2017 – December 31, 2017, twelve months at 85% salary.

WRIGHT, John L., Professor, Department of Mechanical & Mechatronics Engineering, January 1, 2017 – December 31, 2017, twelve months at 91.3% salary.

XIE, Wei-Chau, Professor, Department of Civil & Environmental Engineering, January 1, 2017 – December 31, 2017, twelve months at 100% salary.

ALREADY APPROVED BY THE BOARD OF GOVERNORS

GRACIE, Robert, Associate Professor, Department of Civil & Environmental Engineering, January 1, 2016 – June 30, 2017, six months at 85% salary.

PONNAMBALAM, Kumaraswamy, Professor, Department of Systems Design Engineering, September 1, 2016 – August 31, 2017, twelve months at 85% salary.

Pearl Sullivan
Dean, Faculty of Engineering
FOR INFORMATION

A. APPOINTMENTS

**Probationary Term Appointments**

**MINAKER, Leia,** Assistant Professor, School of Planning, October 1, 2016 to June 30, 2020: PhD, Alberta, 2012; MSc, Alberta, 2006; BSc, Waterloo, 2004. Currently a Research Assistant Professor at the Propel Centre for Population Health Impact at Waterloo, Dr. Minaker’s work focuses mainly on retail food environments and their connections to issues of justice, health, and the built environment. She is highly skilled at quantitative and evaluative research methods, and has an impressive publication record including 25 refereed publications. Dr. Minaker’s research in urban health and food-related areas make her an excellent fit in both the School of Planning and in the Faculty.

**WORTH, Nancy,** Assistant Professor, Department of Geography and Environmental Management, September 1, 2016 to June 30, 2019: PhD, University of Leeds, 2010; MA, Toronto, 2005; BA, Wilfrid Laurier University, 2004. Dr. Worth identifies her research focus as a feminist economic geographer interested in work, social reproduction, inequality, age and generations. With a background in human geography, and a two year Banting PDF at McMaster with feminist geographer, Vera Chouinard, it is anticipated that she will contribute greatly to the Department in the area of economic geography.

**Definite Term Appointments**

**CURTIS, Kevin,** Lecturer, School of Planning, September 1, 2016 to August 31, 2019: PhD, Waterloo, 1995; MPL, Queen’s University, 1984; BES, Waterloo, 1980. Dr. Curtis has many years of planning practice experience and he has held a range of municipal planning positions. His teaching experience spans two decades as a sessional instructor at a number of Ontario Universities, teaching at both the graduate and undergraduate level. Dr. Curtis is a welcome addition to the School of Planning.

**STOKES, Allyson,** Assistant Professor, Department of Knowledge Integration, January 1, 2017 to December 31, 2017: PhD, McMaster University, 2013; MA, McMaster University, 2009; BA, Memorial University, 2007. Dr. Stokes’ background is in Sociology, with a focus on the study of work, equity and social inequality, and creative industries, with particular emphasis on social inequalities in cultural labour markets. Dr. Stokes will be a welcome addition to the department in 2017.

**Adjunct Appointments**

**Graduate Supervision**

**ASHPOLE, Sara,** Assistant Professor, School of Environment, Resources and Sustainability, May 1, 2016 to April 30, 2019.

**FREMETH, Adam,** Assistant Professor, School of Environment, Resources and Sustainability, May 1, 2016 to April 30, 2019.

**HALL, Brent,** Professor, School of Planning, September 1, 2016 to August 31, 2017.

**HIGGINS, Christopher,** Assistant Professor, School of Planning, July 1, 2016 to June 30, 2019.
SMITH, Stephen, Professor, Department of Geography and Environmental Management, August 1, 2016 to July 31, 2020.

WIGLE, Randall, Professor, Faculty of Environment, May 1, 2016 to April 30, 2019.

Graduate Supervision and Research

HAIGHT, Murray, Associate Professor, School of Planning, July 1, 2016 to December 31, 2016.

KHEYROLLAH POUR, Homa, ECCC NSERC Visiting Fellow, Department of Geography and Environmental Management, June 1, 2016 to February 28, 2019.

PARKER, Scott, Assistant Professor, School of Environment, Resources and Sustainability, June 1, 2016 to May 31, 2019.

Special Appointments

Instruction

CASTON, Wayne, Lecturer, School of Planning, September 1, 2016 to December 31, 2016.

FERGUSON, Philip, Lecturer, School of Planning, September 1, 2016 to December 31, 2016.

GABRIEL, Mel (Amir), Lecturer, School of Environment, Enterprise and Development, September 1, 2016 to December 31, 2016.

HARUN, S.M. Rafael, Lecturer, School of Planning, September 1, 2016 to December 31, 2016.

JOAKIM, Erin, Lecturer, Department of Geography and Environmental Management, September 1, 2016 to December 31, 2016.

MURRAY, Daniel, Lecturer, School of Environment, Enterprise and Development, September 1, 2016 to December 31, 2016.

PANCESAR, Jespal, Lecturer, School of Environment, Resources and Sustainability, September 1, 2016 to December 31, 2016.

PHILPOT, Simone, Lecturer, Department of Geography and Environmental Management, September 1, 2016 to December 31, 2016.

RILEY, Liam, Lecturer, School of Environment, Enterprise and Development, September 1, 2016 to December 31, 2016.

SCHUMILAS, Theresa, Lecturer, School of Environment, Enterprise and Development, September 1, 2016 to December 31, 2016.

STEWARD, Douglas, Lecturer, School of Environment, Resources and Sustainability, September 1, 2016 to December 31, 2016.

THOMPSON, Aaron, Lecturer, Department of Geography and Environmental Management, September 1, 2016 to December 31, 2016.

Cross Appointments

BIGELOW, Philip, Associate Professor, School of Public Health and Health Systems to the School of Planning, July 1, 2016 to August 31, 2019.
BURCH, Sarah, Assistant Professor, Department of Geography and Environmental Management to the School of Planning, May 1, 2016 to April 30, 2019.

LIN, Haiying, Assistant Professor, School of Environment, Enterprise and Development to the Department of Geography and Environmental Management, September 1, 2016 to August 31, 2018.

MURPHY, Stephen, Professor, School of Environment, Resources and Sustainability to the School of Planning, May 1, 2016 to April 30, 2019.

SCOTT, Dan, Professor, Department of Geography and Environmental Management to the School of Planning, October 1, 2016 to September 30, 2019.

B. ADMINISTRATIVE APPOINTMENT
SINGH, Simron, Associate Dean, Graduate Studies, Faculty of Environment, July 1, 2016 to June 30, 2019.

ADMINISTRATIVE REAPPOINTMENT
WOUDSMA, Clarence, Director, School of Planning, July 1, 2016 to June 30, 2017.

C. SABBATICAL LEAVE
For Approval by the Board of Governors
FILION, Pierre, Professor, School of Planning, January 1, 2017 to June 30, 2017, at 85% salary.

Jean Andrey
Dean
A. APPOINTMENTS (to be approved by the Board of Governors)

Tenured

KERSCHBAUM, Florian (BA, 1997, Cooperative State University; MS, 2001, Purdue University; Dr.-Ing, 2010, Karlsruhe Institute of Technology), Associate Professor, David R. Cheriton School of Computer Science, January 1, 2017. Dr. Kerschbaum is currently a Chief Research Expert at SAP Research in Karlsruhe, Germany. His research is in the area of security and privacy protocols for cross-organizational business applications. He builds novel systems using applied cryptography for secure and privacy-preserving computations. Some of his major contributions are secure computations for cloud-based, collaborative benchmarking and supply chain management.

Probationary-Term Appointments

NAGAPPAN, Meiyappan (BE, 2006, Anna University; MS, 2008; PhD, 2011, both from North Carolina State University), Assistant Professor, David R. Cheriton School of Computer Science, August 1, 2016 – June 30, 2019. Meiyappan (Mei) Nagappan completed his PhD at North Carolina State University in 2011 and did a postdoc in the Software Analysis and Intelligence Lab at Queen's University, before taking a position as Assistant Professor at the Rochester Institute of Technology in 2014. His research interests are "Big Data" Empirical Software Engineering by mining Ultra Large repositories of software to identify patterns and relationships in large ecosystems.

YARD, Jon (BS, 1997; MS, 2000; PhD, 2005, both from Standford University), Associate Professor, Dept. of Combinatorics and Optimization, September 1, 2016 – June 30, 2019. Dr. Yard is currently a postdoctoral researcher at Microsoft in Redmond, WA. His research interests include quantum computing, quantum information theory, noncommutative number theory and complexity theory. Dr. Jon Yard will add significant strength to our Department's quantum computing group. His broad range of interests should also lead to interesting collaborations with colleagues outside this group.

YU, Yaoliang (BSc, 2005; MSc, 2008, both from Fudan University; PhD, 2015, University of Alberta), Assistant Professor, David R. Cheriton School of Computer Science, September 1, 2016 – June 30, 2020. Dr. Yu’s dissertation won the PhD Dissertation Award from the Canadian Artificial Intelligence Association in 2015. Since 2015 he has been a Postdoctoral Fellow in the Machine Learning Department at Carnegie Mellon University. His research revolves around machine learning, statistics and optimization, with a goal to advance big data analytics using computational and statistical tools.

