Note: directions/parking information for external members to follow. Please convey regrets to Emily Schroeder at 519-888-4567, ext. 32749 or eschroeder@uwaterloo.ca.

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   b. Undergraduate Admissions Update – Ray Darling, Registrar

12. Presentation on the Stratford Campus – Ginny Dybenko, executive director
Oral  Information

2:35  BREAK

13. Report of the Vice-President, Finance & Administration
   a. Tuition Fees 2016-17, Incidental Fees and Co-op Fees  57  Decision
   b. Residence Fees 2016-17  62  Decision

14. Reports from Committees
    a. Building & Properties  64  Information
    b. Finance & Investment  65  Decision/Information
    c. Governance  66  Decision/Information
    d. Pension & Benefits  69  Decision/Information

15. Other Business
Input

CONFIDENTIAL SESSION

3:45  16. Conflict of Interest
Oral  Declaration

Consent Agenda

Motion: To approve or receive for information by consent items 17 and 18 below.

17. Minutes of the 27 October 2015 Meeting  10  Decision

18. Report of the President
    a. New Appointments with Tenure  70  Decision
    b. Vice-President, Advancement Quarterly Report  72  Information

Regular Agenda

Input

20. Report of the President
    a. Report of the Dean of Arts Nominating Committee  75  Decision

4:05  21. Report from Governance Committee  76  Decision

4:15  22. Other Business
Input

23. Next Meeting: Tuesday 5 April 2016 at 1:30 p.m.
University of Waterloo
BOARD OF GOVERNORS
Minutes of the Tuesday 27 October 2015 Meeting


Guests: Stephen Amirikah, Jean Andrey, Suman Armitage, Stacey Ash, Sandra Banks, Alison Boyd, Bruce Campbell, Aldo Caputo, Jana Carson, Mario Coniglio, Jason Coolman, Ray Darling, George Dixon, Rocco Fondacaro, Aaron Francis, Jim Frank, Shawn Gilbertson, Karina Graf, Sarah Hadley, Stéphane Hamade, Mark Haslett, Dennis Huber, Sean Hunt, Michael Jack, Beth Jewkes, Yuni Jo, Andrea Kelman, Derek Madge, Nick Manning, Jane Manson, Kelly McManus, Ian Orchard, Daniel Parent, Douglas Peers, Judene Pretti, Chanakya Ramdev, Chris Read, Ellen Réthoré, James Rush, Erin Sargeant Greenwood, Daniela Seskar-Hencic, Allan Starr, Pearl Sullivan, Sean Thomas, Marilyn Thompson, Brent Thornhill, Kerry Tolson, Stephen Watt, May Yan

Secretariat: Logan Atkinson, Karen Jack, Emily Schroeder


*regrets
**by telephone

Organization of Meeting: Catherine Booth, vice-chair of the board, took the chair, and Logan Atkinson, secretary of the board, acted as secretary. Atkinson advised that due notice of the meeting had been given, a quorum was present, and the meeting was properly constituted.

OPEN SESSION

1. CONFLICT OF INTEREST
Governors were asked to declare any conflicts they may have in relation to the items on the agenda. No conflicts were declared.

2. REMARKS FROM THE CHAIR

Welcome. The vice-chair welcomed everyone to the fall meeting. As this was the first meeting held in the new board and senate room, she made special mention of the leading edge audio visual system and the remarkable improvement the room represents.

She offered a special welcome to Stephen Watt, dean of mathematics, attending his first meeting of the board in that capacity.

Board of Governors Retreat. The vice-chair asked all in attendance to make special note of the board retreat scheduled for 4 December 2015, with the program devoted to the student experience at the university.

President’s Reception. The vice-chair reminded all in attendance of the president’s reception to be held at Engineering 5, in the Sedra Student Design Centre and second floor Atrium, immediately following the meeting.
Comments on Changes to Agenda. The board was advised that the standard agenda has been modified to focus more completely on risk identification and management, and to specifically identify items where board input is requested by management.

Comments on the Board Appeal. The vice-chair read a letter from board chair Bill Watson, reminding governors of the coming board appeal and asking everyone (save students) to participate.

3. AGENDA/ADDITIONAL AGENDA ITEMS
   The board heard a motion to approve the agenda as distributed.

   Porreca and Wilkinson. Carried.

Consent Agenda

The board heard a motion to approve and/or receive for information by consent items 4-8 below.

Vrbanovic and Windsor.

