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<th>Time</th>
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<tbody>
<tr>
<td>1:30</td>
<td>1. Conflict of Interest</td>
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<td>1:35</td>
<td>2. Remarks from the Chair</td>
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<td>1:40</td>
<td>3. Agenda/Additional Agenda Items</td>
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<tr>
<td>1:45</td>
<td><strong>Consent Agenda</strong></td>
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<td></td>
<td><strong>Motion:</strong> To approve and/or receive for information by consent items 4 – 6 below.</td>
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<tr>
<td>1:45</td>
<td>4. Minutes of the 7 April 2015 Meeting</td>
<td>4-9</td>
<td>Decision</td>
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<td>1:45</td>
<td>5. Report of the President</td>
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<td>Information</td>
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<tr>
<td></td>
<td>a. Recognition and Commendation</td>
<td>12-14</td>
<td>Information</td>
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<tr>
<td></td>
<td>b. Sabbatical and Administrative Leaves and Administrative Appointments</td>
<td>15-22</td>
<td>Decision/Information</td>
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<td>1:45</td>
<td>6. Report of the Vice-President, Administration &amp; Finance</td>
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<td></td>
<td>a. Incidental Fees and Amendments to the School of Accounting &amp; Finance</td>
<td>23-31</td>
<td>Decision</td>
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<td></td>
<td>School of Accounting &amp; Finance</td>
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<td>1:50</td>
<td><strong>Regular Agenda</strong></td>
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<td>1:50</td>
<td>7. Business Arising from the Minutes</td>
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<td></td>
<td>a. Report of the Vice-President, Advancement</td>
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<td>• Indicators of Alumni Engagement</td>
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<td>2:05</td>
<td>8. Report of the President</td>
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<td>a. President’s Update</td>
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<td>a. Undergraduate Admissions Update</td>
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<td>2:30</td>
<td>10. Report of the Vice-President, University Relations</td>
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<td>2:45</td>
<td>11. Student Presentation: Tahnee Prior, PhD candidate, Global Governance</td>
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<td>3:05</td>
<td><strong>BREAK</strong></td>
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<td>3:20</td>
<td>12. Reports from Committees</td>
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<td></td>
<td>a. Audit &amp; Risk</td>
<td>39</td>
<td>Decision/Information</td>
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<tr>
<td>3:30</td>
<td>b. Building &amp; Properties</td>
<td>44-46</td>
<td>Decision/Information</td>
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<tr>
<td>3:40</td>
<td>c. Finance &amp; Investment</td>
<td>47</td>
<td>Information</td>
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<tr>
<td>3:50</td>
<td>d. Pension &amp; Benefits</td>
<td>48-50</td>
<td>Decision/Information</td>
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<tr>
<td>4:00</td>
<td>13. Institute for Quantum Computing Annual Report to Industry Canada,</td>
<td></td>
<td>Decision</td>
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<tr>
<td></td>
<td>Executive Summary</td>
<td>51-59</td>
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<tr>
<td>4:10</td>
<td>14. Other Business</td>
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<td>4:15</td>
<td>15. Next Meeting</td>
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<td>Tuesday 27 October 2015 with the President’s Reception to follow</td>
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<td>4:20</td>
<td>16. Conflict of Interest</td>
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<td></td>
<td>CONFIDENTIAL SESSION</td>
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<td>Declaration</td>
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<td>4:25</td>
<td>Consent Agenda</td>
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<td><strong>Motion:</strong> To approve by consent items 17 and 18 below.</td>
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<tr>
<td>4:30</td>
<td>17. Minutes of the 7 April 2015 Meeting</td>
<td>10-11</td>
<td>Decision</td>
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<td>4:35</td>
<td>18. Report of the President</td>
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<td></td>
<td>a. New Appointments with Tenure</td>
<td>60-63</td>
<td>Decision</td>
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<tr>
<td>4:50</td>
<td><strong>Regular Agenda</strong></td>
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<tr>
<td>5:00</td>
<td>19. Business Arising from the Minutes</td>
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<td>5:05</td>
<td>20. Report from the President</td>
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<td>Oral</td>
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<td><em>In Camera Session</em></td>
<td>64</td>
<td>Information</td>
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<tr>
<td>5:10</td>
<td>21. Report from the Governance Committee</td>
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<td>5:20</td>
<td>22. Other Business</td>
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<td>5:25</td>
<td>23. Conflict of Interest</td>
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<td><em>In Camera Session</em></td>
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<td>Declaration</td>
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<td>5:30</td>
<td>24. Report from the Governance Committee</td>
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<td></td>
<td>a. Presidential Performance</td>
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<td>5:40</td>
<td>25. Other Business</td>
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<tr>
<td>6:00</td>
<td>26. Adjournment</td>
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**Note:** To allow the board to complete a number of matters quickly and to devote more of its attention to major items of business, the agenda has been divided between items that are to be approved and/or received for
information by consent and those that are to be presented individually for discussion and decision and/or information.

A consent agenda is not intended to prevent discussion of any matter by the board, but items listed under the consent sections will not be discussed at the meeting unless a governor so requests. Governors are supplied with the appropriate documentation for each item and all items will be approved by means of one omnibus motion. The board will then move immediately to consideration of the items on the regular agenda.

JLA:kjj                      Logan Atkinson
20 May 2015                  University Secretary & General Counsel
                             Secretary to the Board of Governor

Please convey regrets to Karen Jack (kjjack@uwaterloo.ca; 519-888-4567 ext. 33183)
FOR INFORMATION
_____________________________

**Recognition and Commendation**

The American Cancer Society has given a researcher from the University of Waterloo the award considered the top in the world for tobacco control. **Geoffrey Fong**, a professor in the Department of Psychology and the School of Public Health and Health Systems at Waterloo, has received one of the American Cancer Society’s Luther R. Terry Awards for Outstanding Research Contribution. Fong founded the International Tobacco Control Policy Evaluation Project in 2002. It has been at the forefront of research that combats tobacco use, the number one cause of preventable death in the world. Tobacco use is projected to kill one billion people in the 21st century, with 80 per cent of the deaths occurring in low and middle-income countries.

Three sustainability leaders from the University of Waterloo have been named to the annual Corporate Knights Top 30 under 30 list. The list honours young entrepreneurs, activists, corporate professionals and students making social and environmental change worldwide. **Dominique Souris**, an Environment and Resource Studies student; **Jillian Rodak**, a graduate student in the School of Environment Enterprise and Development and **Sean Campbell** a program coordinator at GreenHouse, an accelerator for social entrepreneurship at Waterloo’s St. Paul’s University College, were among the 30 young Canadians honoured. (Waterloo Stories 27 March 2015)

A Waterloo student who co-founded an oil and gas startup has won a national award for best co-op student of the year in Canada. He is among six students who received the University of Waterloo’s top award for co-op students in their Faculties. The Canadian Association for Co-operative Education selected **Andrew Andrade** from Waterloo’s Faculty of Engineering for its **Co-op Student of the Year Award**. Another Waterloo student, **Skye Wattie**, honoured as the top student in the Faculty of Arts, won a provincial award: the **Education at Work Ontario Award** for co-op student of the year. These two students, along with one student from every other Faculty won Waterloo’s top prize for co-op students of the year. It is recognition of their exemplary performance during a work term in 2014, along with other factors including community involvement, contribution to co-op and academic achievement. (Waterloo Stories, 18 March 2015)

The Government of Canada named eight professors from the University of Waterloo as Canada Research Chairs (CRC). The following Canada Research Chairs from the University of Waterloo were included in the announcement: **Clark Dickerson** (Applied Health Sciences), Canada Research Chair in Shoulder Mechanics — new Tier 2; **Roxane Itier** (Arts), Canada Research Chair in Cognitive and Social Neuroscience of Face Perception — Tier 2 renewal; **Zhongwei Chen** (Engineering), Canada Research Chair in Advanced Materials for Clean Energy — new Tier 2; **Lukasz Golab** (cross-appointed Mathematics and Engineering), Canada Research Chair in Data Analytics for Sustainability — new Tier 2; **Maria Strack** (Environment), Canada Research Chair in Ecosystem and Climate — new Tier 2; **Derek Schipper** (Science), Canada Research Chair in Organic Material Synthesis — new Tier 2; **David Blowes** (Science), Canada Research Chair in Groundwater Remediation — Tier 1 renewal; **Alberto (Germán) Sciaini** (Science), Canada Research Chair in Atomically Resolved Dynamics and Ultrafast High-Resolution Imaging — new Tier 2. The Tier 1 Canada Research Chair is for $200,000 per year for seven years. Tier 2 is for $100,000 per year for five years. (Daily Bulletin, 13 April 2015)

**St. Paul’s University College** honoured 12 alumni with 50th Anniversary Distinguished Alumni and Young Alumni Awards during a dinner at the Donalda Club in Toronto on Friday, March 27. Each recipient was introduced by a current St. Paul’s student and they received a framed lithographic pencil sketch of the original St. Paul’s building, which was built in 1962. The event celebrated alumni for their exemplary careers, service to community, and for displaying leadership in areas related to St. Paul’s
mission and values. Congratulations to each of the 12 recipients: **Douglas Grenkie** (BA ’65): In recognition of an exemplary career and service to community; **Gary Albach** (BSc ’70): In recognition of an exemplary career advancing science, technology and entrepreneurship; **Mark Lukowski** (BMath ’73): In recognition of an exemplary career and service to community; **William Watson** (BA ’76): In recognition of an exemplary career and service to community, St. Paul’s and Waterloo; **Elizabeth McKinlay** (BA ’78): In recognition of an exemplary career dedicated to helping others; **Don Shilton** (BSc ’80): In recognition of an exemplary career as an innovative leader in health care; **David Cornfield** (BASc ’85): In recognition of an exemplary career and bettering the world through philanthropy; **Brad Siim** (BASc ’92): In recognition of an exemplary career and dedicated service to St. Paul’s and Waterloo; **Frances Chapman** (BA ’98): In recognition of an exemplary career and dedication to education; **Adam Kilner** (BA ’06): In recognition of an exemplary career and faithful service to others; **Victoria Alleyne** (BES ’12): In recognition of dedication to social entrepreneurship and youth mentorship; and **Kevin McGregor** (BES ’13): In recognition of pursuing a career which enriches the lives of others. (Daily Bulletin, 15 April 2015)

The University of Waterloo consistently performs well in the William Lowell Putnam Mathematics Competition and the most recent fourth-place finish behind Harvard, MIT and the Rensselaer Polytechnic Institute means Waterloo has won 19 Top Five titles - more than any other Canadian university. The Putnam competition is regarded as the most prestigious one in North America. It draws more than 400 teams from universities across the US and Canada, with the biggest winners typically coming from Ivy League institutions like Harvard and MIT. This year’s team - **Daniel Spivak**, **Sam Eisenstat** and **Kangning (Colin) Chen** was coached by **Stephen New**, a professor in the Faculty of Mathematics. The top University of Waterloo student was Daniel Spivak, who ended up in the Top 25 of 4,320 contestants. (Waterloo Stories, 19 April 2015)

Congratulations to **Volodymyr Lyubinets**, **Deon Nicholas**, **Geoffry Song**, and coach **Troy Vasiga** of the Waterloo Black ACM team on their 13th place finish at this year’s Association for Computing Machinery International Collegiate Programming Contest World Finals in Morocco. The Waterloo Black ACM team competed against 127 other teams, solving nine of 13 problems. Only two universities from Canada qualified for the event, the other being the University of Calgary. The Waterloo Black ACM team won their spot at the world finals by finishing first at the East Central North America Association for Computing Machinery Regional Programming Contest in Windsor this past November. Waterloo’s junior ACM teams, Red and Gold, placed 7th and 8th respectively, at the regional contest. The ACM International Collegiate Programming Contest is a worldwide competition held annually with student teams from universities and colleges all over the globe. Competitors race to solve complex math problems that challenge their problem-solving, programming, and teamwork skills. Teams must qualify in a regional event before competing in the World Finals with the chance to win $16,500 and the title of “World Champion”. (Daily Bulletin, 22 May 2015)

The University of **Waterloo’s Formula Hybrid race car** took first place overall and set a new record at the annual Formula Hybrid International Competition this year. Unique design elements that included lighter materials and a more powerful battery system helped the Waterloo car edge out vehicles from other top universities. “The team worked incredibly hard over the past four months to get the car ready,” says faculty co-advisor Andrew Trivett, a mechanical and mechatronics engineering professor. “It’s one thing to design a car, but the students have shown they can turn innovative ideas into practical hardware.” More than 27 teams, from as far away as Turkey and India, competed at the New Hampshire Motor Speedway. The annual competition, part of the Institute of Electrical and Electronics Engineers (IEEE) and Society of Automotive Engineers (SAE) Collegiate Design Series, challenges university students to design an open-wheel, single-seat, electric or hybrid-electric race car. (Waterloo Stories, 12 May 2015)
Second-year Global Business and Digital Arts (GBDA) student Ariana Cuvin has won the Government of Canada’s Canada 150 logo competition. Cuvin’s logo design depicts a series of diamonds arranged in the shape of a maple leaf, and it will become a unifying symbol of the Canada 150 movement. Her logo will be featured in all Government of Canada activities and material related to Canada 150. Cuvin, 19, entered the nationwide design competition, which was open to Canadian students aged 18 and older who were enrolled in a post-secondary program in Canada. Students were asked to submit a design that evoked pride, unity and celebration that reflected Canada as a diverse nation with “a rich past and a promising future.” (Daily Bulletin, 28 April 2015)

Fourth-year Pharmacy student Holly Meginnis has been recognized with the Ontario Pharmacists Association (OPA) Student of Distinction Award for leadership and commitment to advancing the profession. The University of Waterloo’s School of Pharmacy, in the Faculty of Science, prides itself on developing and supporting pharmacy student leaders. This is the fourth consecutive year that a Waterloo student has received the Student of Distinction Award. Sarah Johnson (Rx2014) won the Student of Distinction Award last year. “Holly has worked tirelessly on behalf of students at the School of Pharmacy as well as pharmacy students across the country though her work with the Canadian Association of Pharmacy Students and Interns (CAPSI). The future of pharmacy in Canada is in good hands with leaders like Holly entering the profession,” said Prof. David Edwards, Hallman Director, School of Pharmacy and Associate Dean, Faculty of Science. During her time at the School of Pharmacy, Meginnis has shown outstanding devotion to committees and causes within and beyond the walls of the Kitchener campus. Meginnis is the current Class Representative for her year, Rx2015, the UWaterloo CAPSI Senior Representative, and an active member of the Graduation Committee. She has also volunteered her time to special events with Canadian Society of Hospital Pharmacists and Community Action Now, an organization that runs community service projects supporting health and well-being. (Daily Bulletin, 15 May 2015)
FOR APPROVAL

1. Sabattical and Administrative Leaves
The University of Waterloo Policy 3 – Sabbatical and Other Leaves for Faculty Members [excerpts below, full text available at: http://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-3] sets out the purpose of leaves for faculty members as well as the requirements/responsibilities of faculty who are granted such leave.