Probationary-Term Reappointments

Definite Term - Appointments
McGRATH, Paul (BSc, 2007, University of Waterloo; MSc, 2010, University of Alberta; PhD, 2014, University of Waterloo), Lecturer, Office of the Dean, September 1, 2016 – August 30, 2018. Dr. McGrath will teach two or more sections a year, online or in-class, develop MATH 127 and MATH 128 in Möbius, develop other online materials as directed by the Associate Dean, Undergraduate Studies.

WOODY, Owen (BCS, 2007; PhD (exp 2016), both from the University of Waterloo), Lecturer, Office of the Dean, September 1, 2016 – August 30, 2018. Mr. Woody is to teach two or more sections a year, online or in-class, develop MATH 127 and MATH 128 in Möbius and develop other online materials as directed by the Associate Dean, Undergraduate Studies.

Definite Term - Reappointments
BELTAOS, Andrew, Lecturer, Office of the Dean, August 30, 2016 – August 28, 2018.

FORREST, Barbara, Lecturer, Office of the Dean, August 30, 2016 - August 28, 2018.


ROBERTS, Collin, Lecturer, David R. Cheriton School of Computer Science, September 1, 2016 – August 31, 2018.

SAKHNINI, Victoria, Lecturer, David R. Cheriton School of Computer Science, September 1, 2016 – August 31, 2018.

SPEZIALE, Sean, Lecturer, Office of the Dean, August 30, 2016 – August 28, 2018.

Visiting Appointments
HMAITY, Ali (Politecnico di Milano), Scholar, David R. Cheriton School of Computer Science, August 20, 2016 – December 31, 2016.

FINK, Simon Dominik (Stiftung der Deutschen Wirtschaft), Scholar, David R. Cheriton School of Computer Science, September 1, 2016 – December 31, 2016.


XIA, Chengyi (Tianjin University of Technology), Scholar, Dept. of Applied Mathematics, August 15, 2016 – February 15, 2017.

ZHANG, Chunxia (Xi’an Jiaotong University), Researcher, Dept. of Statistics and Actuarial Science, October 1, 2016 – September 30, 2017.

Adjunct Appointments
Instructor

HINCKS, Ian, Lecturer, Dept. of Applied Mathematics, September 1, 2016 – December 31, 2016.
RODRIGUEZ-MILLA, Lecturer, Office of the Dean, September 1, 2016 – December 31, 2016.

TANG, Herbert, Lecturer, Office of the Dean, September 1, 2016 – December 31, 2016.

Research
CHILANA, Parmit (Simon Fraser University), Adjunct, David R. Cheriton School of Computer Science, September 1, 2016 – June 30, 2018.

FORSYTH, Peter, Professor Emeritus, David R. Cheriton School of Computer Science, November 1, 2016 – June 30, 2019.

Grad Committee
RAYSAL, Olga (Carleton University), David R. Cheriton School of Computer Science, July 1, 2016 – June 30, 2018.

Adjunct Reappointments
Instructor
AKINYEMI, John, Lecturer, David R. Cheriton School of Computer Science, September 1, 2016 – December 31, 2016.

AL-MASRI, Eyhab, Lecturer, David R. Cheriton School of Computer Science, September 1, 2016 – December 31, 2016.

ALIAKBARI, Shahla, Lecturer, Office of the Dean, September 1, 2016 – December 31, 2016.

ALWAN, Mohamad, Lecturer, Dept. of Applied Mathematics, September 1, 2016 – December 31, 2016.


BEN-DAVID, Shoham, Lecturer, David R. Cheriton School of Computer Science, May 1, 2016 – August 31, 2016.

CAMACHO, Fernando, Lecturer, Dept. of Statistics and Actuarial Science, September 1, 2016 – December 31, 2016.

GAUTHIER-SHALOM, Gabriel, Lecturer, Dept. of Combinatorics and Optimization, September 1, 2016 – December 31, 2016.

GOH, Joslin, Lecturer, Dept. of Statistics and Actuarial Science, September 1, 2016 – December 31, 2016.

HOLTY, Dan, Lecturer, David R. Cheriton School of Computer Science, September 1, 2016 – December 31, 2016.

ISTEAD, Lesley, Lecturer, David R. Cheriton School of Computer Science, May 1, 2016 – August 31, 2016.

KARABINA, Burcu, Lecturer, Office of the Dean, September 1, 2016 – December 31, 2016.
KHARAL, Rosina, Lecturer, David R. Cheriton School of Computer Science, May 1, 2016 – August 31, 2016.

KOHLER, Dave, Lecturer, Dept. of Statistics and Actuarial Science, September 1, 2016 – December 31, 2016.

KOTHARI, Nishad, Lecturer, Dept. of Combinatorics and Optimization, September 1, 2016 – December 31, 2016.

LANCTOT, Kevin, Lecturer, David R. Cheriton School of Computer Science, September 1, 2016 – December 31, 2016.

McLEISH, Don, Lecturer, Dept. of Statistics and Actuarial Science, September 1, 2016 – December 31, 2016.

TANG, Herbert, Lecturer, Office of the Dean, September 1, 2016 – December 31, 2016.

VAN KOOTEN, Chris, Lecturer, Dept. of Statistics and Actuarial Science, September 1, 2016 – December 31, 2016.

Research
BAEZA-Yates (Universitat Pompeu Fabra), Professor, David R. Cheriton School of Computer Science, July 1, 2016 – June 30, 2018.


HOFFMAN, Peter, Professor Emeritus, Dept. of Pure Mathematics, September 1, 2016 – August 31, 2019.

MATTHEWS, David, Professor Emeritus, Dept. of Statistics and Actuarial Science, September 1, 2016 – August 31, 2019.


Cross Reappointments
KÖNEMANN, Jochen (Professor, Dept. of Combinatorics and Optimization) in the David R. Cheriton School of Computer Science, July 1, 2016 – June 30, 2019.

Graduate Students appointed as Part-time Lecturers
ATWATER, Erinn, David R. Cheriton School of Computer Science, May 1, 2016 – August 31, 2016.


FLOOD, Connor, David R. Cheriton School of Computer Science, September 1, 2016 – December 31, 2016.

LI, Boyu, Dept. of Pure Mathematics, May 1, 2016 – August 31, 2016.


MOSS, Aaron, David R. Cheriton School of Computer Science, September 1, 2016 – December 31, 2016.


TAN, Luchen, David R. Cheriton School of Computer Science, September 1, 2016 – December 31, 2016.

Graduate Students reappointed as Part-time Lecturers


Postdoctoral Fellows appointed as Part-time Lecturers
MONDAL, Debajyoti, David R. Cheriton School of Computer Science, September 1, 2016 – August 31, 2017.

ROOS, Stefanie, David R. Cheriton School of Computer Science, September 1, 2016 – August 31, 2017.


Postdoctoral Fellow reappointed as part-time Lecturers

MEHRABI, Saeed, David R. Cheriton School of Computer Science, September 1, 2016 – August 31, 2017.

ROATIS, Alexandra, David R. Cheriton School of Computer Science, September 1, 2016 – December 31, 2016.


B. ADMINISTRATIVE APPOINTMENTS
BOUDREAU, Christian, Co-Director (Interim), Survey Research Centre, July 1, 2016 – June 30, 2017.
BOUTABA, Raouf, Associate Dean, Research, Office of the Dean, July 1, 2016 – June 30, 2019.

BROWN, Dan, Director, Undergraduate Studies, David R. Cheriton School of Computer Science, July 1, 2016 – June 30, 2018.

FUKASAWA, Ricardo, Associate Chair for Undergraduate Studies, Dept. of Combinatorics and Optimization, July 1, 2016 – June 30, 2017.

HARMSWORTH, David, Associate Dean – Students, Office of the Dean, May 1, 2016 – April 30, 2018.

KARSTEN, Martin, Associate Director, Undergraduate Studies, David R. Cheriton School of Computer Science, July 1, 2016 – August 31, 2016.

LARSON, Kate, Associate Director, Undergraduate Studies, David R. Cheriton School of Computer Science, September 1, 2016 – June 30, 2018.

SWAMY, Chaitanya, Associate Chair, Graduate Studies, Dept. of Combinatorics and Optimization, September 1, 2016 – August 31, 2017.

ADMINISTRATIVE REAPPOINTMENTS

ATLEE, Joanne, Director, Women in Computer Science, David R. Cheriton School of Computer Science, July 1, 2016 – June 30, 2017.

HENGARTNER, Urs, Associate Director, Graduate Studies, David R. Cheriton School of Computer Science, July 1, 2016 – June 30, 2017.

SALEM, Kenneth, Director, Infrastructure, David R. Cheriton School of Computer Science, July 1, 2016 – June 30, 2017.

C. RESIGNATIONS

GAO, Jane, Research Assistant Professor, Dept. of Combinatorics and Optimization, effective July 31, 2016.

KATZ, Eric, Associate Professor, Dept. of Combinatorics and Optimization, effective July 31, 2016.

TERRY, Michael, Associate Professor, David R. Cheriton School of Computer Science, effective April 30, 2016.