4. MINUTES OF THE 2 JUNE 2015 MEETING
   The board approved the minutes of the meeting as distributed.

5. REPORT OF THE PRESIDENT
   Promotion to Professor. The board received the report for information.

   Recognition and Commendation. The board received the report for information.

   Sabbatical and Administrative Leaves and Administrative Appointments.
   Motion: The board heard a motion to approve the sabbatical leaves as presented in the report.

   The remaining items in the report were received for information.

6. REPORT OF THE VICE-PRESIDENT, ACADEMIC & PROVOST
   Department Name Change: School of Environment, Resources, and Sustainability
   Motion: The board heard a motion to approve a change in the name of the Department of Environment and Resource Studies to the School of Environment, Resources, and Sustainability as described in Attachment 1 and effective 1 January 2016.

7. REPORT OF THE VICE-PRESIDENT, ADMINISTRATION & FINANCE
   Incidental Fees.

   Graduate Student Association Fee. The board heard a motion that the compulsory Graduate Student Association Fee, assessed and collected each term from all full-time and part-time graduate students, be increased effective winter term 2016 as presented in the report.

   Graduate Student Association Administered Fee. The board heard a motion that the compulsory Graduate Student Association Administered Fee, assessed and collected each term from active full-time and part-time graduate students, be increased effective winter term 2016 as presented in the report.

8. REPORT FROM EXECUTIVE COMMITTEE
   The board received the report for information.
The motion carried.

Regular Agenda

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

10. REPORT OF THE PRESIDENT
    President’s Update. Hamdullahpur summarized certain activities at the university since the last board meeting. He referred to the Community Impact Report, remarking that it tells an extraordinary story about the relationship between the university and the communities in which it is engaged. He referred as well to the Defining Innovation publication, outlining the state of the university as at 28 October. The president provided a short summary of the third Waterloo Innovation Summit, this one taking place during the 2nd week of September, and commented that the university and the region are in the best position to demonstrate to the world an extraordinary capacity for innovation, and to learn from those in attendance. The president mentioned the richness of the partnership with Communitech, the impressive attendance, and the quality of the speakers. In connection with the HeforShe campaign, Hamdullahpur informed the board of six new scholarships for women in STEM disciplines. He also referred to the Science Complex federal funding announcement of 31 July to the extent of $25 million, and to $600,000 funding for the Columbia Ice Fields through the Canada 150 Community Infrastructure Program. The provincial funding formula for universities is under discussion with the province, and a number of important questions remain unanswered at this time. The president expressed confidence that the university’s differentiators will serve us well as the project moves forward. Finally, the president mentioned that an autonomous car designed and built by two second year engineering students was the first to appear on a Canadian municipal road (Ring Road). He noted that unique insurance requirements are under consideration and the university has assurances that these things will be properly addressed before vehicles are put into service.


   The president presented the annual progress report on implementation of the strategic plan.

Risk Identification and Mitigation.
   The President presented comments on some of the most prominent risks facing the university and plans in place to mitigate those risks and capitalize on the opportunities that may be presented through those mitigation plans. He mentioned in particular sectoral risks (government funding, enrolment, strategic enrolment management, research productivity, hiring the best faculty and staff) and risks specific to the university’s strategic plan (related to entrepreneurship and our co-op program). The president provided some comment on the university’s leadership in co-operative education and on the opportunities presented by co-op 2.0. The continuing challenge will be finding sufficient quality placements for our students, both domestically and internationally.

Ranking Results – Overview and Strategies for Improvement.
   The president presented information on ranking results released recently.

Presentation from Co-operative Education & Career Action.
   Rocco Fondacaro, acting executive director of CECA, presented a wide ranging report on the co-op program at the university. He answered a number of questions and observations from governors,
including: one of the challenges with engineering students is that the work terms are sometimes not long enough, and this in turn reduces the flexibility for some employers; the question of eight month co-op terms is constantly under consideration, including the risks associated with the impact on degree completion and academic performance; we always start and end a program with an academic term, and this is one of the ways in which we control for the problem of students being reluctant to return to their studies; interest in social entrepreneurship is growing at a very quick pace, and it is anticipated that programs (such as the greenhouse co-op program) will be expanded.

Slides used in the presentation may be seen here: https://uwaterloo.ca/secretariat-general-counsel/sites/ca.secretariat-general-counsel/files/uploads/files/bog_oct_27coop_day_of.pptx

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

Undergraduate Admissions Update. The vice-president called on university registrar Ray Darling, and his report was received by the Board of Governors for information.