The granting of a leave . . . depends on the University’s assessment of the value of such leave to the institution as well as to the individual, and on whether teaching and other responsibilities of the applicant can be adequately provided for in her/his absence. A faculty member who is granted a sabbatical or other leave is expected to return to duties in the University for at least one year and upon return will be expected to submit a brief report to the Department Chair regarding scholarly activities while on leave.

The purpose of a sabbatical leave is to contribute to professional development, enabling members to keep abreast of emerging developments in their particular fields and enhancing their effectiveness as teachers, researchers and scholars. Such leaves also help to prevent the development of closed or parochial environments by making it possible for faculty members to travel to differing locales where special research equipment may be available or specific discipline advances have been accomplished. Sabbaticals provide an opportunity for intellectual growth and enrichment as well as for scholarly renewal and reassessment.

. . . the granting of sabbatical leave is contingent upon the faculty member’s department being able to make the necessary arrangements to accommodate such an absence, and also upon the financial resources of the University in any given year. Should problems arise in any of the above, it may be necessary to postpone individual requests until such time as all the conditions can be satisfied.

- Sabbatical Leaves
  
  **Bansal, Harvir**, Conrad Business, Entrepreneurship and Technology Centre, July 1, 2015 to December 31, 2016, at 85% salary
  I will be staying at the University of Waterloo to further my research. I will be working with two colleagues on the revision and resubmission of a paper entitled “A Prototyping Analysis of Relationship Marketing Constructs” to the key conceptual marketing journal – Market Theory. I also plan on doing major revision to two of my courses.

  **Bloom, Kathleen**, Psychology, January 1, 2016 to June 30, 2016, at 85% salary
  I will create a narrated whiteboard animation that can effectively convey the concept of knowledge mobilization to senior managers. The animation and an electronic response signaling device will be used in interviews and focus groups to determine the perceived value of evidence-based management as a form of business intelligence in small-to-medium-sized ICT corporations.

  **Bobocel, Ramona**, Psychology, September 1, 2015 to August 31, 2016, at 85% salary
  I will further my research on the psychology of fairness in the workplace. My priorities are to write up a number of successful research projects for publication, and to prepare to launch new studies with students on my return.
Cascante, Giovanni, Civil and Environmental Engineering, September 1, 2015 to February 29, 2016, at 100% salary

Around the world, cities are facing a major challenge: What to do about aging infrastructure such as bridges, water mains, roads, and electrical transmission lines? I will be enhancing and developing non-destructive testing techniques to help distinguish the good from the bad – without taking the system apart. I will be collaborating with researchers in Canada, Europe, and South America.

Charles, Trevor, Biology, January 1, 2016 to December 31, 2016, at 100% salary

In addition to continuing my research program in functional metagenomics, plant-microbe interactions, bioplastics, and bioproducts from methane, focus will be on finishing a new textbook, “Bacterial Molecular Genetics”, under contract to John Wiley and Sons, and developing a startup company that I co-founded in April 2014, Metagenom Bio Inc.

Chen, Changling, Accounting and Finance, September 1, 2015 to February 29, 2016, at 85% salary

I will work on several research projects during the sabbatical. One major project is regarding the consequence of alternative accounting regimes, namely, fair value versus historical cost accounting, on the divergence between banks’ book and market valuations. I also plan to visit Central University of Finance and Economics in Beijing, collecting some sample data on another research project.

Chuong, Simon, Biology, September 1, 2015 to August 31, 2016, at 100% salary

My sabbatical tasks include working on three manuscripts: the first paper on the mechanism of organelle clumping, the second on the distribution of key photosynthetic proteins and the third paper on the stable transformation of “Bienertia” system. I also plan to finish a review manuscript on the targeting of proteins to chloroplasts. I hope to establish national and international collaborations with researchers at the University of Calgary as well as with a researcher in Vietnam. Finally, I will also spend time on revising and improving current courses and developing a new course.

Coleman, Beth, English Language and Literature, July 1, 2015 to December 31, 2015, at 100% salary

I will use this time to finish the first draft of a monograph, “City as Platform”. The monograph is the result of the three years of SSHRC-support research I have done at the University of Waterloo on the subject of Smart Cities, Smart Things, and Smart Citizens.

Craig, James, Civil and Environmental Engineering, March 1, 2016 to August 31, 2016, at 100% salary

I will be remaining in Waterloo to work on a number of research efforts in the area of modelling groundwater and surface water systems. Much of this time will be spent on an unfinished book manuscript entitled “Series solutions for scientists and engineers”.

Dias, Goretty, Environment, Enterprise and Development, July 1, 2015 to December 31, 2015, at 100% salary

My area of research is Life cycle approaches for sustainable food and renewable energy. I plan to use the sabbatical to finish journal papers, start new research projects, and write a proposal.

Golab, Wojciech, Electrical and Computer Engineering, September 1, 2015 to February 29, 2016, at 100% salary

I will remain primarily at the University of Waterloo to advance five collaborative research projects: distributed indexing, consistency analysis, concurrent data structures for non-volatile memory, cloud resource management, and smart meter analytics. In addition, I will travel occasionally to present research papers at international conferences, as well as to build and maintain connections with academic and industry partners.
Gorman, Daniel, History, November 1, 2015 to April 30, 2016, at 100% salary  
I will work on two research projects during this sabbatical. First, I will complete work on a book on transnational cooperation between 1890 and 1939. Second, I will finish the archival research for my project on colonial influences on international governance after 1945, and complete the writing of further chapters for this book project.

Hegazi, Tarek, Civil and Environmental Engineering, March 1, 2016 to August 31, 2016, at 100% salary  
I will interact with the construction industry in Canada and promote my patented project management technology, with the help of the UW商业化ization office. I will also conduct collaborative research with the Ain-Shams University in Cairo, Egypt on asset management for buildings and with universities in Qatar and Kuwait to customize my project management software for construction companies in the middle east.

Heunis, Andrew, Electrical and Computer Engineering, September 1, 2015 to August 31, 2016, at 85% salary  
I plan to be at Waterloo working with graduate students and concentrating on the general area of convex optimal stochastic optimal control problems which include infinite dimensional constraints. These problems cover a variety of applications but seem to require new methods for solution. My goal is to find these methods using mathematical tools from convex analysis, functional analysis and stochastic calculus.

Hirdes, John, Public Health and Health Services, September 1, 2015 to August 31, 2016, at 100% salary  
During this sabbatical I will increase my expertise in research related to “big data” and will pursue research in the area of acute care for the elderly. If my CIHR Foundation Grant is approved, I will also undertake a major program of research in mental health, home care and long term care.

Ilcan, Suzan, Sociology and Legal Studies, September 1, 2015 to August 31, 2016, at 85% salary  
My sabbatical leave focuses on two research projects dealing with humanitarian aid and the governance of refugees from a critical migration standpoint. These research projects involve ethnographic, social policy, discourse, and archival analyses. The dissemination plans include the writing of conference presentations, policy briefs, and the production of a draft book manuscript under contract with McGill-Queen’s University Press.

Jennewein, Thomas, Physics and Astronomy, September 1, 2015 to August 31, 2016, at 85% salary  
I will boost my main research projects towards building a Quantum Satellite. This project entered a critical phase for team building and testing; several contracts with the Canadian Space Agency and industry partners (COMDEV) are underway. Furthermore, this will allow extended visits to international partners for the mission, including Israel, India, Singapore, and Europe.

Johnson, David, Mechanical and Mechatronics Engineering, January 1, 2016 to June 30, 2016, at 100% salary  
I will advance my research in wind energy through further developing the Waterloo-based wind turbine demonstration site, expanding the northern Kasabonika Lake wind project, and interacting with researchers at the Wind Energy Institute of Canada and TechnoCentre éolien. I also plan to write and submit research articles, and visit the University of Auckland to collaborate in developing wind energy concepts.

Karray, Fakhreddine, Electrical and Computer Engineering, September 1, 2015 to February 29, 2016, at 85% salary  
I am planning to visit Masdar Institute/Khalifa University (UAE), Nanjing University of Aeronautics and Astronautics (China), and if time permits, the National University of Singapore (Singapore) to carryout research in the field of cognitive machines. I will also be working with Vestec Inc. on embedded speech
engines and working on the second edition of my textbook on Soft Computing and Intelligent Systems Design.

**Kelly, Richard**, Geography and Environmental Management, January 1, 2016 to December 31, 2016, at 100% salary
The aim is to work on several papers of an applied and theoretical nature, develop two book ideas on (a) methods in snow fieldwork science (b) remote sensing theoretical/methodological issues, and to collaborate with colleagues at NASA (Maryland) and Japan Space Exploration Agency (Tokyo) and Finish Metrological Research (FMI), (Finland).

**Koenemann, Jochen**, Combinatorics and Optimization, September 1, 2015 to August 31, 2016, at 98.9% salary
I plan to spend the entire sabbatical in Bonn, Germany. During September to December, 2015, I will be located at the Hausdorff Institute for Mathematics, where I am organizing a focus trimester on Combinatorial Optimization with colleagues. January to August, 2016, will be spent at the Forschungsinstitut fuer Diskrete Mathematik in Bonn, collaborating with colleagues there.

**Laing, Andrew**, Kinesiology, January 1, 2016 to December 31, 2016, at 85% salary
My field of interest is musculoskeletal biomechanics related to human health and injury prevention, and the role that advanced age has on these relationships. I intend to use my sabbatical to accomplish several goals including: incorporating a probabilistic modeling framework within the research program, developing new and extending existing research collaborations, and engaging in general planning and writing of specific applications for research funding opportunities.

**Lam, Patrick**, Electrical and Computer Engineering, September 1, 2015 to February 29, 2016, at 85% salary
I plan to develop expertise in applying statistical techniques to program analysis by collaborating with colleagues at the Swiss Federal Institute of Technology in Zurich (ETHZ). These techniques will accelerate my research objective of developing novel techniques for analyzing software tests and making the analysis results available to developers so that they can improve the effectiveness of their test suites.

**Leatherdale, Scott**, Public Health and Health Services, January 1, 2016 to June 30, 2016, at 100% salary
As the principal investigator of the COMPASS Study (world largest and most comprehensive youth health cohort study), this sabbatical will provide me with the necessary time to submit my funding renewal applications, build stronger national and international partnerships, and focus on generating additional scientific knowledge exchange outputs (peer-reviewed publications, draft a book, and government policy reports).

**Lewis, John**, Planning, July 1, 2015 to December 31, 2015, at 100% salary
I will be pursuing research activities in two areas. First, I will be continuing research with the Ontario Seniors Secretariat to evaluate the age-friendly community planning policy that I drafted and the Ontario government implemented in the fall of 2013. Second, I will be completing geodesign application development for my current SSHRC Partnership Development Grant.

**Li, Xianguo**, Mechanical and Mechatronics Engineering, March 1, 2016 to August 31, 2016, at 100% salary
For this sabbatical leave, my main goal is to revise my book “Principles of Fuel Cells” for the second edition; to edit a handbook on fuel cell technology; to write a number of research articles based on numerous studies that my students and I have conducted over the last many years and to spend time with collaborators in my research.
Li, Yuying, Computer Science, September 1, 2015 to August 31, 2016, at 100% salary
I will continue to conduct research on optimization for data mining, finance and insurance risk management, collaborate with colleagues in quantum optimization.

Lubiw, Anna, Computer Science, September 1, 2015 to August 31, 2016, at 85% salary
I plan to do research in algorithms, specifically computational geometry and graph algorithms.