D. RETIREMENT

FORSYTH, Peter, Professor, David R. Cheriton School of Computer Science, effective October 31, 2016.

SAFAYENI, Suzanne, Lecturer, David R. Cheriton School of Computer Science, effective August 31, 2016.
E. **SABBATICALS** (for approval by the Board of Governors)

**HAN, Peisong**, Assistant Professor, Dept. of Statistics and Actuarial Science, January 1, 2017 – June 30, 2017, with 100% salary. This is a special early sabbatical.

**LI, Bin**, Assistant Professor, Dept. of Statistics and Actuarial Science, January 1, 2017 – June 30, 2017, with 100% salary. This is a special early sabbatical.


F. **SPECIAL LEAVE**

**DE STERCK, Hans**, Professor, Dept. of Applied Mathematics, August 1, 2016 – July 31, 2017. This is an unpaid leave.

**KARI, Lila**, Professor, David R. Cheriton School of Computer Science, July 1, 2016 – June 30, 2017. This is an unpaid leave.

Stephen M. Watt
Dean
UNIVERSITY OF WATERLOO
REPORT OF THE DEAN OF SCIENCE TO SENATE
September 19, 2016

For information:

A. APPOINTMENTS

New Probationary Term

ISLAM, Kazi Rajibul, Assistant Professor, Department of Physics and Astronomy (IQC), November 1, 2016 to June 30, 2020. [B.Sc., Jadavpur University, Kolkata (2005); M.Sc., Tata Institute of Fundamental Research, Mumbai (2007); Ph.D., University of Maryland (2012).] Dr. Islam’s research interests include investigating problems in many-body physics and quantum information sciences with synthetic quantum matter. He will combine the flexible long range interactions of ions with the precise optical manipulation afforded by a quantum gas microscope. This would allow unprecedented control of quantum spin systems at the single particle level. His long term goal is to build a fully controllable quantum spin network of hundreds of spins that would be a resource to study quantum dynamics and entanglement formation which would significantly raise the reputation of the department, the University of Waterloo and IQC.

LEONENKO, Yuri, Associate Professor, Joint Appointment, Department of Earth and Environmental Sciences and Department of Geography, September 1, 2016 to June 30, 2019. [M.Sc., Novosibirsk State University, Russia (1985); Ph.D., Russian Academy of Science (1991).] Yuri Leonenko obtained his PhD in 1991 in Thermodynamics and Fluid Mechanics. The core of his expertise is complex multiphase flows and transport phenomena, and his current area of interest is CO₂ storage, climate control and emerging technologies for oil and gas production. He has published 36 refereed journal papers and has 22 refereed conference proceedings. Dr. Leonenko is currently offering a highly successful Science course (Science 201 – Global Warming and Climate Change) that has grown from about 20 to about 160 students. He could teach many of the existing courses in Earth and Environmental Science, including various hydrogeology courses dealing with flow in porous media and our courses in geophysics.

SENKO, Crystal, Assistant Professor, Department of Physics and Astronomy (IQC), November 1, 2016 to June 30, 2020. [B.S., Duke University (2009); Ph.D., University of Maryland, College Park (2014).] Dr. Senko’s common thread in her research interests include controlling arrays of atoms with tunable spin interactions and individual readout, then using them to study strong-correlated quantum systems, a direction that has strong ties with AMO physics, quantum information and quantum many-body physics. The trapped ions that are Dr. Senko’s main focus of research is a highly successful technology for quantum science, but currently unrepresented at the University of Waterloo and therefore will significantly increase the reputation and research conducted in the department, the University of Waterloo and IQC.

SMITH, Rodney D.L., Assistant Professor, Department of Chemistry, May 1, 2017 to June 30, 2020. [B.Sc., University of Manitoba (2007); Ph.D., Memorial University of Newfoundland (2012).] Dr. Rodney Smith is a Humboldt Postdoctoral Fellow at the Freie Universidad in Berlin with Professor Dr. Holger Dau. Before taking up this prestigious position in January, 2016, Dr. Smith was a MITACS Elevate Postdoctoral Fellow with Professor Curtis Burlinguette, first at the University of Calgary from March 2012 to August 2013, then from September 2013 to December 2015, at the University of British Columbia. During this time he worked extensively with a start-up company, Firewater Fuel Corp., as their Technical Leader. His research proposes to develop novel approaches to the design and fabrication of advanced materials and architectures for use in heterogeneous electrocatalysis, and will add diversity and expertise to the extensive energy materials research ongoing at Waterloo.
Probationary Term Reappointment

BASU, Nandita, Assistant Professor, Joint with Department of Civil and Environmental Engineering and Department of Earth and Environmental Sciences, July 1, 2016 to June 30, 2019. [Bachelor of Civil Engineering, Jadavpur University, India (1997); M.Tech, Indian Institute of Technology, India (2001); Ph.D., Purdue University (2006).]

CHRISTIAN, Lisa W., Associate Clinical Professor, School of Optometry and Vision Science, July 1, 2017 to June 30, 2020. [B.Sc., Queen’s University (1999); OD, Illinois College of Optometry (2003); Clinical Residency, University of Waterloo (2005).]

FURTADO, Nadine M., Assistant Clinical Professor, School of Optometry and Vision Science, July 1, 2017 to June 30, 2020. [B.Sc., McGill University (2004); B.A., McGill University (2006); M.Sc., SUNY College of Optometry (2010); OD, SUNY College of Optometry (2010); Ocular Disease & Primary Care Optometry Residency, VA Hudson Valley Health Care System (2011).]

PATEL, Tejal, Assistant Clinical Professor, School of Pharmacy, July 1, 2017 to June 30, 2020. [B.Sc., University of Kentucky, College of Pharmacy (1996); D.Pharm., University of Kentucky, College of Pharmacy (1997).]

YAKYMCHUK, Christopher, Assistant Professor, Department of Earth and Environmental Sciences, July 1, 2017 to June 30, 2020. [B.Sc., Dalhousie University (2008); M.Sc., Queen’s University (2010); Ph.D., University of Maryland (2014).]

Definite Term Appointment – Part-time

BERNATH, Peter F., Research Professor, Department of Chemistry, August 1, 2016 to January 31, 2020. [B.Sc., University of Waterloo (1976); Ph.D., Massachusetts Institute of Technology (1981).] Dr. Peter Bernath is a tenured professor and past Chair of the Department of Chemistry and Biochemistry at Old Dominion University in Virginia, USA. He has previously held tenured appointments at University of York (UK), University of Waterloo and Arizona State University. He is an internationally recognized spectroscopist specializing in the detection and identification of molecules in atmospheric and outer-space environments, including the first spectroscopic evidence of water on the sun. He leads the Atmospheric Chemistry Experiment, or ACE, group based at Waterloo, which is a Canadian remote sensing satellite that provides altitude profile information (typically 10-100 km) for temperature, pressure, and the volume mixing ratios for several dozen molecules of atmospheric interest.

Definite Term Reappointment – Part-time

COUTURE, Raoul-Marie, Research Assistant Professor, Department of Earth and Environmental Sciences, June 1, 2016 to May 31, 2017.

Adjunct Appointments

Graduate Supervision

ARHONDITSIS, George B., Professor, Department of Earth and Environmental Sciences, April 1, 2016 to March 31, 2019.

ESMAEILI, Kamran, Assistant Professor, Department of Earth and Environmental Sciences, June 1, 2016 to May 31, 2019.
JOL, Harry Martin, Professor, Department of Earth and Environmental Sciences, June 1, 2016 to May 31, 2019.

LONGSTAFFE, James G., Assistant Professor, Department of Earth and Environmental Sciences, April 1, 2016 to March 31, 2019.

PINTI, Daniele Luigi, Professor, Department of Earth and Environmental Sciences, June 1, 2016 to May 31, 2019.

ZAKON, Harold, Professor, Department of Biology, May 1, 2016 to April 30, 2019.

ZIEGLER, Blake, Assistant Professor, School of Pharmacy, July 1, 2016 to June 30, 2019.

Undergraduate Instruction

FARRELL, Barbara Jeanne, Assistant Professor, School of Pharmacy, June 1, 2016 to May 31, 2019.

LING, Jane, Assistant Professor, School of Pharmacy, August 1, 2016 to July 31, 2019.

Graduate Supervision and Research

BOBIER, William R., (Professor Emeritus), Professor, School of Optometry and Vision Science, January 1, 2017 to March 31, 2021.

Adjunct Reappointments

Graduate Supervision

BUCHEL, Alex, Professor, Department of Physics and Astronomy, May 1, 2016 to April 30, 2019.

BULLEN, Thomas D., Professor, Department of Earth and Environmental Sciences, October 1, 2015 to September 30, 2018. (Dates are accurate, he forgot to sign the paperwork.)

FRIND, Emil, (Distinguished Professor Emeritus), Professor, Department of Earth and Environmental Sciences, September 1, 2016 to August 31, 2019.

LIN, John, Professor, Department of Earth and Environmental Sciences, July 1, 2016 to June 30, 2019.

LINNEN, Robert, Professor, Department of Earth and Environmental Sciences, July 1, 2016 to June 30, 2019.