Slides used in the registrar’s presentation may be seen here: https://uwaterloo.ca/secretariat-general-counsel/sites/ca.secretariat-general-counsel/files/uploads/files/bog_20151027_enrolment_update.pptx

It was noted that the registrar’s material did not refer to graduate registrations because this detail is not established until a bit later in the cycle. It was confirmed that the university’s high priority in both graduate and undergraduate programs is to recruit and retain the best possible students available over the course of their programs.

Enrolment targets are set through consultation with the deans, and as aspirations for growth are established in the strategic mandate agreement. There is an annual meeting with the deans where targets are established between the deans and the university as a whole, after which the targets are provided to the Registrar’s Office. The Registrar’s Office then works with the individual Faculties to try to reach those targets.

The decision has been made not to compromise our entering minimum averages so as to meet our targets. The university is working with the Faculty of Arts on a strategic enrolment management plan that will focus on non-Ontario students. We are using recruiting agents on a pilot program to attract additional international students and preliminary results are encouraging.

It remains extremely difficult to attract PhD domestic students in engineering, and this is a challenge across the country. But improvement has recently been noted, with a determined effort across the faculties to recruit domestic PhDs. We are up 50% in this respect in September.

There is an element of the unconventional in our undergraduate programs, and we can translate this into graduate recruitment through intent to build co-op into our graduate programs, and to focus on our entrepreneurial nature (including our intellectual property policy and commercialization opportunity and support). The main driver of our graduate student initiative will be research excellence, and this will sustain and grow our graduate programs. Further, our course-based graduate programs are also very attractive and growing.

12. REPORT OF THE VICE-PRESIDENT, UNIVERSITY RELATIONS

Update on Community Events. The vice-president provided a report on the Waterloo Innovation Summit and the State of the University Report. She complimented staff on the quality of their publications, and on the very strong relationship between the university and the various communities with which it is engaged.
13. REPORTS FROM COMMITTEES

Audit & Risk.
- **Appointment of External Auditors.**
  
  **Motion:** The board heard a motion to reappoint Ernst & Young as the university’s external auditors for the fiscal year ending 30 April 2016.

  Forbes and Lounds. Carried.

  The board received the remaining items for information.

  The committee chair agreed that, in the future, the committee would provide a summary of any material issues of non-compliance when reporting on the state of statutory and regulatory compliance at the university.

Building & Properties.
- **Engineering 7**
  
  **Motion:** The board heard a motion that the Board of Governors approve the award of a CCDC2 stipulated price contract for $65,200,000 + HST to EllisDon Corporation for the construction of the Engineering 7 building.

  Gamble and Tizhoosh. Carried.

  The board received the remaining items for information.

Finance & Investment.
- **Endowment Fund Investment Guidelines**
  
  **Motion:** The board heard a motion that the Board of Governors approve the revised Endowment Fund Investment Guidelines as presented in Attachment 1 of the report.

  Wilkinson and Scott. Carried.

  The board was advised that there will be further consultation on this matter, and it will be led for the most part by Pension & Benefits Committee.

  The board received the remaining items for information.

Pension & Benefits.
- **Statement of Investment Policies and Procedures for University of Waterloo Pension Plan**
  
  **Motion:** The board heard a motion to approve the 1 January 2015 version of the University of Waterloo Pension Plan (2011) Statement of Investment Policies and Procedures (the “SIPP”) as presented in Attachment 1 of the report.

  Wilkinson and Witer. Carried.
27 October 2015

- **Amendment to the Pre-Retirement Death Benefit**
  Motion: The board heard a motion to approve the attached resolutions amending the university’s registered pension plan and payroll pension plan (collectively, the “Pension Plan”) as presented in Attachments 2 and 3 of the report.

  Wilkinson and Witer. Carried.

  The board received the remaining items for information.

14. **OTHER BUSINESS**

  There was no other business.

  The board convened in confidential session.

27 October 2015

Logan Atkinson
University Secretary & General Counsel
Secretary to the Board of Governors
To: Board of Governors
    Senate
From: Feridun Hamdullahpur, President and Vice-Chancellor
Date: 2 February 2016
Subject: Call for Nominations – Honorary Degrees and Convocation Speakers

An honorary degree is the highest honour conferred by the University. Through the conferring of honorary degrees, the University of Waterloo seeks to recognize outstanding achievement, whether academic or through service to society. The Honorary Degrees Committee seeks input from all members of our University community for the names of prospective honorands who have displayed outstanding scholarly or professional achievement, or who have given exceptional service to society.