MacLeod, Colin, Psychology, July 1, 2015 to June 30, 2016, at 100% salary
My research, continuously supported by NSERC, is in the domain of human cognition, specifically attention, learning, and memory. I will be writing up for journal publication projects that have accumulated during my time as Chair, and also hope to work on a book.

Maheshwari, Vivek, Chemistry, November 1, 2015 to April 30, 2016, at 100% salary
Research and dissemination activities will be pursued in the following areas: Cell based composites for flexible electronic devices, nano-structured composites for application in solar cells and energy storage. The time will also be used to complete accepted invitation for writing a review article and to develop new industry collaborations and grant proposals.

Majowicz, Shannon, Public Health and Health Services, November 1, 2015 to April 30, 2016, at 100% salary
My research seeks to create the evidence needed to prevent foodborne, waterborne, and enteric disease in Canada, for large sub-populations where prevention will yield the greatest reduction in disease burden. My research themes address our two most pressing evidence needs: understanding the burden posed by these illnesses in order to justify investing in interventions, and identifying effective interventions.

Mansour, Raafat, Electrical and Computer Engineering, September 1, 2015 to February 29, 2016, at 100% salary
I will work on my research in Radio Frequency (RF) micro electromechanical (MEMS) technology, reconfigurable and adaptive RF devices, and Sensors and Complementary Metal Oxide Semiconductor (CMOS)-MEMS instrumentation for nanotechnology. I will remain mostly at UW but plan to visit Bremen University, the University of Magdeburg, the University of New South Wales, Simon Fraser University, and labs in Germany and France.

Mantin, Binyamin, Management Sciences, September 1, 2015 to August 31, 2016, at 92.6% salary
Advance on-going collaboration with colleagues at Kühne Logistics University, Hamburg, to develop and understand the drivers of performance in supply chain management utilizing large scale datasets, specifying a relationship between key operational factors: inventory, cost of goods sold, and gross margins. Engage in transportation research with emphasis on airport-airline supply chain with collaborators at Kyoto University and the Hebrew University.

Marcoux, Laurent, Pure Mathematics, July 1, 2015 to December 31, 2015, at 85% salary
My research concerns an area of pure mathematics known as operator theory and operator algebras. I intend to study questions relating to the structure of algebras with the “total reduction property”, and the notion of the similarity degree of operator algebras.

Mckay, Donald, Architecture, September 1, 2015 to August 31, 2016, at 100% salary
I will spend this leave a) completing “The Chess Game”, a narrative on the modern tension between sculpture and photography, and 2) renovating and reshaping “The Park Road House”, an award winning residential building built 1989-1991.

Muirhead, Bruce, History, January 1, 2016 to June 30, 2016, at 100% salary
To focus on the issues and problems surrounding Canada’s supply managed (SM) egg and dairy industries. As well, I intend to provide historical context to the debate about SM’s sustainability and
resilience. I will also compare the Canadian industry to international peers, including its impact in international trade discussions, where SM is perceived to hinder a successful conclusion.

Nelson, Edna. Sociology and Legal Studies, September 1, 2015 to August 31, 2016, at 93.3% salary
I will be conducting with my colleagues, Augie Fleras and Fred Desroches, and a former doctoral student, Jennifer Robinson, on separate projects that address issues of social exclusion and inequality. I will also be preparing a new edition of a textbook on law and society and a monograph on Canadian nationalism as expressed through the art of its currency.

Parker, Dawn. Planning, September 1, 2015 to August 31, 2016, at 85% salary
I will continue funded research that applies agent-based computational simulation models to study how urban land use and transportation systems respond to major infrastructure investments and policy incentives. I will also develop new research on how agent-based models can be integrated into regional, national, and global-scale “integrated assessment” models used to analyze the effects of global climate accords.

Parker, Wayne. Civil and Environmental Engineering, September 1, 2015 to August 31, 2016, at 100% salary
I intend to conduct research related to enhancing the sustainability of wastewater treatment through the following activities: continued supervision of my graduate students; collaboration with my previous and current graduate students to author papers; development of proposals for future research funding; and further development of collaborative research projects with the University of Wageningen (The Netherlands), the University of Victoria, and Ryerson University.

Peterson, Sean. Mechanical Engineering, January 1, 2016 to June 30, 2016, at 100% salary
During my sabbatical leave I will be working on a collaborative research project in speech modeling with a colleague at Universidad Tecnica Federico Santa Maria in Chile. The research will focus on development of robust methods of quantifying the “goodness” of a model via comparison with clinical measurements.

Randall, Neil. English Language and Literature, September 1, 2015 to February 29, 2016, at 100% salary
I will research a book on game adaptations of the works of J.R.R. Tolkien.

Robinson, Derek. Geography and Environmental Management, July 1, 2015 to December 31, 2015, at 100% salary
Modelling and analysis of land use change across Ontario. The ecological and economic impacts of land-use decisions are evaluated using a combination of remote sensing, geographical information systems, and agent-based modelling approaches. Furthermore, new expertise and research collaborations are developed with unmanned aerial vehicle systems with infrastructure funding obtained from Canadian Foundation for Innovation and the Ontario Research Fund.

Sanita, Laura. Combinatorics and Optimization, July 1, 2015 to December 31, 2015, at 100% salary
My research activity focuses on algorithms and optimization problems originating from the areas of theoretical computer science and applied mathematics. During this sabbatical, I will attend the Hausdorff Trimester Program (Bonn, September to December 2015) in combinatorial optimization, that is an international program whose goal is to bring together the field’s best researchers to establish new and deepen existing international collaborations.

Shallit, Jeffrey. Computer Science, September 1, 2015 to August 31, 2016, at 85% salary
I will be working on applications of number theory to finite automata and vice-versa. My recent work involves logical methods for algorithms decidability for questions about sequences.
Soulis, Eric, Civil and Environmental Engineering, January 1, 2016 to December 31, 2016, at 100% salary
I will continue the technology transfer of my rainfall intensity-density-frequency (IDF) curve modeling work. In Ontario, where it is already in use, the technology helps engineers design new infrastructure, while maintaining and improving existing infrastructure, including bridges, culverts, and dams. Once nationally implemented, the technology will help engineers across Canada prepare for changes in future rainfall pattern extremes.

Wasilewski, Zbigniew, Electrical and Computer Engineering, September 1, 2015 to February 29, 2016, at 100% salary
During the sabbatical I will concentrate on advancing research projects in the areas of compound semiconductor based quantum structures for terahertz (THz) and infrared photonics, as well as quantum devices for quantum information processing highly qualified personnel (HQP) training for five graduate students and one post-doctoral fellow (PDF). Also, on the agenda is strengthening service role of Quantum Nanotechnology Centre (QNC) Molecular Beam Epitaxy (MBE) facility to offset its operational expenses.

Weddell, Grant, Computer Science, September 1, 2015 to February 29, 2016, at 85% salary
I will focus my research on information integration in the presence of large-scale ontological domain knowledge as well as from information sources with low-level iterator-based interfaces.

Yu, Aiping, Chemical Engineering, July 1, 2015 to December 31, 2015, at 100% salary
I will remain predominately on campus to work on NSERC I2I, NSERC CRD and OCE proposals for projects on large scale production of graphene based additives, as well as to prepare and enrich the content for the new courses NE 491 and ChE 241. I also plan to visit Grafoid Inc. in Kingston, Ontario to strengthen collaboration and discuss a new project.

- Sabbatical Leave Change
  Lam, Jean-Paul, Economics, cancelled leave from July 1, 2015 to December 31, 2015

- Administrative Leave
  Easton, Fraser, English Language and Literature, September 1, 2015 to December 31, 2015, at 100% salary
  I will spend my leave working on two projects. The first project is an article on the long poem “Jubilate Agno” by the eighteenth-century religious poet Christopher Smart. The second project is an article on the representation, in the “Times” of London, of working-class women who lived disguised as men.

- Muirhead, Bruce, History, September 1, 2015 to December 31, 2015, at 100% salary. (see sabbatical information for leave description)

FOR INFORMATION

2. Administrative Appointments
Craik, Neil, re-appointment as Director, Environment, Enterprise and Development, Faculty of Environment, July 1, 2015 to June 30, 2017.

D’Alessio, Serge, appointment as Associate Dean, Admission and Outreach, Faculty of Mathematics, July 1, 2016 to June 30, 2018.
Deadman, Peter, re-appointment as Chair, Geography and Environmental Management, Faculty of Environment, July 1, 2015 to December 31, 2015.

Dixon, Michael, appointment as Acting Chair, Psychology, Faculty of Arts, July 1, 2015 to June 30, 2016.

Douglas, Peter, appointment as Associate Dean, Undergraduate Studies, Faculty of Engineering, July 1, 2015 to June 30, 2018.

Edwards, David, re-appointment as Director, Pharmacy, Faculty of Science, June 1, 2015 to May 31, 2018.

Furino, Steve, re-appointment as Associate Dean, Undergraduate Studies, Faculty of Mathematics, July 1, 2016 to June 30, 2018.

Hanning, Rhona, appointment as Associate Dean, Graduate Studies, Faculty of Applied Health Sciences, July 1, 2015 to June 30, 2018.

Helmes-Hayes, Richard, appointment as Acting Chair, Sociology and Legal Studies, Faculty of Arts, July 1, 2015 to June 30, 2016.

Leoni, Monica, appointment as Chair, Spanish and Latin American Studies, Faculty of Arts, May 1, 2015 to April 30, 2019.

MacLeod, Colin, appointment as Chair, Psychology, Faculty of Arts, July 1, 2016 to June 30, 2018.

O’Connor, Daniel, re-appointment as Chair, Sociology and Legal Studies, Faculty of Arts, July 1, 2016 to June 30, 2020.

Opal, Ajoy, re-appointment as Director, First Year Engineering, Faculty of Engineering, May 1, 2015 to April 30, 2017.

Parker, Paul, re-appointment as Director, First Year Engineering, Faculty of Engineering, July 1, 2015 to June 30, 2017.

Srinivasan, Keshav, appointment as Associate Dean, Graduate Studies, Faculty of Environment, July 1, 2015 to June 30, 2017.

Stubley, Gordon, re-appointment as Associate Dean, Teaching, Faculty of Engineering, May 1, 2015 to April 30, 2018.

Feridun Hamdullahpur
President
Incidental Fees

Federation of Students Fee
It is recommended that the compulsory Federation of Students fee, assessed and collected from all full-time undergraduate students, be increased from $48.95 to $54.67 per term effective September 2015 (fall term). Part-time undergraduate students are assessed 30% of the full-time fee or $16.40 per term.

Comments:
- The previous full-time fee increase was $0.44 per term effective September 2014
- The 2015 fee increase of 11.7% (2% CPI plus $4.74) was approved at the Annual General Meeting on March 25, 2015
- Payment of the fee is a requirement of registration and is non-refundable

Federation of Students Administered Fee
It is recommended that the Federation of Students Administered Fee be increased to reflect an increase for the dental, health, and U-Pass components effective September 2015 (fall term).

<table>
<thead>
<tr>
<th></th>
<th>Dental</th>
<th>Health</th>
<th>U-Pass</th>
<th>SRP</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular</td>
<td>$45.00</td>
<td>$ 55.00</td>
<td>$81.15</td>
<td>$1.00</td>
<td>$182.15</td>
</tr>
<tr>
<td>Co-op</td>
<td>$83.63</td>
<td>$103.13</td>
<td>$81.15</td>
<td>$1.00</td>
<td>$268.91</td>
</tr>
</tbody>
</table>

Comments:
- SRP = Student Refugee Program
- The Federation of Students has contracted with Studentcare for the health and dental components and Grand River Transit for the bus pass component
- The university assesses the fee on behalf of the Federation of Students and transfers the funds to the Federation of Students for disbursement
- Payment of the fee is a requirement of registration; the health and dental components are refundable through the service provider; the bus pass is non-refundable; the student refugee program is refundable directly through the Federation of Students
- During the winter term, regular students pay twice the rate for health and dental to ensure continuous coverage from May to August
- The regular dental component decreased $1.51 per term (-3.3%)
- The regular health component increased $3.75 per term (7.4%)
- The U-Pass component reflects an increase of $3.86 per term (5%)
Orientation Fee
It is recommended that the Orientation Fee, assessed and collected from each incoming full-time, first-year undergraduate student, be increased from $103.53 to $105.60 effective September 2015 (fall term).

Comments:
- The original $100.00 fee was approved by student referendum in February 2005
- The fee is collected in the fall term only for 1A students
- The fee can be adjusted by CPI each year and last increased in September 2012; this increase is 2%
- The fee is refundable through the Federation of Students; students seeking a refund are required to request the refund prior to the start of frosh week

Graduate Student Association (GSA) Administered Fees
It is recommended that the compulsory GSA Administered Fees, assessed and collected from active full-time and part-time graduate students, be increased for the health, dental and U-Pass components effective September 2015 (fall term).