SPOELSTRA, John, Assistant Professor, Department of Earth and Environmental Sciences, May 1, 2016 to April 30, 2019.
WILKIE, Michael P., Associate Professor, Department of Biology, August 1, 2016 to July 31, 2019.

Graduate Supervision and Research

BOLS, Niels C., (Distinguished Professor Emeritus), Professor, Department of Biology, September 1, 2016 to August 31, 2019.

FONN, Desmond, (Distinguished Professor Emeritus), Professor, School of Optometry and Vision Science, July 1, 2016 to June 30, 2019.

McGEER, James (Jim) C., Associate Professor, Department of Biology, April 1, 2016 to March 31, 2019.

Graduate Instruction and Graduate Supervision

FOTAKI, Nicoletta, Associate Professor, School of Pharmacy, June 1, 2016 to May 31, 2019.

Undergraduate Instruction, Graduate Instruction, Research

TSUYUKI, Ross, Associate Professor, School of Pharmacy, May 1, 2016 to April 30, 2019.

Graduate Instruction, Graduate Supervision and Research

GOMIS, Jaume, Professor, Department of Physics and Astronomy, June 1, 2016 to May 31, 2021.

Cross Appointments

MISKOVIC, Zoran, Professor, Department of Applied Mathematics cross appointed to Department of Physics and Astronomy, July 1, 2016 to June 30, 2019.

Cross Reappointments

CAMPBELL, Sue Ann, Professor, Department of Applied Mathematics cross appointed to Department of Biology, September 1, 2016 to August 31, 2019.

CORY, David, Professor, Department of Chemistry cross appointed to Department of Physics and Astronomy, June 1, 2016 to May 31, 2019.

JONES, Lyndon, Professor, School of Optometry and Vision Science cross appointed to Department of Biology, October 1, 2016 to September 30, 2019.

WASILEWSKI, Zbigniew, Professor, Department of Electrical and Computer Engineering cross appointed to Department of Physics and Astronomy, May 1, 2016 to April 30, 2019.
Special Appointments

Undergraduate Instruction

ABUZAITER, Wesam, Lecturer, School of Pharmacy, September 1, 2016 to December 31, 2016.

AHMAD, Jauher, Lecturer, School of Pharmacy, September 1, 2016 to December 31, 2016.

DENNISS, Steven, Lecturer, School of Pharmacy, September 1, 2016 to December 31, 2016.

NGO, William, Lecturer, School of Optometry and Vision Science, September 1, 2016 to December 31, 2016.

Postdoctoral Fellow Appointed as Lecturer

VAN DOORN, Kevin, Lecturer, School of Optometry and Vision Science, September 1, 2016 to December 31, 2016.

Special Reappointments

Undergraduate Instruction

BARNES, Derek J., Lecturer, School of Optometry and Vision Science, September 1, 2016 to December 31, 2016.

HANNA, Brad W.J., Lecturer, School of Optometry and Vision Science, September 1, 2016 to December 31, 2016.

HUGHES, Dave, Lecturer, School of Pharmacy, September 1, 2016 to December 31, 2016.

JOHNSON, Ron, Lecturer, School of Optometry and Vision Science, September 1, 2016 to December 31, 2016.

MARTIN-MARTINEZ, Eduardo, Lecturer, Department of Physics and Astronomy, September 1, 2016 to December 31, 2016.

WASFI, Olla, Lecturer, School of Pharmacy, September 1, 2016 to December 31, 2016.

WONG, Jeffrey, Lecturer, School of Pharmacy, September 1, 2016 to December 31, 2016.

Research Associate Reappointed as Lecturer

VARIKOOTY, Jalaiah, Lecturer, School of Optometry and Vision Science, September 1, 2016 to December 31, 2016.

B. Administrative Appointments

CAMPBELL, Melanie, Director, Guelph-Waterloo Physics Institute (GWPI), June 1, 2016 to May 31, 2019.
HUTCHINGS, Natalie, Acting Associate Director, Academics, School of Optometry and Vision Science, April 1, 2016 to June 30, 2017.

IDZIAK, Stefan, Associate Dean, Computing and Co-operative Education, Faculty of Science, September 1, 2016 to August 31, 2019.

JONES, Deborah, Acting Director, School of Optometry and Vision Science, January 1, 2016 to June 30, 2016.

JONES, Deborah, Interim Director and Associate Dean, School of Optometry and Vision Science, July 1, 2016 to June 30, 2017.

C. RESIGNATIONS

SPAGNUOLO, Paul, Assistant Professor, School of Pharmacy, effective August 15, 2016.

STEENBAKKERS-WOOLLEY, Michelle, Associate Clinical Professor, School of Optometry and Vision Science, effective August 20, 2016.

D. RETIREMENT

BOBIER, William R., Professor, School of Optometry and Vision Science, effective January 1, 2017.

R.P. Lemieux
Dean
FOR INFORMATION

A. APPOINTMENTS

Administrative

Hara, Kimie, Director, East Asian Studies, July 1, 2016 to June 30, 2017.

McMillan, Colleen, Interim Director, School of Social Work, July 1, 2016 to June 30, 2018.

Williams, Julia, Director, English Language Studies, May 1 2016 to April 30, 2019.

Wilson, Jeff, Chair, Department of Culture and Language Studies, May 1, 2016 to April 31, 2019.

Probationary Term Appointments

Fortier, Craig, Assistant Professor, Department of Social Development Studies, July 1, 2016 to June 30, 2019.

Marshall, Zack, Assistant Professor, Joint appointed to the School of Social Work and the Department of Social Development Studies, July 1, 2016 to June 30, 2019.

Second Probationary Term Appointments

Ashcroft, Rachelle, Assistant Professor, Department of Social Development Studies, August 1, 2016 to July 31, 2019. (Subsequent resignation)

Case, Robert, Assistant Professor, Department of Social Development Studies, January 1, 2016 to December 31, 2018.

Shaikh, Arshi, Assistant Professor, Department of Social Development Studies, July 1, 2016 to June 30, 2019.

Tenured Faculty

Hogarth, Kathy, Associate Professor, School of Social Work, July 1, 2016.

Logel, Christine, Associate Professor, Department of Social Development Studies, July 1, 2016.

Marigold, Denise, Associate Professor, Department of Social Development Studies, July 1, 2016.

Other Faculty Appointments

Cai, Kevin, Cross-appointed to the Department of Culture and Language Studies and the Department of Social Development Studies, July 1, 2016 to June 30, 2016.

Fletcher, Wendy, Cross-appointed to the School of Social Work and Department of Religious Studies, July 1, 2016 to June 30, 2019.
Definite Term Faculty Appointments

Al-Azraki, Amir, Assistant Professor, Studies in Islam, September 1, 2016 – August 31, 2018
Bratton, Daniel, Definite Term Lecturer, Department of Culture and Language Studies, August 1, 2016 – August 31, 2019
Jim Perretta, Definite Term Lecturer, Fractional, Social Development Studies, September 1, 2016 – August 31, 2017

Continuing Lecturer Ongoing Appointments

Heeney, Margaret, Continuing Lecturer, English Language Studies, May 1, 2016
Oczkowski, Nancy, Continuing Lecturer, Part-time, English Language Studies, May 1, 2016
Schuller, Christa, Continuing Lecturer, English Language Studies, May 1, 2016
Skinner, Patricia, Continuing Lecturer, English Language Studies, May 1, 2016
Rehm, Stefan, Continuing Lecturer, English Language Studies, May 1, 2016
Williams, Julia, Continuing Lecturer, English Language Studies, May 1, 2016
Wolczuk, Agnieszka, Continuing Lecturer, English Language Studies, May 1, 2016

Lecturer Appointments – Fall 2016 only

School of Social Work
- Natalia Antunes (Field Consultant), Cheri Blitz, Debashis Dutta, Susan Gallagher, Angela Hammond, Sandy Jardine, Kelly Laurila, Wayne Miller, Marg Notar

Social Development Studies
- Dan Andreea, Karen Bennett, Jon Boyd, Thomas Brenner, Catherine Briggs, Alex Huynh, Peter Hymmen, Erin Kravetsky, Megan McCarthy, Virginia Nusca, Joanna Ochocka (Adjunct), Dale Payne, Theresa Romkey, Nicole Sanderson, Julie Timmermans
- Crystal Tse

Culture and Language Studies
- English Language Studies
  - Joanne Astley, Daryaneh Lane, Myounguen Jeong, Mehrnoush Mohammadi, Maria Pop, Roslyn Zehr, Susan Buleychuk, Anthony Verbruggen
- East Asian Studies
  - Lihua Yang, Young Lee Ha, Michiyo Uchida, Qingzhen Deng
- CHINA
  - Yue Ha, Renee Rui Wang, Jie Yang, Xuan Zhou, Huaping Zhuang
- KOREA
- ENGL
  - Elena Afros
- JAPAN
  - Eri Burns

Studies in Islam
- Soheila Kohladouz, Shiraz Sheikh

B. RESIGNATION

Ashcroft, Rachelle, Assistant Professor, School of Social Work, Effective June 30, 2016.