Guidelines for the awarding of honorary degrees, including selection guidelines, procedures, considerations to make in assessing a candidate’s qualifications, and details on what to submit in a nomination package, can be found at https://uwaterloo.ca/secretariat-general-counsel/committees-and-councils/honorary-degrees-committee/guidelines-awarding-honorary-degrees.

As well, the President’s Advisory Committee on Convocation Speakers invites input from the community to generate and maintain a pool of names of distinguished individuals who may or may not receive an honorary degree and who would potentially be outstanding convocation speakers, bearing in mind (i) scholarly or professional achievement, (ii) outstanding service to society, (iii) unique contribution to the arts or sciences, (iv) social, technological or entrepreneurial innovation, and (v) such other characteristics as the committee shall consider worthy. Members of the community are asked to submit a short (250 word) abstract/précis on any such individual to secretariat@uwaterloo.ca.

Please take time to consider forwarding the names of any outstanding candidates for potential nominations, and consider that the University embraces and appreciates diversity and wants to ensure a diverse pool of candidates, with particular attention to women and minority candidates that can be underrepresented in these circumstances. With the community’s input we can continue to maintain a substantial pool of deserving individuals whose achievements the University would be delighted to celebrate and honour.

Thank you in advance for your contribution to this important process.
Recognition and Commendation

Zhou Wang, a professor of electrical and computer engineering at Waterloo, has won an Engineering Emmy® Award for developing computational models that accurately and consistently predict how people view image and video quality. The Television Academy, based in Los Angeles, California announced the award earlier this month. Professor Wang, along with co-creators Eero Simoncelli, a professor at New York University, Alan Bovik, a professor at the University of Texas at Austin and Hamid Sheikh, a director at Samsung’s Mobile Processor Innovation Lab, will receive the award for outstanding achievement in engineering performance on 28 October 2015, at ceremony held in Los Angeles, California. The Engineering Emmy recognizes the team for its creation of Structural Similarity (SSIM), a mathematical formula and computer algorithm that is now widely used throughout the television industry. Professor Wang was recently named to the Royal Society of Canada’s College of New Scholars, Artists and Scientists, and was also the recipient of an E.W.R Steacie Memorial Fellowship in 2014 – the prestigious award from the Natural Sciences and Engineering Research Council of Canada (NSERC) – for his work in understanding how people view the quality of images and videos. (Daily Bulletin, 14 October 2015)

The Governor General of Canada has honoured a Waterloo history professor for her “remarkable contributions” to the understanding of First Nations’ history. History Professor Susan Roy was awarded a joint Governor General’s History Award along with her collaborators for a multi-site exhibition in Vancouver called cəsnaʔəm, the city before the city. “Given this year’s report from the Truth and Reconciliation Commission, I’m particularly proud to see this recognition of Susan Roy’s research highlighting Aboriginal history,” says Dean of Arts Doug Peers. “It’s incumbent on the academic community to contribute to redressing such a critical national issue.” (Waterloo Stories, 19 October 2015)

Voltera V-One, a custom circuit board printer developed by University of Waterloo engineering students, has taken top prize in the International James Dyson Award competition - beating out a record 710 entries from 20 countries. Voltera is the first Canadian team to capture the prestigious award that comes with a prize of about $60,000 (CAD) for the team and $10,000 for the University’s Faculty of Engineering. “The Voltera V-One team is made up of four impressive young graduates. Their solution makes prototyping electronics easier and more accessible – particularly to students and small businesses. But it also has the potential to inspire many more budding engineers,” said James Dyson, a renowned British inventor whose foundation sponsors the award. The printer was created by Alroy Almeida, Katarina Ilic, James Pickard, and Jesús Zozaya as their Engineering Capstone Design project. It enables circuit boards to be prototyped within minutes, eliminating the frustrations with traditional fabrication processes and drastically reducing hardware development time. (Waterloo Stories, 10 November 2015)

Research into entangled photons and arctic governance at the University of Waterloo was recognized recently as two promising graduate students received prestigious Vanier Canada Graduate Scholarships to help them pursue and complete doctoral degrees. Jean-Philippe MacLean, a Physics and Astronomy PhD candidate in the Faculty of Science and the Institute for Quantum Computing, received a Natural Sciences and Engineering Research Council (NSERC) Vanier Scholarship. His research focuses on developing a room-temperature diamond interface for storing and manipulating photon with the Quantum Optics and Quantum Information group. This research is a step towards building the necessary components of quantum communication technologies enabling optical
Recommendation and Commendation