<table>
<thead>
<tr>
<th></th>
<th>Dental</th>
<th>Health</th>
<th>U-Pass</th>
<th>Grad House</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>$78.00</td>
<td>$55.00</td>
<td>$81.15</td>
<td>$17.50</td>
<td>$231.65</td>
</tr>
<tr>
<td>Part-time</td>
<td>$78.00</td>
<td>$55.00</td>
<td>N/A</td>
<td>$17.50</td>
<td>$150.50</td>
</tr>
</tbody>
</table>

Comments:
- Payment of the fee is a requirement of registration
- The Graduate House fee is refundable directly through the GSA
- The health and dental components are refundable through the service provider
- The U-Pass fee pays for a universal bus pass with the Grand River Transit; the fee is assessed to all full-time graduate students on-campus within the Region of Waterloo; the fee is not refundable
- The proposed fee changes were approved by the GSA Board of Directors on May 13, 2015
- The U-Pass component reflects an increase of $3.86 per term (5%)
- The dental component reflects an increase of $15.00 per term (23.8%)
- The health component reflects an increase of $3.75 per term (7.4%)
Amendments to the Endowment Fund and Society Fee for Students enrolled in programs in the School of Accounting & Finance

Accounting & Finance Endowment Fund
It is recommended that the Accounting & Finance Endowment Fund fee, assessed and collected from full-time undergraduate and graduate students (excluding PhD students) enrolled in the School of Accounting and Finance programs be reduced from $50.00 to $20.00 per term, effective September 2015 (fall term).
Comments:
- The voluntary student endowment fund fee is levied on all full-time undergraduate and graduate students (excluding PhD students) enrolled in the School of Accounting and Finance programs
- The fee is fully refundable in accordance with the University’s policy on incidental fees
- The change was approved by student referendum

Accounting & Finance Student Association Fee
It is recommended that a new Accounting & Finance Student Association fee of $30.00 per term be assessed and collected from full-time undergraduate and graduate students (excluding PhD and Masters of Taxation students) enrolled in the School of Accounting and Finance programs effective September 2015 (fall term).
Comments:
- The fee provides a source of funding to enhance student life through a broad set of student-centric activities as well as improve the quality of education through the development of well-rounded individuals
- These activities were formerly funded through the Accounting & Finance Endowment fund which was reduced by an equivalent amount
- The new fee was approved by student referendum

Revised Constitution of Accounting and Finance Endowment Fund
It is recommended that the revised Constitution of Accounting and Finance Endowment Fund (attached) be approved effective September 1, 2015 (fall term).
Comments:
- The fund and constitution were originally established in 1991 to provide funds to maintain and improve the quality of education and experience of all School of Accounting and Finance students
- The proposed amendments better reflect current requirements, facilitate better planning, greater transparency and accountability
- The appropriate sections of the constitution were not amended to maintain the original intentions and approvals granted by the Board of Governors
- The proposed amendments to the constitution (as well as the two related fees changes) were approved by student referendum (91% in favour based on 28% of the eligible voters)

Vice President,
Administration & Finance
CONSTITUTION
OF
ACCOUNTING AND FINANCE ENDOWMENT FUND

As Amended (Draft April 29, 2015 TWS)

ARTICLE 1 – NAME and FUNCTION

The name of the organization shall be the Accounting and Finance Endowment Fund, hereinafter referred to as the “AFEF”. It is to function as a non-profit organization within the University serving the educational needs of students enrolled in any of the programs under the School of Accounting and Finance (SAF).

ARTICLE 2 – DEFINITIONS

2.01 When used herein the following words or phrases shall have the meaning or definition ascribed in this Article 2:

(a) “SAF” shall mean the School of Accounting and Finance at the University of Waterloo.
(b) “AFEF Board” shall mean the group of Directors of the Fund as described in article 5.01.
(c) “AFSA” shall mean the “University of Waterloo Accounting and Finance Student Association.”
(d) “By-Laws” shall mean those by-laws passed by the Members.
(e) “Chair” shall mean the Chair of the AFEF Board elected in accordance with the provisions of this constitution and/or the appropriate by-laws and whose duties are set out therein
(f) “Director” shall mean a member of the AFEF Board elected in accordance with the provisions of this constitution and/or the appropriate by-laws and whose duties are set out therein.
(g) “Fund” shall mean the Accounting and Finance Endowment Fund
(h) “Member” shall mean any SAF student or director or associate director of SAF.
(i) “University” shall mean the University of Waterloo, its successors, assigns and any organization, entity or body which the University of Waterloo controls or of which it is a shareholder, partner, joint venturer or investor.
(j) “UWAFAA” shall mean the University of Waterloo Accounting and Finance Alumni Association.
(k) “SAF Student” shall mean any person enrolled on a full-time basis in any of the SAF undergraduate, regular or co-operative, or graduate programs, with the exception of students in the PhD program.

2.02 For all purposes of this Constitution, except as otherwise expressly provided or unless the context otherwise requires:

(a) All references in this Constitution to designated “articles”, “sections”, “schedules” and other subdivision are to be designated articles, sections, schedules and other subdivisions of this agreement.
(b) The words “herein”, “hereof” and “hereunder” and other words of similar import refer to this Constitution as a whole and not to any particular article, section, schedule or other subdivision of this Constitution.
(c) The headings are for convenience only and do not form a part of this Constitution nor are they intended to interpret, define or limit the scope, extent or intent of this Constitution or any provision hereof.
(d) Any reference to any entity shall include and shall be deemed to be a reference to any entity that is a successor to such entity.
(e) Words in the singular include the plural and words in the masculine gender include feminine and neuter genders and vice versa.
ARTICLE 3 – PURPOSE

3.01 The object of the AFEF is, subject to Section 3 of the University of Waterloo Act, 1972, to provide funds to maintain and improve the quality of the educational experience of all SAF students by providing funds to:

(a) better prepare students to face the challenges and responsibilities which they will encounter in their professional careers; and

(b) to provide improvements in the quality and the diversity of students’ educational experiences.

Only that portion of the funds generated through the investment of donations, hereinafter referred to as “Income”, shall be spent. The term “funds” when used in this constitution shall mean the funds raised by the AFEF and held by the University on separate account in accordance with this Constitution and all income accrued thereto.

The AFEF Board shall annually approve the use of the funds for accounting and finance educational needs including teaching resources, student projects, and other educational purposes the AFEF Board shall consider appropriate.

ARTICLE 4 – POWERS

To achieve the purposes and objects aforesaid, the AFEF Board shall have the following powers, with respect to the AFEF, subject to the provisions of the University of Waterloo Act, 1972, and the control and authority of the University’s Board of Governors, the University Senate, and the Office of the President, and Vice-Chancellor:

(a) 

Raising Funds

To raise funds as follows:

(i) Effective fall 2015, through the payment by each SAF student of the sum of $20.00 per academic term (formerly $75.00/term from 1991 to 2009, $50.00 from 2009 to 2015) indexed at the discretion of the AFEF Board and approved by the University’s Board of Governors as per paragraph 10.02. Provided, however, that all amounts paid to the AFEF shall be fully refundable in accordance with the University’s policy on incidental fees;

(ii) by the receipt of donations; and

(iii) through the solicitation of additional funds in ways approved by the University.

(b) Chair of the AFEF Board

Responsibilities: schedule and chair all of the Board meetings; ensure that all orders and resolutions decided by the AFEF Board are carried out; look after all paperwork for funding proposals; ensure that the AFEF Board is appropriately constituted and that this constitution is respected.

(c) Receipt of Reports

To receive a monthly and yearly report from the University with respect to the income and capital of the Fund and to require the University to hire a separate “investment manager” to administer the Fund. The cost of the investment manager shall be paid out of the Fund;

(d) No Power to Sign on Behalf of the University

The AFEF Board shall have no power to make any financial commitments or undertakings of any kind that might be contractually binding on the University and all formal documents making any commitments or contracts shall be signed in the name of the University in a manner and by such persons as shall be directed by the Board of Governors of the University;

(e) School of Accounting and Finance not to be Affected

And provided further that the powers of the of the AFEF Board as provided herein, or as they may be executed, shall in no way interfere with or otherwise adversely affect the autonomy of SAF in the exercise of its powers, authorities, duties or regular conduct of its affairs. The funds raised for the AFEF and the interest earned thereon shall not have an adverse effect on the funding of SAF and shall be held by the
University in an account separate from all general funds of the University to be used in accordance with the provisions of this Constitution;

(f) University to be Reimbursed for Expenses
And provided further that all direct expenses of the AFEF shall be paid from the earnings of the AFEF, and that the general accounts of the University shall be fully reimbursed from the particular accounts of the AFEF, unless otherwise stipulated in a written agreement with the University, for all or any services provided to the AFEF or expenditures made by the University in connection with management or operation of the AFEF; provided that the AFEF shall not be charged a fee for the administration of the Fund unless a separate investment manager is hired to administer the Fund;

(g) Periodic Review by the University
And provided further that the AFEF and its Constitution shall be subject to periodic review by the Board of Governors of the University, such review to be carried out in the light of any new or revised policies established by the Board of Governors or the Senate of the University for the purpose of defining or controlling the affairs or earnings of foundations or similar groups which may be established under the authority of the Board of Governors or the Senate of the University.

ARTICLE 5 – AFEF BOARD

5.01 The affairs and business of the AFEF shall be conducted by the AFEF Board, each member of which must be a minimum of 18 years of age and will include;

a. Four (4) elected student Directors who may not at the same time serve on either the AFSA board of directors or the AFSA executive. Each student Director of the AFEF Board must be directly elected by the Members.
b. The Chair of the AFSA board of directors.
c. the AFSA president;
d. The director or designate of the School of Accounting and Finance;
e. One (1) representative of the UWAFAA, who is a member of the UWAFAA’s council. The appointment must be ratified by the UWAFAA’s Council;
f. One (1) SAF alumnus who graduated within the three (3) years immediately preceding his/her appointment to the AFEF Board. The appointment must be ratified by the UWAFAA’s Council.
g. The Chair of the AFEF Board shall be chosen by and from among the Directors. The Chair will normally be an elected student Director.
h. The Chair of the AFEF Board cannot have a position on either the AFSA Board of Directors or the AFSA executive at the same time that he or she holds the position of AFEF Chair.
i. The student Directors shall recuse themselves from discussions involving proposals from groups in which they hold direct leadership positions (see article 6). This applies to the four elected student Directors. Since many student groups fall under the AFSA umbrella for administrative purposes, the chair of the AFSA board of directors and the AFSA president need not recuse themselves from proposals coming from AFSA affiliated groups; however, they would recuse themselves from proposals from non-AFSA related groups if they hold a leadership position in that group.

Provided, that the failure to elect or appoint all of the foregoing, subject to the provisions of Article 10, shall not constitute a breach of this Constitution.

ARTICLE 6 – PROPOSALS FOR FINANCIAL SUPPORT

6.01 Proposals may come from SAF Students, SAF student groups recognized by SAF, SAF student groups recognized by AFSA, including AFSA itself, the Arts Student Union, or SAF. Proposals may also come from SAF faculty and staff.
6.02 Proposals to the AFEF must provide specific information relating to any other applications for funding within the University and proposals for funding to external groups. The AFEF Board shall collaborate with other SAF or University bodies engaged in supporting student educational activities to ensure efficiency and fairness in providing funding among different proposals.

6.03 Student groups whose proposals are approved must keep appropriate records and provide a full accounting to the AFEF Board sufficient to meet University audit requirements.

ARTICLE 7 – MEMBERSHIP

7.01 Members shall have the meaning ascribed in Article 2 and shall have the rights and privileges set out in this Constitution and the appropriate AFEF by-laws.

7.02 Membership shall be terminated as follows:
(a) upon graduating from any of the undergraduate or graduate programs under the SAF at the University;
(b) the death, dissolution or winding up of a Member; or
(c) a Member ceasing to be enrolled on a full time basis as a SAF Student.

ARTICLE 8 – MEETINGS

8.01 The Chair of the AFEF Board shall call an annual meeting of the Members at the University of Waterloo on a day and at a time as shall be convenient to the AFEF Board;

ARTICLE 9 – AUDITORS

The accounts of the AFEF shall be audited by the Auditors of the University, who are appointed by the Board of Governors. The AFEF Board shall have the right to require an additional audit and in such event any expenses for fees or services for such audit shall be charged to the particular accounts of the AFEF.

ARTICLE 10 – FINANCES

10.01 Participation in the AFEF by SAF Students shall be voluntary. Any contribution automatically included in the fees and tuition paid by a SAF Student shall be fully refundable in accordance with the University’s policy on incidental fees and all proceeds generated by the VSC become part of the Fund;

10.02 Voluntary Student Contribution (VSC)
The VSC is a student donation to the Fund and is included on the undergraduate fee statement. The student donation may be indexed by the AFEF Board up to the Government of Canada's rate of inflation every four (4) years. Any such change must be approved by the University’s Board of Governors. Any change, other than with respect to inflation, in the level of the VSC collected requires approval by the AFEF Board, the Membership of AFEF, and the Board of Governors of the University.

10.03 Until dissolution as provided for herein the capital of the AFEF shall not be expended, distributed, or paid out.

10.04 If, in any year
(a) less than four (4) student representatives including the Chair are elected to the AFEF Board;
(b) a Chair is not appointed; or
(c) the Chair ceases to hold office during their term of office and the vacancy is not filled within one (1) month of the vacancy in the manner prescribed in this constitution or the appropriate by-laws;
Then, upon the occurrence of any such events, no amount of the income which is available to be disbursed during such year shall be expended or disbursed until the election or appointment of the subsequent year’s AFEF Board in accordance with this constitution and/or the appropriate by-laws.

10.05 No member of the AFEF Board shall (except for repayment of expenses incurred on behalf of the AFEF) receive any remuneration for acting as such.