C. RETIREMENTS
None.
D. SABBATICAL LEAVES

Blokhuis, Jason C., Associate Professor, Department of Social Development Studies, January 1, 2017 to June 30, 2017, at 100% salary.

Case, Robert, Assistant Professor, Department of Social Development Studies, January 1, 2016 to June 30, 2016, at 100% salary.

Cowan, Doug, Professor, Religious Studies, June 1 2015 to December 31, 2015, at 100% salary.

McMillan, Colleen, Assistant Professor, School of Social Work, January 1, 2016 to June 30, 2016, at 100% salary.

Van Katwyk, Trish, Assistant Professor, School of Social Work, January 1, 2016 to June 30, 2016, at 100% salary.

Shaikh, Arshi, Assistant Professor, Department of Social Development Studies, July 1, 2016 to December 31, 2016, at 100% salary.

E. ADMINISTRATIVE LEAVES

Cadell, Susan, Professor, School of Social Work, July 1, 2016 to June 30, 2017.
FOR APPROVAL

Committee Appointment
Motion: To approve the following appointment:

- **University Committee on Student Appeals**: Lindsay Daniels as graduate student representative (mathematics), term 19 September 2016 to 30 April 2017.
Senate Graduate & Research Council met on 9 May 2016 and on 13 June 2016, and considered proposals for six changes to academic plans and one academic plan inactivation. 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: https://uwaterloo.ca/secretariat/committees-and-councils/senate-graduate-research-council

FOR APPROVAL

CHANGES TO ACADEMIC PLANS

Faculty of Applied Health Sciences
Recreation and Leisure Studies

1. **Motion:** To approve changes to the master of arts plan in recreation and leisure studies as described in Attachment #1 and effective 1 September 2017. (strikethrough = deleted text; underline = new text)

Students are responsible for reviewing the general information and regulations section of the Graduate Studies Academic Calendar. Program information

- Admission requirements
- Degree requirements

**Fields (areas of research)**

- Administration and Management Services
- Leisure Behaviour and Cultural Resources
- Recreation and Leisure Resources

**Program information**

- **Admit term(s)**
  - Fall
- **Delivery mode**
  - On-campus
- **Length of program**
  - Full-time: 6 terms
  - Part-time: 4.5 terms
  - Students must obtain permission from their Department Graduate Committee, the Associate Chair of Graduate Studies, and the Associate Dean, Graduate Studies, to continue registration beyond the maximum time period stipulated for the program in which they first registered.
- **Program type**
  - Master's
  - Research
- **Registration option(s)**
  - Full-time
  - Part-time
- **Study option(s)**
  - Thesis
  - Coursework
Admission requirements

- **Minimum requirements**
  - A four-year honours bachelor’s degree (or equivalent) in Recreation and Leisure Studies or related field with at least a 75% standing. If the overall undergraduate average is below 75%, consideration may be given to the applicant’s performance during the final year of academic work.
  - Competency in written expression, including evidence of ability to conceptualize, organize ideas and reason.

- **Application materials**
  - Résumé/Curriculum vitae
    - Indicating past academic and professional experience.
  - Supplementary information form
  - Transcript(s)
  - Writing sample
    - Applicants must submit at least one substantial example of their work completed during the last two years of academic study. Students with professional experience may submit a professional report of which they were the sole or senior author.

- **References**
  - Number of references: 2
  - Type of references: academic

- **English language proficiency (ELP)** (if applicable)

Degree requirements

Thesis option:

When students enter the Department, the Graduate Officer serves as a temporary graduate advisor. The advisor will assist students in the selection of courses and other matters relating to the program of study but will not necessarily act as the thesis supervisor. Normally, students will choose a thesis supervisor from faculty in the Department. Course work should normally be completed by the third or fourth term before registering for the thesis.

- **Graduate Academic Integrity Module (Graduate AIM)**
- **Courses**
  - **Required courses**
    - REC 601 Epistemological and Methodological Issues in Leisure Research
    - REC 672 Quantitative Research Data Analysis and Interpretation
    - REC 673 Qualitative Research Data Analysis and Interpretation
    - An overall grade average of at least 75% is required.
  - **Elective courses**
    - At least 2 other graduate courses (0.50 unit weight) from within or outside the Department must also be successfully completed.
    - An overall grade average of at least 75% is required.
  - Students must complete the following courses:
    - REC 600 Integrative Seminar in Recreation & Leisure Studies
    - REC 662 Foundations of Quantitative Inquiry
    - REC 663 Foundations of Qualitative Inquiry
    - 1 of REC 672 Quantitative Research Data Analysis & Interpretation or REC 673 Designing Advanced Qualitative Inquiry
    - At least 1 other graduate course (elective) from within or outside the Department. Graduate courses must be selected in consultation with, and approved by, the student’s supervisor or advisor.
All graduate courses except those designated in this Calendar as CR/NCR must be assigned a numerical grade. Any student who registers for a course in a department outside the Faculty of Applied Health Sciences must receive a numerical grade for the course. Unless the course is designated CR/NCR in the Graduate Calendar, the student must ask the instructor to submit a numerical grade. The student must clarify this requirement with the instructor within the first two weeks of each term.

Students must obtain an average of at least 72% in the set of courses which they present in fulfillment of course requirements for any graduate degree. Unsatisfactory academic performance in any one course will result in a review of the candidate’s status by the departmental Graduate Committee. If a student with a failed course is permitted to continue, additional work may be required to clear the failure in that course, or by replacement of the failed course. Alternatively, the student may be required to repeat part or all of the program.

**Link(s) to courses**

- Recreation and Leisure Studies (REC) courses
- Applied Health Sciences (AHS) courses

**Academic Integrity Workshop**

**Master’s Thesis**

For the MA thesis, the committee consists of at least two faculty members in addition to the supervisor appointed in the student’s department. One of the committee members may be drawn from the faculty members of any other department within the University, especially if such an individual has a special contribution to make to the research process. Faculty members from other universities also may serve if sufficient reason is given to the Graduate Officer. The thesis supervisory committee must be approved by the Graduate Officer.

For the MA thesis option, a thesis committee consists of at least one faculty member and a faculty supervisor appointed in the student’s department. Normally, both committee members are faculty in the Department of Recreation and Leisure Studies. The committee is charged with approving a student’s thesis proposal in a formal defense process, including an oral defense. The thesis supervisory committee must be approved by the Associate Chair of Graduate Studies. A reader, normally another faculty member from the Department of Recreation and Leisure Studies, is selected in consultation with the student’s supervisor and added to the thesis committee as an examiner for the final thesis defense.

**Other requirements**

Student evaluation: a review of each student’s progress takes place during the month of May each year. Students are evaluated on several criteria, i.e., coursework and resulting grades, and, where appropriate, reports submitted by the students regarding their research and teaching assistantship activity. A grade average of at least 75% must be maintained.

**Coursework option:**

- Graduate Academic Integrity Module (Graduate AIM)

**Courses**

- **Required courses**
  - REC 600 Integrative Seminar in Recreation & Leisure Studies
  - REC 662 Foundations of Quantitative Inquiry
  - REC 663 Foundations of Qualitative Inquiry
  - REC 620 Program Evaluation in Recreation, Sport & Tourism

- **Elective courses**
  - 4 elective graduate courses from within or outside the Department.
  - All graduate courses except those designated in this Calendar as CR/NCR must be assigned a numerical grade. Any student who registers for a course in a department outside the Faculty of Applied Health Sciences must receive a
numerical grade for the course. Unless the course is designated CR/NCR in the Graduate Calendar, the student must ask the instructor to submit a numerical grade. The student must clarify this requirement with the instructor within the first two weeks of each term.

- Students must obtain an average of at least 72% in the set of courses which they present in fulfillment of course requirements for any graduate degree. Unsatisfactory academic performance in any one course will result in a review of the candidate's status by the departmental Graduate Committee. If a student with a failed course is permitted to continue, additional work may be required to clear the failure in that course, or by replacement of the failed course. Alternatively, the student may be required to repeat part or all of the program.

- Link(s) to courses
  - Recreation and Leisure Studies (REC) courses
  - Applied Health Sciences (AHS) courses

- Academic Integrity Workshop

Department of Recreation and Leisure Studies website

**Rationale:** The proposed change will add a coursework option to the thesis-based MA program, and will allow the department to more broadly prepare and train students for careers in both research and professional settings, through the various course offerings and relevant pedagogical experiences. Recently, there has been an increasing demand from students for non-thesis based training beyond the undergraduate level, and this is evident at similar programs at peer universities across Canada.

**Faculty of Applied Health Sciences**

**Recreation and Leisure Studies**

2. **Motion:** To add a research presentation milestone requirement for the doctoral plan in recreation and leisure studies effective 1 September 2017.

   **Research Presentation Milestone**

   All PhD students in the Department of Recreation and Leisure Studies in their second year or later must deliver a public research presentation to faculty and students during their doctoral program. Forums at which this milestone can be completed are REC 701 or an independently arranged departmental seminar (excludes conferences and symposia). Supervisor approval/confirmation of completion of this milestone is required.

   **Rationale:** The milestone is added as a the result of an intensive departmental curriculum review that identified the need for PhD students, as part of their educational experience and professional development, to present their research to a public audience of faculty and students.