Report of the President – 2 February 2016

Page 2 of 4

applications for quantum information. **Tahnee Prior**, a global governance PhD student at the Balsillie School of International Affairs, will use her Social Sciences and Humanities Research Council (SSHRC) award to define a new governance framework to address the emerging and complex issues caused by climate change, resource extraction, migration and potential inter-state conflict in the Arctic. Vanier scholarships are valued at $50,000 per year over the course of three years. *(Waterloo News, 13 November 2015)*

Members of the Waterloo Black Association of Computing Machinery International Collegiate Programming Contest team are headed to Phuket, Thailand this coming May for the contest world finals thanks to a stunning performance at November’s East Central North America Regional Programming Contest which took place at the University of Windsor. Out of 130 teams from 55 universities and colleges, Waterloo's four teams, Waterloo Black, Gold, White and Red finished 1st, 2nd, 3rd, and 9th, respectively. Other universities in the top ten were Ohio State (4th), Toronto (6th), and Carnegie Mellon (5th, 7th, 8th, and 10th). Waterloo's Black team was the only team to solve all nine problems, finishing the five-hour contest in four hours and thirty minutes. Waterloo's Gold team also solved more problems (7) than any other university. The members of Waterloo's teams were: **Waterloo Black** (1st place): Andy Huang, Antonio Molina Lovett, Jacob Jackson; **Waterloo Gold** (2nd place): David Choi, Felix Bauckholt, Ted Ying; **Waterloo White** (3rd place): Sean Purcell, Renato Ferreira, Yang Gao; **Waterloo Red** (9th place): Jim Zhang, Ben Zhang, Charles Zinn. *(Daily Bulletin, 5 November 2015)*

Waterloo chemical engineering student **Kaveh Sarikhani** has been accepted into the RISE professional program, a scholarship offered by the German Academic Exchange Service (Deutscher Akademischer Austauschdienst or DAAD). DAAD is the German national agency for the support of international academic co-operation and is the largest funding organization in the world supporting the international exchange of students and scholars. Sarikhani was one of a number of recipients of scholarships and grants for the 2015-2016 academic year. *(Daily Bulletin, 18 November 2015)*

**Lora Giangregorio** is the winner of the prestigious Bloomberg Manulife Prize for the Promotion of Active Health. Giangregorio, a professor in the Department of Kinesiology, who authored new exercise recommendations for people living with osteoporosis, will receive the prize worth $50,000 at a ceremony in February. McGill University presents the annual award to a researcher whose work has significant impact on the health and well-being of people in North America. The grant is put towards future research. A leading expert in bone health and exercise, Giangregorio’s research is transforming the way clinicians, physiotherapists and patients manage osteoporosis. Her pioneering guidelines on exercise and physical activity — called “Too Fit To Fracture” — are the result of an international consensus on reducing falls and fractures through physical activity. As a member of the Scientific Advisory Council for Osteoporosis Canada, Giangregorio is involved in producing educational tools for practitioners and patients. *(Waterloo News, 25 November 2015)*

**HealthIM**, a software company seeking to improve the emergency treatment of people with mental illness, was among the big winners at the Velocity Fund Finals held Thursday 26 November 2015. Founded by two Waterloo graduates from computer science and the psychology and business program, HealthIM synchronizes law enforcement and health care systems. Their software is based on the interRAI brief mental health screener. “We're essentially translating the officers’ observations into clinical language for the health practitioners, giving hospital staff a glimpse of what happened at the scene of an incident,” said **Daniel MacKenzie**, co-founder of HealthIM. “Today's win will help us to grow our team and bring this to as many police services as possible.” The following three companies were also grand-prize winners of $25,000 and space at Velocity. They are all members of the Velocity Science community.

- **Acorn Cryotech** preserves the cells of youthful people today as a resource to draw from for personalized medical therapy in the future. This provides a bank of youthful cells, for use in genetic therapies that reverse damage that occurs with age.
Recommendation and Commendation
Report of the President – 2 February 2016

- **Sweat Free Apparel** is a high-tech company for apparel, producing under-garments that prevent sweat stains from reaching and ruining your clothes.
- **Thalo** is building a new display technology to increase the battery life and daylight visibility of mobile devices. Today's win gives them an additional $10,000 awarded to hardware or life sciences companies to help cover additional startup costs.