ARTICLE 11 – AMENDMENTS

11.01 This Constitution may be amended by the approval of 2/3rd of the votes cast in a referendum of Members. For the purposes of such a referendum twenty (20%) percent of the Members shall constitute a quorum. Provided, however, that Articles 3, 4, 8, 10, and 11 of this Constitution shall not be subject to amendment.

ARTICLE 12 – APPROVAL OF THE CONSTITUTION

Before becoming effective, the Constitution of the AFEF and any amendments thereto shall be approved by the Board of Governors of the University.

ARTICLE 13 – ESTABLISHMENT OF A SEPARATE ORGANIZATION

In the event that the Members, through a majority vote to the effect at a membership referendum, determine that it is desirable to set up a new fund with similar objects to the AFEF but wholly separate from the University, a separate organization may be set up (hereinafter referred to as the “New Fund”) and this Constitution shall continue to apply to the Fund held by the University. Provided, however, that for the purposes of such referendum twenty (20%) percent of the Members shall constitute a quorum.

Provided, further however, that if the Board of Governors of the University after consideration of the objects and powers of the New Fund, determine that it is in the best interest of the University to transfer the funds, and the Canada Revenue Agency and the Public Trustee for the Province of Ontario approve such transfer, the University shall transfer the Funds to the New Fund upon such terms and conditions as the Board of Governors of the University may direct. After such transfer is finalized, the AFEF shall be dissolved.

ARTICLE 14 – DISSOLUTION

14.01 The AFEF shall terminate upon the occurrence of any of the following events:
   (a) the winding-up, dissolution, disbanding or discontinuance of SAF provided that a re-organization or change of name shall not constitute a winding-up, dissolution, disbanding or discontinuance;
   (b) the occurrence of any one of those situations or events as set out in sub-Article 10.04 for five (5) successive years; or
   (c) the approval of eighty (80%) percent of the votes cast by the Members at a referendum of Members to consider the termination of the AFEF. For the purposes of the holding of such referendum twenty (20%) percent of the members shall constitute a quorum.

14.02 Upon the occurrence of the event set out in paragraph 14.01 (a) and if the funds have not, or are not, transferred to a New Fund the funds held therein shall be disbursed to registered charities within Canada which have, as their purpose, the advancement of accounting and finance education as recommended by the AFEF Board, subject to the ratification of the Board of Governors of the University.

14.03 Upon the occurrence of those events provided for in paragraphs 14.01 (b) and (c) no further amounts shall be collected as provided for in subparagraph 4.01 (a) (i). The Fund existing as of the date of the occurrence of the events provided for in paragraphs 14.01 (b) and (c) and all income arising thereon shall, in the event that SAF has not been wound up, dissolved, disbanded, or discontinued, be administered in accordance with the purposes and
intentions set forth herein by the University of Waterloo Accounting and Finance Alumni Association Executive. If, at any time after the occurrence of the events set out in paragraph 14.01 (b) or (c), SAF is wound up, dissolved, disbanded, discontinued or no longer exists, the Fund shall be distributed in accordance with the provisions of paragraph 14.02.

ARTICLE 15 – DRAFTING AFEF BY-LAWS

15.01 The AFEF Board, at their earliest convenience and subsequently as may be required, shall draft by-laws in concert with the general aims and objectives of the AFEF relevant to the management of the affairs of the AFEF, the procedures of the meetings of Members, the meetings of Directors and the meetings of the AFEF Board and without limiting the generality of the foregoing these should include the following:

(a) Definition of quorum, frequency of regular meetings, notice of meetings, minutes, and records, etc.;
(b) Formality of making and passing resolutions, and voting procedures;
(c) Establishment of any standing committees, and their powers, duties or responsibilities; and
(d) Establishment of a fiscal year, which shall coincide with the University’s fiscal year, and accounting procedures which shall be satisfactory to, and approved by the University’s Vice President, Administration & Finance, and the University’s Auditors.

15.02 The AFEF Board may draft additional by-laws.

ARTICLE 16 – AUTHENTICATION OF ACTS OF AFEF BOARD of DIRECTORS

16.01 All acts of the Directors shall be taken or confirmed by way of resolution of the Directors passed at a duly constituted meeting of the AFEF Board and duly recorded by written minutes. Within a period of not more than ten days following the date of any duly constituted meeting of the Directors, a copy of the minutes of the said meetings shall be forwarded or delivered, as indicated above, to the University offices of the President, the Vice-President Academic and Provost, and the Vice President, Administration and Finance.

ARTICLE 17 - NO GAIN TO DIRECTORS

17.01 The AFEF shall be carried on without the purpose of gain for its Directors and any profits or other accretions to the AFEF shall be used in promoting its objects.
Dear Governors,

Although we were together a few short months ago, I am pleased to provide you with a brief update on the events and accomplishments since April. Many of the items listed below are directly related to the University’s strategic plan and its implementation. As reported earlier, we have been making very good progress as expeditiously as we can on all eight thematic areas and are meeting and, in some cases, well exceeding the set metrics. Specifically, in all top three priority areas (Experiential Education, Entrepreneurship, Transformative Research) our progress has been excellent.

Starting with the October BOG meeting, we will regularly present our progress on the implementation of the strategic plan along with other issues of critical importance to the University of Waterloo.

Strategic Plan Update

Each strategic theme group has assessed their progress, and each has developed 2015/16 plans with related budget requests. These have now been reviewed and budget assigned. A risk assessment has been performed.

Experiential education - moving forward: Maintaining and increasing the quality of experience for students and employers; closing the gap - strengthening outcomes for non-coop student - including a career ready certificate, Professional Development courses, and integration of other forms of experiential education.

Entrepreneurship - Developing “space” for entrepreneurial and organizational structure for promotion of activities and global recognition, including entrepreneur in residence program. Here are three excellent examples of how Waterloo’s entrepreneurship differentiation is combined with student experience and global prominence.

Sorbonne – between June 8-12, led by President Alain Storck, 12 faculty and staff members from Les Sorbonnes Universities will be on the UW campus to participate in a week long program that will introduce them to Waterloo’s innovation ecosystem. This was requested (and paid by) Sorbonne.

Korean Advanced Institute of Science and Technology (KAIST) is hosting a week long Global Entrepreneurial Energy camp during the period August 17-22. This will take place in the Start-up KAIST Studio in Korea and is an invitation to only Delft Technological University, UW and Ecolé Polytechnique Lousanne universities. UW is sending six students (who have already been chosen) representing a mix of age, experience, backgrounds, gender and interest (both venture and social entrepreneurship).

Hong Kong University of Science and technology (HKUST) is running a month long program in HK/Shenzhen designed to assist promising teams to develop their design for manufacturing (DFM) plans for their projects to enable small scale manufacturing production. Only one team from MIT and UW (and possibly Technion) will be funded. HKUST will pay for all the development costs (including industrial design, hardware, firmware, mechanical design, etc.) and provide a network of manufacturing experts and
supply chain partners. This is a unique opportunity for students if they have the need to scale from prototyping to small scale manufacturing.

**Transformational research** – moving forward: Increased and diversified funding and capacity to prepare competitive research proposals; new and emerging research areas; legacy areas; inter-disciplinary research; international collaborations; industry partnerships; stronger and more strategic presence internationally; increased global awareness of Waterloo research.

**Academic programming** – moving forward: Areas of growth - Engineering, Science, and Architecture; Social Innovation, entrepreneurship and sustainability; Security and risk management; Technology, culture and communication; Health and aging; increased availability of online and blended learning opportunities; SEM project in Arts; study into coordination of business courses; NextGen project for digital resources to replace text books; enhance resources for Academic Program Quality Assurance.

**Student Experience** – moving forward: Student Space - priority investment in study and social space, and athletics facilities; optimizing space reporting, and identifying new student space; Improving student academic and non-academic engagement; minimize decrease in overall satisfaction from first to graduating year (NSSE) - areas for improvement include - reflective & integrative learning, and learning strategies indicators.

**Global prominence** – moving forward: Continue recruitment of international students (currently 35% of graduate students and 13% of undergraduate students are international) by building an institutional marketing strategy for full degree program recruitment; engage with world leading institutions to support research and learning internationally (mentioned above); facilitate student mobility for international learning opportunities.

**Employer and Employee and Sound values** – moving forward: Excellence Canada: two Faculties and two support departments; review of USG system & market analysis of staff compensation; Overhaul of all employer-related websites; Gender equity; New equity, sexual violence and LGBTQ committees. The HeforShe campaign fits perfectly into our overall ambitions in these areas.

**New Budget Model**

The prototype of UWs New Resource Allocation Model (NRAM), based on the ideas of Responsibility Centre Management, is close to development with the remaining key model parameters revisited and adjusted after further Steering Committee consultation. Upon implementation, the model will facilitate multi-year budget planning and increased transparency that will inform strategic decisions regarding institutional revenues and efficiencies. Once the prototype has been validated and finalized, a multi-year implementation process will begin that includes data gathering, building the operational model, and implementing business processes. A communication plan (seminars, a web site with Fact sheets and a Q&A) has been developed. Anticipated roll out of the NRAM is for the 2016-17 budget year.

**Advancement and Alumni Relations Update**

As announced earlier this month, I was pleased to appoint Erin Sargent Greenwood as (interim) Vice President Advancement. Erin brings significant leadership and experience to this position with renewed energy and enthusiasm. In 2014-15, the Office of Advancement invested in the following strategic priorities in addition to the execution of operating plans for each unit/team and program:
Implementation of the first phase of the Advancement Strategic Framework.

Elevating our prospect management program and analysis and increasing call activity level

Pursuing campaign readiness and fundraising priority setting.

Alumni Volunteer Engagement & Events. More than 75 events were supported by Alumni Relations around the world last

**Major Events and News**

**Launch of HeForShe UN Campaign (May 5)**

- On May 5th, the University community came together to acknowledge and celebrate that the University was chosen as the only Canadian organization participating in the United Nation’s Impact 10X10x10 gender equity campaign, participating alongside governments, leading universities, and global businesses. Media coverage included the Globe and Mail online and national editions, CBC TV and radio, The Record as well as numerous online publications. As part of this framework, the University of Waterloo is making three commitments to achieve comprehensive, long-term and sustainable gender equity by developing innovative programming aimed at a full spectrum of women from young girls right through to the University’s senior leadership. Our commitments include:
  
  - Boost female student participation in STEM experiences and academic careers to build the pipeline of future female leaders in traditionally male dominated disciplines
  - Enhance female faculty representation to improve the campus environment today and drive towards parity in the future
  - Attract and advance female leaders into senior academic and administrative university positions

**Risk Management, Economic Sustainability and Actuarial Science Development in Indonesia Announcement (May 21)**

Federal government announced their support ($15M) to the University of Waterloo for this project which aims to increase the number and quality of Indonesian actuarial-science graduates to address the country’s growing demand for actuaries. The initiative is centered on a partnership between the private sector, local educational institutions and Indonesian government agencies. For example, Manulife is supporting the University of Waterloo by providing training, scholarships and work experience for young men and women entering the profession, as well as contributing to high school mathematics

**Visit by Their Majesties King Willem-Alexander and Queen Máxima of the Netherlands (May 28)**

The visit coincided with Their Majesties’ State visit to Canada on the occasion of the seventieth anniversary of the liberation of the Netherlands by Canadian Forces. The event included a formal agreement signing between Delft University of Technology and UW and a Canada-wide scholarship program announcement by the Minister of Foreign Affairs and Minister of Education, Culture and Science.
Other Events

April 9th – Alumni Relations Pitch Event – Toronto
This event celebrated the entrepreneurial ecosystem by showcasing some truly innovative startups in a pitch competition. Over 300 people attended the event. Alumni participated in an interactive voting process to determine the winner of a $5K award.

April 13th – Canadian Council of Chief Executives Roundtable – Ottawa
In my role as U15 Chair, I participated in Canada’s Business Higher Education Roundtable; which included a group of 27 leading executives from the private sector, universities, colleges, and polytechnics. The collaboration in this roundtable will place a focus on helping young Canadian graduates transition from their academic education to the workforce.

April 29th – Canadian Institute for Jewish Research – Montreal
I participated in a conference entitled: Israel’s High-Tech Miracle & Canada: Innovation for Humanity and specifically as a panelist regarding: Joint Academic Research & Cooperation - Canada/Israel.

May 15th – Saudi Cultural Bureau – Ottawa
I was invited as a keynote speaker at the official Saudi Graduation Ceremony 2015, an event that highlights the accomplishment of all Saudi students graduating from an institution in Canada.

Executive Retreat

The retreat was held May 6-8, 2015 and focused on the questions of how UW can optimize/diversify its revenue and resource base, what differentiates UW from other universities, and what levers are involved (eg funding formula review, strategic mandate agreement, and metrics). Focused attention was made on demographics, undergraduate and graduate enrolments (including international), research and infrastructure resources and government programs (including CFREF), recruiting talent, Online Learning/technology-assisted learning, and Coop/Experiential education.