**Faculty of Arts**

**Economics**

3. **Motion:** To approve the removal of the comprehensive exam in macroeconomics for the doctoral plan in economics effective 1 September 2017.

   **Rationale:** The department has observed that three comprehensive exams in the first year is excessive and not necessary for an applied doctoral program, and the theory and concepts are already tested in other comprehensive exams. As well, this change is in keeping with other similar doctoral programs that have migrated to a two exam framework.
Faculty of Arts
Psychology

4. **Motion:** To approve a change to the Master of Arts in Psychology plan to add the fields “social” and “clinical” effective 1 September 2016.

**Rationale:** Currently when students apply for graduate studies in either clinical or social psychology they are only provided the option of PhD; however, operationally both programs admit all students to an MA program prior to the PhD program. Thus, each admitted applicant is required to agree to be admitted to MA program, despite applying to the PhD program. This change will reduce the administrative load for admitting these students within this framework.

Faculty of Environment
Local Economic Development

5. **Motion:** To approve a degree name change from Master of Applied Environmental Studies (MAES) in Local Economic Development to Master of Economic Development and Innovation, and changes to the same degree plan, as described effective 1 January 2017.

(Master of Applied Environmental Studies (MAES) in Local Economic Development
*****
(Master of Economic Development and Innovation

Students are responsible for reviewing the General Information and Regulations section of the Graduate Studies Academic Calendar.

**Program information**

- Admit term(s)
  - Fall
- Delivery mode(s)
  - On-campus
- Length of program
  - The program, if taken full-time, should be completed within two years of initial registration.
- Program type
  - Master’s
  - Professional
- Registration option(s)
  - Full-time
  - Part-time
- Study option(s)
  - Master’s Research Paper

**Admission requirements**

- Minimum requirements
  - An Honours Bachelor’s degree (or equivalent) in Business, Commerce, Economics, Geography, Planning or a related field, with at least a 75% standing or other Honours Bachelor’s degree (or equivalent) plus two years of work experience in the economic development field.
- Application materials
  - Résumé
  - Supplementary information form
  - Transcript(s)
    - From each previous post-secondary institution.
o Writing sample

- References
  o Number of references: 3
  o Type of references: normally from academic sources, but may be from professional sources.

- English Language Proficiency Certification (ELPC) (if applicable)

Degree requirements

- Graduate Academic Integrity Module (Graduate AIM)
- Courses
  o Core courses:
    - LED 613 Regional Development Principles and Practice
    - LED 685 Theory of Local Economic Development
    - LED 686 Practice of Local Economic Development
    - LED 687 Communication, Market Research and Marketing for the Public Sector
    - ECDEV 601 Economic development: Theories and frameworks
    - ECDEV 602 Economic development: Policy and practice
    - ECDEV 603 Analytical tools for economic development
    - ECDEV 604 Management and policy tools for economic development and sustainability professionals
  
  Thematic courses: students must complete 1 of the following courses:
    - LED 611 Industrial Location Theory and Concepts
    - LED 615 Community Economic Development
    - LED 688 Entrepreneurship and Small Business Development
    - INDEV 602 International Development: Theories and Practice
    - ECDEV 605 Innovation, entrepreneurship and sustainable business development
    - ECDEV 606 Innovation and economic development in cities and regions
  
  Methods course:
    - LED 619 Regional Planning Economic and Investment Analysis
  
  Elective courses: students must complete 2 elective courses which must be approved by the Program Director. While there are no official specializations, students are encouraged to choose thematic courses and electives that develop their personal interests and expertise. There are further opportunities to develop specialized expertise within course assignments and the Master’s Research Paper.
  o It is recommended that students select 2 elective courses from the following list. Other elective courses must be approved by the Program Director.
    - ECDEV 611 Industrial location theory and concepts
    - ECDEV 612 Land development planning
    - ECDEV 615 Community economic development
    - ENBUS 612 Social entrepreneurship and scaling social innovation
    - ENBUS 642 Stakeholder engagement, collaborations and partnerships
    - INDEV 604 Sustainable cities
    - SUSM 630 Enterprise marketing and social accountability

- Graduate Studies Internship
  o Students with fewer than two full years’ experience in the business or community economic development field are required to complete a four-month period of relevant professional experience (internship) to the satisfaction of a designated employer and the advisory committee.

- Master’s Research Paper
- Capstone project: Students must gain relevant professional experience by completing either:
  o An internship (equivalent to four months, full-time employment) with an external organization related to economic development or innovation. Students must complete a
final report describing the activities they undertook and the lessons learned in relation to published literature.; OR

- An applied research project with an external organization focused on an issue related to economic development or innovation. The research project is normally completed in 4-months. Students work closely with a partner organization to explore a defined research problem. Students must complete a research paper discussing the research they undertook and the lessons learned in relation to published literature.

- The Program Director can approve the option for students to complete a major research paper (normally completed in 4-months) under the supervision of a faculty member.

School of Environment, Enterprise and Development (SEED) website

**Rationale:** The new degree name better reflects contemporary theoretical perspectives on economic development, aligns more closely with the jobs, organizations and government agencies involved in economic development policymaking and practice, and highlighting the innovation component in the degree name signals this area of strength of the program and school. The courses are renumbered, renamed, and revised to provide a more stable, rigorous, coherent and compelling program that is reflective of the current state-of-the-art in the discipline. The proposed program introduces a capstone project, which has been designed so that students gain practical professional experience in the field of economic development and innovation. It has been designed with sufficient flexibility to respond to changing labour market conditions and funding realities for many organizations in this field.

**Faculty of Science**

**Biology / Nanotechnology**

6. **Motion:** To withdraw the Department of Biology’s involvement in the collaborative graduate program in nanotechnology effective 1 September 2016.

**Rationale:** The collaborative program has seen minimal update from biology graduate students and the course requirements are not congruous with the background and interests of biology students. The department’s resourcing also does not allow for timely and regular biology modules in the program.

\[signature\]
Jeff Casello
Associate Provost, Graduate Studies

George Dixon
Vice President, University Research
Senate Undergraduate Council met on 8 March 2016 and 21 June 2016, and considered proposals for new academic plans, changes to existing academic plans, and academic plan inactivations. Council agreed to forward the following items to Senate for approval. Council recommends these items be included in the regular agenda.


**FOR APPROVAL**

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**NEW ACADEMIC PLANS**

**Faculty of Arts**

**Economics**

1. **Motion:** To approve a new minor plan in economic theory as described and effective 1 September 2017.

   Students enrolled in any degree program may pursue a minor designation in Economic Theory. The Economic Theory Minor requires successful completion of a minimum of four academic course units (eight courses) with a minimum cumulative average of 65%, including:
   - ECON 101, ECON 102
   - ECON 211, ECON 221, ECON 290
   - ECON 391, ECON 392, ECON 393

   **Notes**
   1. Students in the Faculty of Mathematics who cannot take ECON 211 or ECON 221 will have to replace those courses with electives in Economics of their choice.
   2. Students who have taken an antirequisite to ECON 221 will have to replace ECON 221 with an elective in Economics of their choice.
   3. Students in any Economics academic plan are not eligible to take the Economics Theory Minor.

   **Rationale:** Existing minors in economics focus on the breadth of economics as a social science, but without the full theory. This minor will formalize a path whereby students will be able to gain recognition for these aspects of economics, and this minor will help to clearly demarcate the very distinct objective between economics minors.

**Faculty of Arts**

**History**

2. **Motion:** To approve a new academic plan in honours history with departmental co-op as described and effective 1 September 2017.

   Continuation in this academic plan requires a cumulative minimum overall average of 60% and a cumulative minimum History major average of 70%. Both regular and co-operative versions of this plan are available.

   Eligibility for graduation in the Honours History academic plan includes successful completion of the following requirements:
   1. Appropriate Program-level requirements. See Bachelor of Arts Degree Requirements.
   2. History Plan-level requirements:
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- a minimum History major average of 70%
- at least eight academic course units (16 courses) in History, including:
  - HIST 250
  - one course in each of three fields:
    - Canadian: HIST 253, HIST 254
    - American: HIST 257, HIST 258
    - European: HIST 260/MEDVL 260, HIST 262, HIST 263
    - International: HIST 268, HIST 275
  - four HIST courses at the 300-level
  - 1.5 units at the 400-level from HIST 421, HIST 422, HIST 450

Notes
1. Students may use no more than two HIST courses at the 100-level to fulfill History plan requirements.
2. History students in all plans are required to have: at least one course focused on Canadian history, at least one course focused on pre-1800 history, and at least one course focused on post-1800 history. These requirements will usually (but not always) be satisfied as a student advances through their program. Please check with the History academic advisor to ensure that all requirements are met.
3. **Students pursuing the departmental co-op option are strongly recommended to complete two of HIST 203, HIST 302, HIST 303.**

Arts and Business (Co-op and Regular)
Students may combine the Honours History academic plan with Arts and Business. In addition to the Honours History requirements, students must also complete the Arts and Business requirements.

Honours double majors
Honours History may be taken in combination with most Arts majors in which an Honours major is offered or with many Honours majors in other faculties. For further information, see the Double majors section of Available Arts Academic Plans.