UW Teaching Data

There has been a number of news coverage/editorials regarding the large number of sessional instructors (as opposed to regular faculty) teaching at many Canadian Universities. Provost Ian Orchard examined the UW situation and reported the following in terms of percentage of undergraduate courses taught by non-full time faculty:

- MATH 24%
- SCI  9.2%
- ENG  9.0%
- AHS  9.1%
- ENV  20-25% (includes PhD students)
- ARTS  32% (includes PhD students)

Marketing and Strategic Communications Update

Marketing and communications strategies to enhance the University’s brand and build profile and reputation nationally and internationally continue with a focus on the following key activities:
Media relations and digital initiatives supported the release of the QS subject rankings in April. Waterloo is ranked 20th in the world in Mathematics and 24th for Computer Science, 2nd among Canadian universities for both subjects. Communications promoted the QS Five Stars + rating (the highest rating possible within the QS stars system) recently awarded to Waterloo.

Marketing to promote Waterloo’s State of the University Report has resulted in over 4.4 million impressions from the Globe and Mail, international rankings sites and social media sources.

Along with five leading research-intensive Canadian universities, Waterloo supported and participated in the “Research2Reality” launch media event in Toronto with six Waterloo research “rock stars” participating in this national campaign. We are monitoring the pickup and reach of the event to determine ongoing participation.

Community Relations and Events Update

The University continues to maintain a highly visible presence in important communities via strategic support of key University and partner initiatives. Events supported and attended by UW senior leaders include the Mayor’s Breakfasts in both Waterloo and Kitchener, the Mayors’ Community Dinner in support of the Working Centre, Public Policy Forum dinner in Toronto, Sustainable Waterloo Region Evening of Recognition, World of Waterloo awards dinner and the Greater Chamber of Commerce of Kitchener-Waterloo lunch with Blackberry CEO John Chen.

Plans are well underway for the University’s Canada Day celebration with expected attendance of 60,000+.

A first ever Community Impact Report is under development. This document will be shared with community leaders at a President’s Community Breakfast September 11 and distributed broadly in print and digital form in fall 2015.

Waterloo Innovation Summit

Plans continue for the 2015 Waterloo Innovation Summit, September 16-18. The Summit will be presented in partnership with Communitech with the theme “Regional Innovation Ecosystems”. VIP invitations were distributed and general audience marketing will begin in June. Three keynote speakers highlight the 3-day overview of the regional innovation ecosystem: Steve Blank, Salim Ismail, and Mariana Mazzucato. The Summit immediately precedes Waterloo’s incredibly successful, student-led international hackathon, Hack the North.

Risk Management

We developed a brand new policy (Policy 11) on University Risk Management, to properly identify, minimize/avoid risk. It marks a significant milestone for us in enterprise risk management.

I look forward to discussing these and any other issues and subjects on June 2nd.

Feridun Hamdullahpur
President and Vice-Chancellor
Marketing and Strategic Communications Update

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- On May 5, the University community came together to acknowledge and celebrate that the University was chosen as the only Canadian organization participating in the United Nation’s 10X10x10 gender equity campaign. Media coverage included the Globe and Mail online and national editions, CBC TV and radio, The Record as well as numerous online publications.
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- Marketing to promote Waterloo’s State of the University Report has resulted in over 4.4 million impressions from the Globe and Mail, international rankings sites and social media sources.
- A university-wide committee of communications professionals is participating in the review of shortlisted marketing agencies being considered for work on brand strategy and marketing communications. A final recommendation is expected in early June.
- Along with five leading research-intensive Canadian universities, Waterloo supported and participated in the “Research2Reality” launch media event in Toronto with six Waterloo research “rock stars” participating in this national campaign. We are monitoring the pickup and reach of the event to determine ongoing participation.

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- The events team is supporting a first-ever visit to the University by the King and Queen of the Netherlands to acknowledge the joint agreement with Delft University and to announce and award the Liberation Scholarship.
- Plans are well underway for the University’s Canada Day celebration with expected attendance of 60,000+.
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**Government Relations Update**

On May 19 Minister Tony Clement launched the Open Data Exchange which is a partnership between UW, OpenText, D2L, and the Canadian Digital Media Network at Communitech. This initiative is funded through FedDev Ontario.

On May 21 Peter Braid announced a $15M investment into a UW initiative to provide support and expertise in Actuarial Science to Indonesia. The program will be housed in Math and is being funded by the Department of Foreign Affairs, Trade and Development. There is also a $1M contribution to the partnership from Manulife.

Federal

- The President participated in pre and post budget meetings in Ottawa with senior officials, including with Prime Minister Stephen Harper. The budget included confirmation that $1.33 billion in funding is available for Canadian Innovation Fund.

Provincial

- The Ontario Budget did not provide any positive signals regarding the University’s Major Capacity Expansion proposals for Engineering 7 and Science Complex. As a result, our efforts are now focused on leveraging federal support and option within the innovation category of Build Canada Fund to support these two important initiatives.
- The President participated in a sector-wide consultation around the Funding Formula Review and we continue to influence the ongoing review of Proposed Engineering Programs.

Municipal

- Sandra Banks will join the Economic Development Committee of the City of Waterloo. Bob Crow and Mike Kirkup have been appointed to the newly formed Regional Economic Development Board.
FOR APPROVAL

1. Delegation of Authority to Approve University of Waterloo Financial Statements, 2014-2015

Motion: That the Board of Governors delegate its authority to approve the university’s audited financial statements for the fiscal year ended 30 April 2015 (the “Financial Statements”) to the Board Executive Committee.

Background: The Financial Statements will be reviewed by the Audit & Risk Committee at its meeting on 29 July 2015. In the past, the Financial Statements were presented to the Board of Governors for approval at its October meeting. Due to changes in auditing standards, if the Financial Statements are not approved until the October meeting of board, the auditors will be required to perform a subsequent events review and bring any changes to an extraordinary meeting of the Audit & Risk Committee before the Financial Statements can go before the board. Approval of the Financial Statements before the October meeting of board will also allow the university to make certain filings and release information that is based on the Financial Statements earlier than in previous years.

FOR INFORMATION

2. Approval of Internal Audit Charter

The committee has reviewed and approved the internal audit charter as presented in Attachment 1. The charter is intended to be a foundational document to provide clear guidance and processes for the university’s internal audit activity, specifying roles and responsibilities for every internal audit from inception through to reporting on results.

3. Risk Management and Mitigation

In the past year, the committee has received several audit reviews and audit follow-up reports. As well, the committee has received briefings on a variety of risk management activities of the university. On the basis of reviews of the university’s management initiatives and approaches, the committee is satisfied that risk mitigation is being addressed.

1 May 2015

/mg

Cindy Forbes
Chair
University of Waterloo

INTERNAL AUDIT CHARTER

I. MANDATE
The mandate of the internal audit function (“IA”) at the University of Waterloo (the “university”) is to be an independent and objective assurance and consulting function established to carry out activities that add value and improve the university’s operations. IA assists the university in accomplishing its objectives by bringing a systematic and disciplined approach to evaluate and improve the effectiveness of the university’s governance, risk management, compliance and internal control processes.

II. ROLE
The responsibilities of IA are established by the Audit & Risk Committee (the “Committee”) of the Board of Governors as part of its oversight role. The personnel or firm performing IA for the university are referred to as the “Auditors” in this charter.

III. PROFESSIONAL STANDARDS
The Auditors will adhere to the Institute of Internal Auditors (the “IIA”) International Standards for the Professional Practice of Internal Auditing, the IIA’s Code of Ethics, and the standards of any other professional designations they hold, as applicable. In addition, the Auditors will adhere to the university’s relevant policies and procedures.

IV. AUTHORITY
The Auditors are authorized by the Committee to have full, free, and unrestricted access to any and all of the university’s records, physical properties, and personnel pertinent to carrying out any approved project. All university employees are expected to assist the Auditors in fulfilling its roles and responsibilities. The Auditors will also have access to the Committee without restriction imposed by management of the university.

Information, documents, and other relevant data given to the Auditors during the course of an engagement will be handled by the Auditors in the same prudent and confidential manner as by those employees of the university normally accountable for such information, documents or data.

V. ORGANIZATIONAL REPORTING
In performing IA pursuant to this internal audit charter, the Auditors will report administratively to the University Secretary & General Counsel (the “USGC”), and functionally to the Committee. This dual reporting structure enables the Auditors to maintain independence and objectivity in the delivery of IA. The Auditors will communicate and interact directly with the Committee as appropriate.

VI. INDEPENDENCE AND OBJECTIVITY
The Auditors will remain free from interference by the university’s management and staff, including in the selection of annual internal audits, and in the development of IA scope, procedures, frequency, timing, and report content, all so as to permit maintenance of necessary independence and objectivity.

Each annual IA plan developed pursuant to Article VIII below will be performed within the limit on fees approved for IA by the Committee. If the annual IA plan is changed in any substantial way at
the request of either management or the Committee after the approval of the fees limit and before final execution of the IA plan, then additional fees may be allocated to accommodate those changes. In all cases, the IA plan and the fees associated therewith must be developed in a manner consistent with the management approved budget for IA. So as to ensure proper value for each IA project executed pursuant to any annual IA plan, the auditors shall consult with responsible senior managers in the scoping of each project to determine project-specific requirements.

The Auditors will have no direct operational responsibility or authority over any of the activities audited. Accordingly, the Auditors will not implement internal controls, develop procedures, install systems, prepare records, or engage in any other activity that may impair the judgment of the Auditors.

The Auditors will exhibit the highest level of professional objectivity in gathering, evaluating, and communicating information about the activity or process being examined. The Auditors will make a balanced assessment of all the relevant circumstances and not be influenced by self-interests or unduly influenced by others in forming judgments.

The Auditors will confirm to the Committee annually in writing the organizational independence of the Auditors in delivering IA.

**VII. RESPONSIBILITIES**

IA encompasses, but is not limited to, the examination and evaluation of the adequacy and effectiveness of the university’s governance, risk management, compliance and internal controls as well as the quality of performance in carrying out assigned organizational responsibilities to achieve the university’s goals and objectives.

This includes:
- Preparation, presentation, and implementation annually of a risk-based audit plan;
- Evaluating the reliability and integrity of information and the means used to identify, measure, classify, and report such information;
- Evaluating the systems established to ensure compliance with those policies, plans, procedures, laws, and regulations which could have a significant impact on the university;
- Evaluating the means of safeguarding assets and, as appropriate, verifying the existence of such assets;
- Evaluating the effectiveness and efficiency with which resources are employed;
- Evaluating operations or programs to ascertain whether results are consistent with established objectives and goals and whether the operations or programs are being carried out as planned;
- Monitoring and evaluating governance processes;
- Monitoring and evaluating the effectiveness of the university’s risk management processes;
- Performing consulting and advisory services related to governance, risk management and internal controls as appropriate for the university;
- Evaluating specific operations or processes at the request of the Committee or management, as appropriate;
- Reporting significant risk exposures and internal control issues, including fraud risks, governance issues, and other matters as needed or requested by the Committee and management;
- Investigating and reporting on known or suspected violations of policies and procedures, financial irregularities, fraud or misuse of university assets, both independently and/or in collaboration with the USGC;
- Reporting periodically on IA’s purpose, authority, responsibility, and performance relative to its plan;
- Issuing audit reports to the Committee and management as applicable, summarizing the results of audit activities performed, including audit findings, related recommendations and agreed management action plans;
- Performing and reporting on follow-up activities for high and medium priority observations to determine the status of recommendations contained in previously issued audit reports;
- Keeping the Committee and the USGC informed of emerging trends and successful practices in internal auditing;
- Meeting with and consulting periodically with the USGC on the processes, practices, communication strategies and reporting requirements relevant to the delivery of IA;
- Serving as a consulting resource for the review of policies and procedures, financial and administrative systems, organizational structures, enterprise risk management, and other related governance, risk and control activities, as requested;
- Maintaining professionalism with sufficient knowledge, skills, experience, and professional certifications to meet the requirements of this internal audit charter and to meet the minimum continuing professional education credit requirements; and
- Coordinating with the university’s external auditors to provide information on a timely basis that may affect their external audit activities and to receive information from them that could affect the internal audit assessment of management internal controls.

VIII. INTERNAL AUDIT PLAN
The Auditors will submit to the Committee the annual IA plan for review and approval. The IA plan will consist of high level project descriptions and budget/resource requirements for the next fiscal year. Additionally, the IA plan for the following fiscal year will be presented for information and will be subject to an approval process as outlined above.

The annual IA plan will be developed based on prioritization of elements of the audit universe and risks using a risk-based methodology, including the input of senior management and the Committee. The Auditors will review and adjust the IA plan, as necessary, in response to changes in the university’s business, risks, operations, programs, systems, and controls. Any significant deviation from the approved annual IA plan will be developed in consultation with the USGC and communicated to the Committee at its regularly scheduled meetings. Additionally, the Committee Chair will be informed between Committee meetings, if more timely communication is deemed necessary.

IX. REPORTING AND MONITORING
A written report will be prepared and issued by the Auditors following the conclusion of each IA engagement and will be distributed to the USGC, other management as appropriate and the Committee Chair. IA results will also be communicated to the Committee in a report prepared for each Committee meeting.

The IA report will include management’s response and corrective action taken or to be taken in regard to the specific findings and recommendations. Management's response will include either a timetable for anticipated completion of action to be taken or a clear acceptance of identified risks.

The Auditors will be responsible for appropriate follow-up on high and medium priority project observations and recommendations. All high and medium priority observations will remain in an open status until validated by the Auditors.
The Auditors will periodically report to the Committee on the IA’s purpose, authority, and responsibility, as well as performance relative to its plan. Such reports will be prepared following consultation with and input from the USGC. Reporting will also include significant risk exposures and control issues, including fraud risks, governance issues, and other matters needed or requested by the Committee.