**Rationale:** The department currently offers co-op through the Honours Arts and Business program. The rationale for creating a departmental co-op option respects that many students are averse to “business” courses but would benefit pedagogically and professionally by participating in co-operative education through an alternate stream. Consultation with alumni and current students indicates overwhelming support for the proposed plan.

**CHANGES TO ACADEMIC PLANS**

**Faculty of Science**
**Chemistry**

3. **Motion:** To approve changes to the honours geochemistry plan as described and effective 1 September 2017. (new text = underline; deleted text = strikethrough)

Advisors: See Faculty of Science, Academic Advisors

Continuation in Honours Geochemistry requires a 60% cumulative overall average of at least 60% and an average of at least 60% cumulative average in all Chemistry and Earth Science courses combined.

In order to graduate with an Honours Geochemistry degree, the following requirements must be completed successfully:
1. 19.5 lecture units that include:
   a. 5.0 CHEM units: CHEM 100 (0.00 unit), CHEM 120, CHEM 123, CHEM 209, CHEM 212, CHEM 220, CHEM 221, CHEM 254, CHEM 264, CHEM 265, and CHEM 323,
   b. 5.0 EARTH units: EARTH 121, EARTH 122, EARTH 123, EARTH 221, EARTH 231, EARTH 235, EARTH 238, EARTH 358, EARTH 359, and EARTH 390,
   c. 1.5 MATH units: MATH 127, MATH 128, and MATH 228 or MATH 218,
   d. 1.5 PHYS units: PHYS 121, PHYS 122, and PHYS 256,
   e. 3.0 technical elective units (substitutions require prior approval of the Undergraduate advisors):
      i. 1.5 CHEM units of CHEM 310, CHEM 313, CHEM 350, CHEM 420, or CHEM 450,
      ii. 1.5 EARTH units of EARTH 421, EARTH 439, EARTH 456, EARTH 458, or EARTH 459,
   f. 3.5 elective units, of which a maximum of 3.0 units can be SCI courses.
2. 3.25 laboratory units that include:
   a. 1.75 CHEM units: CHEM 120L, CHEM 123L, CHEM 220L, CHEM 224L (0.50 unit), CHEM 250L, and CHEM 256L,
   b. 0.75 EARTH units: EARTH 121L, EARTH 122L, and EARTH 123L,
   c. 0.75 PHYS units: PHYS 121L, PHYS 122L, and PHYS 265L.
3. 1.0 research project or thesis unit of CHEM 494A and CHEM 494B or EARTH 436A and EARTH 436B.
4. Completion of the English Language Proficiency Requirement.

Legend

* Recommended electives: BIOL 240/BIOL 240L, BIOL 241, ENGL 210E, MATH 106 or MATH 114, MATH 227 or MATH 217, ENVS 201.

Successful completion of this major requires:

1. 22 total units that include:
   a. 5.75 CHEM units: CHEM 100, CHEM 120, CHEM 120L, CHEM 123, CHEM 123L, CHEM 200, CHEM 212, CHEM 220, CHEM 220L, CHEM 221, CHEM 224L, CHEM 254, CHEM 264 and CHEM 323
   b. 6.75 EARTH units: EARTH 121, EARTH 121L, EARTH 122, EARTH 122L, EARTH 123, EARTH 123L, EARTH 221, EARTH 231, EARTH 232, EARTH 235, EARTH 238, EARTH 321, EARTH 390, EARTH 421 and EARTH 458
   c. 0.5 EARTH elective unit: EARTH 281 or EARTH 358
   d. 0.5 EARTH elective unit: EARTH 436A or EARTH 499
   e. 0.5 EARTH elective unit: EARTH 436B or a 300-level or higher EARTH course
   f. 1.0 MATH unit: MATH 127 and MATH 128
   g. 1.5 PHYS units: PHYS 111 and PHYS 111L or PHYS 121 and PHYS 121L; and PHYS 112 and PHYS 112L or PHYS 122 and PHYS 122L
   h. 0.5 STAT unit: STAT 202
   i. 5.0 electives units distributed as follows:
      i. 1.5 units of CHEM electives chosen from CHEM 265, CHEM 310, CHEM 313, CHEM 350, CHEM 360, CHEM 400 and CHEM 404
      ii. 1.5 units of EARTH electives chosen from EARTH 331, EARTH 332, EARTH 359, EARTH 439, EARTH 456, EARTH 459 and EARTH 471
      iii. 2.0 units chosen from any 0.5 unit courses
2. Completion of the English Language Proficiency Requirement

Recommended Course Sequence
Year One

Fall
CHEM 100 Introduction to Chemical Sciences
CHEM 120/CHEM 120L Physical and Chemical Properties of Matter/Laboratory
EARTH 121/EARTH 121L Introductory Earth Sciences/Laboratory
EARTH 123 Introductory Hydrology
MATH 127 Calculus 1 for the Sciences
PHYS 111/111L Physics1/Physics 1 Laboratory
or PHYS 121/PHYS121L Mechanics/Laboratory
One elective* (0.5 unit)

Winter
CHEM 123/CHEM 123L Chemical Reactions, Equilibria and Kinetics/Laboratory
EARTH 122/EARTH 122L Introductory Environmental Sciences/Laboratory
MATH 128 Calculus 2 for the Sciences
PHYS 112/112L Physics/Physics 2 Laboratory
or PHYS 122/PHYS 122L Waves, Electricity and Magnetism/Laboratory
One elective* (0.5 unit)

Year Two

Fall
CHEM 200 Introduction to Laboratory Techniques
CHEM 209 Introductory Spectroscopy and Structure
CHEM 220/CHEM 220L Analytical Chemistry 1/Laboratory
CHEM 264 Organic Chemistry 1
EARTH 123L Field Methods in Hydrology
EARTH 231 Mineralogy
EARTH 235 Stratigraphy and Earth History

Winter
CHEM 221 Analytical Chemistry 2
CHEM 224L Analytical Chemistry Laboratory 2
CHEM 254 Introductory Chemical Thermodynamics
CHEM 265/CHEM 265L Organic Chemistry 2/Laboratory
EARTH 221 Geochemistry 1
PHYS 256 Geometrical and Physical Optics (may be taken in Year Two or Year Three)
PHYS 256L Optics Laboratory (may be taken in Year Two or Year Three)
Two electives (1.0 unit)

Year Three

Fall
CHEM 250L Physical Chemistry Laboratory 1
CHEM 323 Analytical Instrumentation
EARTH 458 Physical Hydrogeology
STAT 202 Introduction to Statistics
EARTH 123 Introductory Hydrology
EARTH 123L Field Methods in Hydrology
EARTH 359 Flow Through Porous Media
MATH 228 Differential Equations
or MATH 218 Differential Equations
Two One electives* (0.5-1.0 unit)
Winter
CHEM 212 Structure and Bonding
EARTH 232 Petrography
EARTH 238 Introductory Structural Geology
EARTH 358 Earth System Science
or EARTH 281 Geological Impacts on Human Health
EARTH 321 Geomicrobiology
EARTH 390 Methods in Geological Mapping
Two electives* (1.0 unit)

Year Four
Fall and Winter combined
CHEM 494A Research Project (or EARTH 436A Honours Thesis)
CHEM 494B Research Project (or EARTH 436B Honours Thesis)
Two electives* (1.0 unit)
EARTH 436A Honours Thesis or EARTH 499 Research Project
EARTH 421
Three electives (1.5 units)

Winter
EARTH 436B Honours Thesis or one 300- or 400- level EARTH course
Three electives (1.5 units)

Three technical CHEM electives (1.5 units) from:
CHEM 310 Transition Element Compounds and Inorganic Materials
CHEM 313 Main Group and Solid State Chemistry
CHEM 350 Chemical Kinetics
CHEM 420 Special Topics in Analytical Chemistry
CHEM 450 Chemical Thermodynamics 2

Three technical EARTH electives (1.5 units) from:
EARTH 421 Geochemistry 2
EARTH 439 Flow and Transport Through Fractured Rocks
EARTH 456 Numerical Methods in Hydrogeology
EARTH 458 Physical Hydrogeology
EARTH 459 Chemical Hydrogeology

Notes:
1. Students may have co-supervisors from the Chemistry Department for the EARTH 436A and 436B Honours Thesis.
2. The Association of Professional Geoscientists of Ontario (APGO) requires specific University credits to be considered for accreditation. Students should refer to the APGO website to guide their course elective choices.

Rationale: The geochemistry program has changed to allow students the possibility of obtaining APGO (Association of Professional Geoscientists of Ontario) certification. As part of the Faculty of Science plan standardization process, the overall units required for graduation has been reduced from 23.75 to 22.0 units.

4. Motion: To approve changes to the honours co-operative geochemistry plan as described and effective 1 September 2017. (new text = underline; deleted text = strikethrough)

Advisors: See Faculty of Science, Academic Advisors
This Academic Plan, which offers the Honours Earth and Chemistry courses integrated with five four-month work terms, extends over four and two-thirds years. Students work and study in alternate terms starting at the end of the 2A term. There is a double work term between terms 3B and 4A. Co-op program information requirements are located in the Co-operative Education and Career Action section of the calendar and in the Science Faculty work term report guidelines. Information on WatPD courses is located on Professional Development web site.

Continuation in Honours Geochemistry requires a 60% cumulative overall average of at least 60% and an average of at least 60% cumulative average in all Chemistry and Earth Science courses combined.

Detailed information on co-op program requirements is found in the Co-operative Education and Career Action section of the undergraduate calendar and in the Faculty of Science work report Guidelines.

In order to graduate with an Honours Geochemistry degree, the following requirements must be successfully completed:

1. 19.5 lecture units that include:
   a. 5.0 CHEM units: CHEM 100 (0.00 unit), CHEM 120, CHEM 123, CHEM 209, CHEM 212, CHEM 220, CHEM 221, CHEM 254, CHEM 264, CHEM 265, and CHEM 323,
   b. 5.0 EARTH units: EARTH 121, EARTH 122, EARTH 123, EARTH 221, EARTH 231, EARTH 235, EARTH 238, EARTH 358, EARTH 359, and EARTH 390,
   c. 1.5 MATH units: MATH 127, MATH 128, and MATH 228 or MATH 218,
   d. 1.5 PHYS units: PHYS 121, PHYS 122, and PHYS 256,
   e. 3.0 technical elective units (substitutions require prior approval of the Undergraduate advisors):
      i. 1.5 CHEM units of CHEM 310, CHEM 313, CHEM 350, CHEM 420, or CHEM 450,
      ii. 1.5 EARTH units of EARTH 421, EARTH 439, EARTH 456, EARTH 458, or EARTH 459,
   f. 3.5 elective units, of which a maximum of 3.0 units can be SCI courses.

2. 3.25 laboratory units that include:
   a. 1.75 CHEM units: CHEM 120L, CHEM 123L, CHEM 220L, CHEM 224L (0.50 unit), CHEM 250L, and CHEM 256L,
   b. 0.75 EARTH units: EARTH 121L, EARTH 122L, and EARTH 123L,
   c. 0.75 PHYS units: PHYS 121L, PHYS 122L, and PHYS 265L.

3. 1.0 research project or thesis unit of CHEM 494A and CHEM 494B or EARTH 436A and EARTH 436B.

4. Completion of the English Language Proficiency Requirement.

Legend

* Recommended electives: BIOL 240/BIOL 240L, BIOL 241, ENGL 210E, MATH 106 or MATH 114, MATH 227 or MATH 217, ENVS 201.

Successful completion of this program requires:

1. 22 total units that include:
   a. 5.75 CHEM units: CHEM 100, CHEM 120, CHEM 120L, CHEM 123, CHEM 123L, CHEM 200, CHEM 212, CHEM 220, CHEM 220L, CHEM 221, CHEM 224L, CHEM 254, CHEM 264 and CHEM 323
   b. 6.75 EARTH units: EARTH 121, EARTH 121L, EARTH 122, EARTH 122L, EARTH 123, EARTH 123L, EARTH 221, EARTH 231, EARTH 232, EARTH 235, EARTH 238, EARTH 321, EARTH 390, EARTH 421 and EARTH 458
c. 0.5 EARTH elective unit: EARTH 281 or EARTH 358

d. 0.5 EARTH elective unit: EARTH 436A or EARTH 499

e. 0.5 EARTH elective unit: EARTH 436B or a 300-level or higher EARTH course

f. 1.0 MATH unit: MATH 127 and MATH 128

g. 1.5 PHYS units: PHYS 111 and PHYS 111L or PHYS 121 and PHYS 121L; and PHYS 112 and PHYS 112L or PHYS 122 and PHYS 122L

h. 0.5 STAT unit: STAT 202

i. 5.0 electives units distributed as follows:
   i. 1.5 units of CHEM electives chosen from CHEM 265, CHEM 310, CHEM 313, CHEM 350, CHEM 360, CHEM 400 and CHEM 404
   ii. 1.5 units of EARTH electives chosen from EARTH 331, EARTH 332, EARTH 359, EARTH 439, EARTH 456, EARTH 459 and EARTH 471
   iii. 2.0 units chosen from any 0.5 unit courses

2. Normally, full-time enrolment in Years Two, Three and Four

3. A minimum of four work terms, submission of a minimum of four satisfactory work reports and credit in four WatPD courses (PD1, PD11 and two other PD courses)

4. Completion of the English Language Proficiency Requirement

Notes:

1. Students may have co-supervisors from the Chemistry Department for the EARTH 436A and 436B Honours Thesis.

2. The Association of Professional Geoscientists of Ontario (APGO) requires specific University credits to be considered for accreditation. Students should refer to the APGO website to guide their course elective choices

Recommended Course Sequence

Year One

Fall
CHEM 100 Introduction to Chemical Sciences
CHEM 120/CHEM 120L Physical and Chemical Properties of Matter/Laboratory
EARTH 121/EARTH 121L Introductory Earth Sciences/Laboratory
EARTH 123 Introductory Hydrology
MATH 127 Calculus 1 for the Sciences
PHYS 111/PHYS 111L Physics 1/Laboratory
or PHYS 121/PHYS 121L Mechanics/Laboratory
One elective* (0.5 unit)

Winter
CHEM 123/CHEM 123L Chemical Reactions, Equilibria and Kinetics/Laboratory
EARTH 122/EARTH 122L Introductory Environmental Sciences/Laboratory
MATH 128 Calculus 2 for the Sciences
PHYS 112/PHYS 112L Physics 2/Laboratory
or PHYS 122/PHYS 122L Waves, Electricity and Magnetism/Laboratory
One elective* (0.5 unit)

Year Two

Fall
CHEM 200 Introduction to Laboratory Techniques
CHEM 209 Introductory Spectroscopy and Structure
CHEM 220/CHEM 220L Analytical Chemistry 1/Laboratory
CHEM 264 Organic Chemistry 1
EARTH 123L Field Methods in Hydrology
EARTH 231 Mineralogy
EARTH 235 Stratigraphy and Earth History

**Spring**
CHEM 221 Analytical Chemistry 2
CHEM 224L Analytical Chemistry Laboratory 2
CHEM 254 Introductory Chemical Thermodynamics
CHEM 265/CHEM 265L Organic Chemistry 2/Laboratory
EARTH 221 Geochemistry 1
PHYS 256 Geometrical and Physical Optics (may be taken in Year Two or Year Three)
PHYS 256L Optics Laboratory (may be taken in Year Two or Year Three)
Two electives (1.0 unit)

**Year Three**

**Winter**
CHEM 212 Structure and Bonding
EARTH 232 Petrography
EARTH 238 Introductory Structural Geology
EARTH 321 Geomicrobiology
EARTH 358 Earth System Science
or EARTH 281 Geological Impacts on Human Health
EARTH 390 Methods in Geological Mapping
Two electives* (1.0 unit)

**Fall**
CHEM 250L Physical Chemistry Laboratory 1
CHEM 323 Analytical Instrumentation
EARTH 458 Physical Hydrogeology
STAT 202 Introduction to Statistics
EARTH 123 Introductory Hydrology
EARTH 123L Field Methods in Hydrology
EARTH 359 Flow Through Porous Media
MATH 228 Differential Equations
or MATH 218 Differential Equations
Two electives* (1.0 unit)

**Year Four**

**Fall and Winter combined**
CHEM 494A Research Project (or EARTH 436A Honours Thesis)
CHEM 494B Research Project (or EARTH 436B Honours Thesis)
Two electives* (1.0 unit)
EARTH 436A Honours Thesis or EARTH 499 Research Project
EARTH 421
Three electives (1.5 units)

**Winter**
EARTH 436B Honours Thesis or one 300- or 400-level EARTH course
Three electives (1.5 units)

Three technical CHEM electives (1.5 units) from:
CHEM 310 Transition Element Compounds and Inorganic Materials
CHEM 313 Main Group and Solid State Chemistry
CHEM 350 Chemical Kinetics
CHEM 420 Special Topics in Analytical Chemistry  
CHEM 450 Chemical Thermodynamics 2

Three technical EARTH electives (1.5 units) from:

EARTH 421 Geochemistry 2  
EARTH 439 Flow and Transport Through Fractured Rocks  
EARTH 456 Numerical Methods in Hydrogeology  
EARTH 458 Physical Hydrogeology  
EARTH 459 Chemical Hydrogeology

Rationale: See rationale for item #3. Co-operative information was added to include WatPD courses.

ACADEMIC PLAN INACTIVATIONS

Faculty of Arts
Independent Studies

5. Motion: To inactivate the three-year general bachelor of independent studies plan, to inactivate the four-year honours bachelor of independent studies plan, and to remove related calendar text effective 1 September 2017.

Rationale: Over the last ten years, enrolments in these plans have declined from a high of 25 in 2007 to 12 at present. As well, changes to curricula across the University and in the Faculty of Arts have provided more flexibility and options for students seeking self-directed studies, and so these students will be well-served by other plan offerings. Current students will receive individual advising and a degree completion plan. Note: this item was recommended to Senate for approval in March 2015, and was delayed in submission to Senate due to an administrative oversight.

Mario Coniglio  
Associate Vice-President, Academic