A copy of the IA reports prepared for the Committee will be provided to the university’s external auditors, the USGC, and other members of management as appropriate.

**X. CHARTER REVIEW AND APPROVAL**

The IA Charter shall be reviewed by the Committee for approval annually.

*Approved by the Audit & Risk Committee on 7 April 2015*
FOR APPROVAL

1. Proposed Municipal Road Widening

Motion: That the Board of Governors approve the transfer to the City of Waterloo a parcel of land comprising 0.188 acres (759 square metres) along the north boundary of Seagram Drive as a dedicated road allowance at no cost to the municipality.

Background: During the site plan approval process for the new student residence at UW Place, the City of Waterloo approved the University’s application subject to the condition that a 2.942 metre road widening along the north boundary of Seagram Drive be conveyed to the City. The land requirements are identified on the attached draft plan of survey and was determined by measuring a distance of 13 metres from the centerline of the existing Seagram Drive. Conveyance of these lands will not materially impact the future development potential of this 17.9 acre parcel.

FOR INFORMATION

1. LRT Land Requirements

Acting on authority delegated to it by the Board of Governors, the committee approved two easements related to the Light Rail Transit project, the first comprising 0.021 acres to construct a retaining wall, and the second comprising 0.309 acres for the installation of underground duct banks and transformer power station.

2. General Oversight

The committee reviewed and accepted for information:
- the capital financing commitments associated with capital projects and advises that these commitments fall within Waterloo’s board-approved debt policy
- the status of capital projects
- its work plan
- a report on the university’s maintenance program and energy conservation efforts
- a report on the university’s environmental sustainability practices
- a report on management and prioritization of maintenance requests
- an update on the status of the Deferred Maintenance internal audit report

The committee received a report on the South Commons Conceptual Plan. Since the committee’s meeting in May 2014, landscape architects and civil engineers have refined the plan, and this version will be used during the consultation sessions designed to receive broad campus input. The general target for completion of the project, subject to obtaining all necessary approvals, is summer 2016.

For the purposes of orienting the committee to its responsibilities, the committee secretary summarized the committee’s terms of reference, and Dennis Huber presented a thorough summary of
the steps ordinarily undertaken in major construction projects at the university, and this summary was well received by the committee.

The committee was guided on a tour of certain facilities in Plant Operations.

15 May 2015
/jla

Murray Gamble
Chair
This report is submitted following the committee’s meeting of 24 April 2015.

FOR INFORMATION

1. **Investment Fund Performance**

   **Registered Pension Plan Fund.** The fund outperformed its objective, returning 6.6% for the quarter and 13.7% for the one year period, ended 31 March 2015. The investment managers are performing as expected. The US treasuries and Brookfield Infrastructure Partners investments continue to yield positive results.

   **Endowment Fund.** The fund continues to underperform the policy benchmark, returning 5.3% (compared to 6.0%) for the quarter and 11.7% (compared to 12.8%) for the one year period, ended 31 March 2015. The primary drivers are the asset mix of the fund compared to the policy benchmark (42.6% equities/57.4% cash and fixed income versus 60% equities/40% fixed income), as well as the performance of a global manager. The committee is currently comfortable with the asset mix and manager’s conservative approach, but will continue to monitor.

   **IQC Trust Fund.** The portfolio was liquidated in December 2014 and reinvested in a bond fund. The performance of the bond fund for the quarter ended 31 March 2015 was 4.3%, tracking closely to the policy benchmark (4.2%).

   **Payroll Pension Plan Fund.** The fund, which is passively managed, returned 5.0% for the quarter and 11.88% for the one year period, ended 31 March 2015, tracking closely to the benchmark (4.96%, 11.80%).

2. **Governance**

   The committee reviewed its terms of reference and the terms of reference for the Finance & Investment Subcommittee, Pension & Benefits Committee (P&B) and Registered Pension Plan Investments Subcommittee (RPPI). It was agreed that a more in depth review will be undertaken by management to ensure mandates, authority and work flows are clear and efficient. Recommended changes, if any, will be brought to the respective bodies, Governance Committee and Board for review and approval.

3. **Reporting**

   The committee is working with management to develop more robust and transparent data regarding asset mix, as well as a sensitivity analysis demonstrating the impact of market movements, which can be utilized by the committee, RPPI and P&B to facilitate better discussion and decision making with respect to the investments.

/rmw

Satish Rai
Chair
This report is submitted following the committee’s meeting of 22 May 2015.

FOR APPROVAL

1. Actuarial Valuation of the Pension Plan as at 1 January 2015

Motion: To approve the actuarial valuation report as at 1 January 2015, recognizing that the report will not be filed with the Financial Services Commission of Ontario (FSCO).

Background: The University of Waterloo pension plan is an inflation-linked defined-benefit plan. The plan is funded by contributions from the employees and the University and by investment returns. The total annual contribution is determined by applying actuarial methods with assumptions about investment returns, mortality, inflation and salaries.

An actuarial valuation report is required to be filed at least every three years; however, the committee commissions a report on an annual basis for its planning and the University’s budgeting purposes.

The 1 January 2015 report shows that the registered pension plan (the “Registered Plan”) is in a deficit position; however, the going concern deficit position has improved since the 1 January 2014 report. The University continues to make additional contributions to meet the unfunded liability.

See Attachment #1 for a detailed summary of the 2015 actuarial valuation results for the Registered Plan. A complete copy of the report can be requested through the committee’s secretary, Rebecca Wickens at: rebecca.wickens@uwaterloo.ca or ext. 35924.

FOR INFORMATION

2. Payroll Pension Plan

The University of Waterloo payroll pension plan (the “Payroll Plan”) provides pension benefits (subject to plan caps) that cannot be paid from the Registered Plan because of the application of the Income Tax Act maximum pension. The Registered Plan and Payroll Plan are integrated from a benefits and financial management perspective. Assets are set aside within the University funds in respect of the obligations under the Payroll Plan. A going concern valuation of the Payroll Plan is performed in conjunction with the annual valuation of the Registered Plan, using the same actuarial assumptions.

As of 1 January 2015, the actuarial liabilities of the Payroll Plan were valued at $31.5 million, and the market value of the assets was $34 million, resulting in a surplus of $2.5 million. The current service cost for 2015 is $1,616,071 or 0.44% of pensionable earnings, bringing the total University current service cost for the Registered Plan and Payroll Plan to 8.36% of pensionable earnings.

3. General Oversight

The committee receives regular reports from the consulting actuary on legislative and policy changes anticipated and in force that impact public sector pensions, as well as changes implemented by other public sector pension plans. The committee discusses implications for the pension plan and takes the information into account when making decisions on matters including plan design, funding and administration.

/rmw

Karen Wilkinson
Chair
Summary of the Actuarial Valuation Results as at 1 January 2015

1. Financial Position of the Registered Plan

a. Going Concern Basis. A valuation conducted on a going-concern basis is to determine the relationship between the respective values of the Registered Plan’s assets and accumulated liabilities, assuming the Registered Plan will be maintained indefinitely.

<table>
<thead>
<tr>
<th></th>
<th>01.01.2014</th>
<th>01.01.2015(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actuarial value of assets</td>
<td>$1,156,065,428</td>
<td>$1,272,144,692</td>
</tr>
<tr>
<td>Actuarial liability</td>
<td>$1,305,570,459</td>
<td>$1,384,215,763</td>
</tr>
<tr>
<td>Funding excess (unfunded liability)</td>
<td>$(149,505,031)</td>
<td>$(112,071,071)</td>
</tr>
<tr>
<td>Deferred asset gain (loss)</td>
<td>0</td>
<td>$44,365,045(^2)</td>
</tr>
<tr>
<td>Market value of assets</td>
<td>$1,194,775,607(^3)</td>
<td>$1,316,509,737</td>
</tr>
</tbody>
</table>

The actuarial value of assets as at 1 January 2015 does not reflect smoothing (which historically deferred investment gains/losses over a three-year period).

b. Solvency Basis. A valuation conducted on a solvency basis is used to determine the relationship between the respective values of the Registered Plan’s assets and its liabilities assuming the Registered Plan was wound up and settled on the valuation date by the purchase of annuities or the payment of lump-sum values. In accordance with the Pension Benefits Act, solvency liabilities exclude certain contractual benefits (e.g., indexing) in order to limit the magnitude of additional funding requirements for solvency purposes. Ignoring these obligations for solvency funding purposes does not, however, alter the contractual obligation with respect to indexing in place under the terms of the Registered Plan (the liability for indexation benefits is reflected in the going concern valuation position and funding requirements).

<table>
<thead>
<tr>
<th></th>
<th>01.01.2014</th>
<th>01.01.2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market value of assets (net of wind-up expenses)</td>
<td>$1,194,275,607</td>
<td>$1,316,009,737</td>
</tr>
<tr>
<td>Solvency liability</td>
<td>$1,270,650,784</td>
<td>$1,521,313,344</td>
</tr>
<tr>
<td>Solvency excess/(deficiency)</td>
<td>$(76,375,177)</td>
<td>$(205,303,607)</td>
</tr>
</tbody>
</table>

The additional wind-up liability for indexation benefits is approximately $729.6 million at 1 January 2015, resulting in a hypothetical wind-up deficit of approximately $935 million at 1 January 2015 (including indexation). The primary driver behind the worsening solvency and wind-up valuations is the unprecedented low interest rate environment. The assumed interest rate for the solvency calculation is 2.54% and for the wind-up calculation, -0.58%.

2. Funding Requirements. Member contributions for 2015 are approximately $27.3 million, or 7.35% of pensionable earnings. The University’s current service cost is approximately $29.3 million or 7.92% of pensionable earnings. The University is also making mandatory special payments of $11.5 million and additional special payments of $3.6 million to amortize the unfunded liability of the

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\(^1\) The 2015 numbers reflect the adoption of alternate assumptions, which use a CPI rate of 2%. Note: this moves the discount rate to 5.75% from 6.00%.

\(^2\) This funding reserve represents the difference between the market value of assets and the actuarial value of assets of the real return bonds at the date of sale. It will be held in reserve and recognized over time.

\(^3\) Audited statement value has been increased by accrued benefit payments that are included in plan liabilities.
Registered Plan. This brings the University’s total contribution to $44.5 million (163% of member contributions).

3. Asset Mix

<table>
<thead>
<tr>
<th>Asset Mix (% of Total Market Value)$^4$</th>
<th>01.01.2014</th>
<th>01.01.2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real Return Bonds</td>
<td>17%</td>
<td>0%</td>
</tr>
<tr>
<td>Fixed Income, Cash</td>
<td>34%</td>
<td>57%</td>
</tr>
<tr>
<td>Equities</td>
<td>41%</td>
<td>35%</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>Real Estate</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

4. Membership Data

<table>
<thead>
<tr>
<th>Membership Data</th>
<th>01.01.2011</th>
<th>01.01.2012</th>
<th>01.01.2013</th>
<th>01.01.2014</th>
<th>01.01.2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Members</td>
<td>3518</td>
<td>3617</td>
<td>3760</td>
<td>3891</td>
<td>3940</td>
</tr>
<tr>
<td>LTD Members</td>
<td>93</td>
<td>96</td>
<td>94</td>
<td>97</td>
<td>86</td>
</tr>
<tr>
<td>Suspended Members</td>
<td>12</td>
<td>10</td>
<td>15</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>Current Pensioners</td>
<td>1432</td>
<td>1480</td>
<td>1555</td>
<td>1603</td>
<td>1673</td>
</tr>
<tr>
<td>Deferred Pensioners</td>
<td>422</td>
<td>447</td>
<td>448</td>
<td>484</td>
<td>490</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5477</strong></td>
<td><strong>5650</strong></td>
<td><strong>5872</strong></td>
<td><strong>6086</strong></td>
<td><strong>6201</strong></td>
</tr>
</tbody>
</table>

5. History of Asset Returns

<table>
<thead>
<tr>
<th>Year Ending</th>
<th>Return on Market Value$^5$</th>
</tr>
</thead>
<tbody>
<tr>
<td>31 December 2008</td>
<td>-21.51%</td>
</tr>
<tr>
<td>31 December 2009</td>
<td>14.70%</td>
</tr>
<tr>
<td>31 December 2010</td>
<td>8.49%</td>
</tr>
<tr>
<td>31 December 2011</td>
<td>2.89%</td>
</tr>
<tr>
<td>31 December 2012</td>
<td>9.10%</td>
</tr>
<tr>
<td>31 December 2013</td>
<td>13.1%</td>
</tr>
<tr>
<td>31 December 2014</td>
<td>9.43%</td>
</tr>
</tbody>
</table>

$^4$ Asset mix is based on the underlying assets excluding in-transit contributions and payments.

$^5$ The returns (after expenses) on market value have been calculated assuming contributions and benefit payments take place in the middle of the year. Returns for 2008 – 2013 exclude the real return bonds.
ANNUAL REPORT – EXECUTIVE SUMMARY
APRIL 1, 2014 – MARCH 31, 2015

*For University of Waterloo Board of Governors Approval
SUBMITTED TO INDUSTRY CANADA
JULY 30, 2015
FROM THE EXECUTIVE DIRECTOR

In 2002, I was recruited to the University of Waterloo to bring a bold vision to reality. Over the past thirteen years, IQC has grown from two faculty members to over 200 researchers. We grew from a few small offices to three buildings full of exceptional talent and world-leading infrastructure. This incredible growth has propelled IQC to sit among the top research institutes from around the globe.

None of this would be possible without the transformational investments from Mike and Ophelia Lazaridis, the Government of Canada, the Government of Ontario and the University of Waterloo. These investments have allowed IQC to seize an opportunity to lead the world in the next great technological revolution – the quantum revolution. We have recruited some of the best and brightest research talent to Canada – David Cory from MIT, Raffi Budakian from the University of Illinois at Urbana-Champaign, Chris Wilson from Chalmers University of Technology in Sweden and many others. Postdoctoral fellows and students are competing for positions at Harvard, Cambridge and the Massachusetts Institute of Technology (MIT), and they choose Waterloo.

And now, just thirteen years later, we are seeing the fruits of these investments. Spin-offs are emerging from IQC research, quantum technologies are hitting the marketplace and demand for quantum-aware talent is growing. The quantum technology industry is here... here in Waterloo...here in Ontario...here in Canada.

Thanks to Canada’s leadership investments, IQC is a world-leading research hub. Thanks to Canada’s continued leadership investments, IQC will be the heart of the quantum revolution with research, technologies and jobs right here in Canada.

Sincerely,

Raymond Laflamme
Executive Director
Institute for Quantum Computing
University of Waterloo
EXECUTIVE SUMMARY

Quantum information research will lead to the engineering of systems with capabilities far beyond those available today. Quantum technologies are truly game changing; they present an opportunity to harness and deploy the ultimate capabilities of nature for remarkable and many yet-to-be-imagined technologies.

Canada's quantum opportunity. The Institute for Quantum Computing (IQC) at the University of Waterloo holds Canada's leadership position in quantum information science and technology. Since its founding in 2002, IQC has become an engine driving the creation of knowledge and technology in quantum science, and is sparking commercialization initiatives that will benefit Canadians in the very near future and for decades to come.

IQC has been awarded $15M over three years through the generous support of the Government of Canada. This funding will serve to support five key objectives and IQC has already made great strides in achieving each of them. Highlights from the past year in these five areas include:

- **Increase knowledge in the various fields and sub-fields of quantum information, thereby positioning Canadians at the leading edge of quantum information research and technology.** IQC is advancing quantum information science and technology research is happening at the highest international levels. IQC researchers collectively published 152 papers over the last year and IQC papers reached a cumulative total of 15,435 citations (Source: Web of Science, April 2, 2015). Additionally, IQC’s world-leading researchers have been awarded over $7 million in research grants.

  In 2014-15, IQC’s faculty complement grew to 22 faculty members and three research assistant professors as the best and brightest senior and young researchers join the team. IQC most recently welcomed:

  - Raffi Budakian, Nanotechnology (WIN) Endowed Chair in Superconductivity in Waterloo’s Physics and Astronomy department from the University of Illinois at Urbana-Campaign;
  - Michael Reimer, Assistant Professor, Electrical & Computer Engineering from Technical University of Delft;
  - Eduardo Martin-Martinez, Research Assistant Professor and received the 2014 John Charles Polanyi Prize for Physics.

- **Create new opportunities for students to learn and apply new knowledge to the benefit of Canada, spurring innovation and investment in R&D activities through highly qualified personnel development.** IQC’s graduate programs have seen a **103% increase** from 62 students in 2007 to 126 in the 2014-2015 academic year. These students have garnered national and international
awards, scholarships and fellowships including NSERC awards, Banting Fellowships, Vanier Fellowships and many others.

- **Brand Canada as the destination of choice for conducting research in quantum technologies and attract the best in the world to Canada, creating partnerships with the international quantum information community and promoting a world-class excellence in quantum information science and technology.**
  IQC researchers collectively participated in 84 conferences this year, disseminating knowledge and building collaborations across the globe. Additionally, the visitor program welcomed 154 visitors from 111 leading institutions to exchange ideas and research in quantum information.

- **Enhance and expand the Institute's public education and outreach activities to effectively promote science and quantum information science and demonstrate how the research from quantum information science can be applied for the purpose of sustaining and attracting world-class talent.**
  This year, IQC has promoted quantum information science across the country to school groups and the general public, participating in 46 outreach activities and reaching more than 2,500 people through tours, workshops, public lectures and educational sessions. IQC’s premier summer school programs brought 21 undergraduate students for the Undergraduate School on Experimental Quantum Information Processing (USEQIP) and 42 high school students for the Quantum Cryptography School for Young Students (QCSYS) to Waterloo to experience the world-class environment of IQC.

- **Position Canada to take advantage of economic and social benefits of research through seizing opportunities to commercialize breakthrough research.**
  As quantum research leads to more and more emerging technologies, IQC is uniquely positioned to promote the commercialization and realization of quantum technologies. IQC’s researchers are forging forward with commercial ready technologies and have now spun off four companies. Additionally, IQC hosted a commercialization and entrepreneurship workshop in partnership with CryptoWorks21 to educate and support researchers through the commercialization process.

With its industry partners, IQC is building Canada's quantum information industry - the Quantum Valley - here in Waterloo. IQC will leverage its world-leading infrastructure and outstanding scientific capability to create the world's first market-facing environment for designing, building and testing quantum information services and devices.

As IQC continues its rapid growth and advances the understanding of the quantum world, Waterloo Region’s - and Canada’s - reputation as the Quantum Valley will continue to be solidified.
ABOUT THE INSTITUTE FOR QUANTUM COMPUTING

The Institute for Quantum Computing (IQC) was established in 2002 to seize the potential of quantum information science for Canada. IQC’s vision was bold: position Canada as a leader in quantum information research and provide the necessary infrastructure for Canada to emerge as a quantum research powerhouse. Today, IQC stands among the top quantum information research institutes in the world. Leaders in all fields of quantum information science come to IQC to conduct research, share knowledge and encourage the next generation of scientists. IQC is leading the next great Canadian technological revolution – the quantum revolution. Quantum technologies and applications developed in IQC labs are creating the foundation for the next generation of technologies – quantum technologies.

None of this would be possible without the visionary leadership and investments of Mike and Ophelia Lazaridis, the Government of Canada, the Government of Ontario and the University of Waterloo. This strategic private-public partnership has accelerated the advancement of quantum information research and discovery, not only in Canada, but around the globe.

Vision & Mission

IQC’s vision is to harness the power of quantum mechanics for transformational technologies that benefit society and become the new engine for economic growth in the 21st century and beyond.

IQC’s mission is to develop and advance quantum information science and technology at the highest international level through the collaboration of computer scientists, engineers, mathematicians and physical scientists.

Strategic Objectives

IQC is guided by three strategic objectives developed in partnership with Industry Canada in 2008:

- To establish Waterloo as a world-class centre for research in quantum technologies and their applications.
- To become a magnet for highly qualified personnel in the field of quantum information.
- To be a prime source of insight, analysis and commentary on quantum information.
FUNDING OBJECTIVES 2014-2017

IQC has been awarded $15M over three years through the generous support of the Government of Canada. This funding will serve to support the following five objectives:

A. Increase knowledge in the various fields and sub-fields of quantum information, thereby positioning Canadians at the leading edge of quantum information research and technology.

B. Create new opportunities for students to learn and apply new knowledge to the benefit of Canada, spurring innovation and investment in R&D activities through highly qualified personnel development.

C. Brand Canada as the destination of choice for conducting research in quantum technologies and attract the best in the world to Canada, creating partnerships with the international quantum information community and promoting a world-class excellence in quantum information science and technology.

D. Enhance and expand the Institute’s public education and outreach activities to effectively promote science and quantum information science and demonstrate how the research from quantum information science can be applied for the purpose of sustaining and attracting world-class talent.

E. Position Canada to take advantage of economic and social benefits of research through seizing opportunities to commercialize breakthrough research.

Through the activities planned and undertaken with the contribution of Industry Canada in the past year (2014-2015), IQC is well on the way in positioning Canada to take full advantage of the benefits of quantum research.

Objective A

Increase knowledge in the various fields and sub-fields of quantum information, thereby positioning Canadians at the leading edge of quantum information research and technology.

Expected Outcomes for 2014-2015

- Continue IQC’s aggressive research agenda in quantum computation, quantum communication, quantum sensors and quantum materials.
- Recruit up to two new faculty members.
- Recruit up to one new research assistant professor.
- Continue to publish research results in world-leading journals.
- Continue to outfit labs in the Mike & Ophelia Lazaridis Quantum-Nano Centre as new IQC members are recruited.
- Continue to outfit and maintain the Quantum NanoFab cleanroom facility to enable fabrication of quantum-enabled technologies.
• Update and maintain lab space in Research Advancement Centre (RAC) buildings.
• Continue effective and relevant relationships with current partners. Seek out new partnerships that will advance IQC’s mission and strategic objectives.

**Highlighted Results for 2014-2015**

• Continued research agenda and made advancements in quantum computing, quantum communications, quantum sensors and quantum materials:
  o Kevin Resch and his team built a photonic circuit, allowing the causal structure realized by the experiment to vary, to confirm quantum effects of entanglement and coherence provide an advantage for causal inference (Nature Physics, 2015)
  o Eduardo Martin-Martinez and collaborators discovered a possible communication channel that does not require energy transmission from the sender to the receiver (Physical Review Letters, 2015)
  o Marco Piani and John Watrous showed that the quantum steering effect is the key to providing a specific advantage in the discrimination of physical processes (Physical Review Letters, 2015)
  o Guo-Xing Miao and colleagues from the Korea Institute of Science and Technology (KIST) detected the interface and spin current of a magnetic insulator, a practical finding for actively regulating spin flows in electronic devices (known as spintronics) and for energy harvesting (Nature Communications, 2014)
  o Raymond Laflamme, Aharon Brodutch, and Dawei Lu developed and demonstrated the first experiment of a weak measurement with post-selection on an NMR quantum processor (New Journal of Physics, 2014)
• IQC researchers collectively published 152 papers in this reporting period and reached a cumulative total of 15,435 published citations (Source: Web of Science, April 2, 2015)
• Successfully recruited two new faculty members and one new research assistant professor
• IQC researchers were awarded a total of $7,397,541 in research grants

**Objective B**

Create new opportunities for students to learn and apply new knowledge to the benefit of Canada, spurring innovation and investment in R&D activities through highly qualified personnel development.

**Expected Outcomes for 2014-2015**

• Continue to grow and attract the best talent to IQC’s graduate program
  o Field at least 200 applications to the University of Waterloo/IQC graduate studies program
  o Attend at least four graduate fairs to connect with prospective students
- Expand connections made with undergraduate programs at Ontario and Canadian universities
- Take part in at least two international recruitment events
- Continue to host timely, focused conferences, workshops, seminars and courses
  - Host two major conferences
  - Hold up to 10 workshops and seminars
  - Jointly sponsor up to 10 workshops and conferences with national and international partner organizations

Highlighted Results for 2014-2015
- IQC is currently home to 126 graduate students and 46 postdoctoral fellows
- Recruited 29 new graduate students and 19 new postdoctoral fellows
- Fielded 246 applications to IQC programs
- Hosted four major conferences and sponsored an additional 15

Objective C

Brand Canada as the destination of choice for conducting research in quantum technologies and attract the best in the world to Canada, creating partnerships with the international quantum information community and promoting a world-class excellence in quantum information science and technology.

Expected Outcomes for 2014/2015
- Be a catalyst for collaborations of quantum information scientists through networks such as the Canadian Institute for Advanced Research (CIFAR) Quantum Information program and the Natural Sciences and Engineering Research Council of Canada (NSERC) Strategic Networks
- Promote collaborations through participation in national and international conferences
- Produce internationally recognized, high-calibre publications co-authored by IQC researchers
- Organize at least four conferences that involve multidisciplinary participants
- Continue, enhance and increase visits to IQC by international scientists and academics from around the world

Highlighted Results for 2014/2015
- Successfully continued collaborations through scientific networks including CIFAR and NSERC
- IQC researchers collectively participated in or attended xx conferences
- Welcomed 154 scientific visitors from III institutions across the globe
Objective D

Enhance and expand the Institute’s public education and outreach activities to effectively promote science and quantum information science and demonstrate how the research from quantum information science can be applied for the purpose of sustaining and attracting world-class talent.

Expected Outcomes for 2014/2015

- Host two major undergraduate and high school summer schools
- Host three Quantum Frontiers Distinguished Lectures
- Establish and plan for a major open house event in 2015
- Establish relationships with key strategic partners to further share IQC’s research discoveries
- Establish a new teacher/student outreach program
- Continue to share IQC’s research through publications, web and social media outlets

Highlighted Results for 2014/2015

- Hosted two major summer schools for undergraduate and high school students
- Hosted two Quantum Frontier Distinguished Lectures
- Established a new teacher/student outreach program
- Participated in 46 outreach activities, reaching a minimum of 2600 participants
- Grew online social media activity

Objective E

Position Canada to take advantage of economic and social benefits of research through seizing opportunities to commercialize breakthrough research.

Expected Outcomes for 2014-2015

- Host commercialization workshops for IQC researchers
- Host industry workshop for industry partners to showcase opportunities in quantum technologies

Highlighted Results for 2014-2015

- Four start up companies have now emerged from IQC research
- Hosted a commercialization and entrepreneurship workshop in partnership with CryptoWorks21