“The exciting startups that won today are a small sample of tomorrow's innovative companies created on the Waterloo campus,” said **Mike Kirkup**, director of Velocity. “We look forward to guiding them to success within the expanded Velocity Garage, which will soon grow to five times its size and support up to 120 companies.”

During the VFF event, an additional 10 teams of University of Waterloo students competed for three prizes of $5,000 and access to Velocity workspaces. The winners of the Velocity $5K are:

- Most innovative: **BioFlex Implant** seeks to fix two major issues with current titanium intramedullary implants by using biodegradable polymers to create flexible intramedullary nails for pediatric orthopedic surgery.
- Best pitch: **Finuvo** is developing an automated painting station to enable hobbyists and designers to create visually stunning parts by applying a variety of colors and patterns to the surface.
- People's choice: **Hash** is an iPhone application that connects to your desktop device and web extensions in order to successfully authenticate several user accounts seamlessly using your fingerprint via touch ID. (Daily Bulletin, 30 November 2015)

**Arthur Carty**, inaugural director of the Waterloo Institute for Nanotechnology, has been honoured as a fellow of the American Association for the Advancement of Science (AAAS). Carty will be officially inducted as a fellow at the 2016 AAAS Annual Meeting on 13 February 2016 in Washington, DC. The American Association for the Advancement of Science, founded in 1848, is the world’s largest general scientific society and the publisher of the high impact journal *Science*. Election as a fellow is an honour bestowed upon members by their peers. Fellows are recognized for their meritorious efforts to advance science or its applications. Carty is cited for his enlightened scientific leadership, his seminal role as science advisor to governments and his contributions to organometallic chemistry. Dr. Carty is also a fellow of the Royal Society of Canada and an Officer of the Order of Canada. (Daily Bulletin, 1 December 2015)

**Eric Choi**, a senior technical associate at the Institute for Quantum Computing (IQC), has won the 2015 Prix Aurora Award in the category of Best Short Fiction English for his short story “Crimson Sky”. The Aurora is Canada’s national prize for excellence in science fiction and fantasy, awarded annually by the members of the Canadian Science Fiction and Fantasy Association (CSFFA) for exceptional works of speculative literature. This year’s Aurora Award ceremony was held in Toronto on 22 November 2015. In 2009, he was one of the Top 40 finalists (out of 5,351 applicants) in the Canadian Space Agency’s astronaut recruitment campaign. This is the second time Choi has received this award: in 2011, Choi and fellow writer Derwin Mak jointly won an Aurora in the category of Best Related Work English for co-editing *The Dragon and the Stars*, the first collection of science fiction and fantasy stories written by authors of the Chinese diaspora. (Daily Bulletin, 6 January 2016)

The Prime Minister of Canada made his first official visit to the University of Waterloo on Thursday 14 January 2016. **The Right Honourable Justin Trudeau** and the **Honourable Navdeep Bains, Minister of Innovation, Science and Economic Development**, toured the Velocity Science Lab and met with a number of Velocity Science startups including Medella Health, Vitameter, Thalo, Acorn CryoTech and Nicoya Lifesciences. Later, Trudeau and Bains announced $12 million in funding to bring industry and academic researchers together to build the next generation of water technologies. “It’s always a pleasure to see so many innovative, enthusiastic young people and extraordinarily inspiring faculty. Thank you so much for showing me some of the great work that’s being done here at this amazing institution,” said Trudeau. The $12 million, from the Federal Economic Development Agency of Southern Ontario, is being provided to the **Southern Ontario Water Consortium** (SOWC), which is located on the Waterloo campus. SOWC leads the development of business-led partnerships with post-secondary institutions to create innovative products, technologies and services for the water sector in
southern Ontario. Up to 90 businesses and not-for-profit organizations in southern Ontario are expected to benefit from the funding through the development and advancement of up to 80 collaborative water projects. The investment is expected to support at least 14 new partnerships and create or maintain 520 jobs over the course of the project. (Daily Bulletin, 14 January 2016)
FOR APPROVAL

1. **Sabbatical 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**

  **Basu, Nandita**, Civil and Environmental Engineering, May 1, 2016 to October 31, 2016 at 100% salary

  I will be publishing current research, and developing research in the area of isotope modeling, and modeling of water flow in coupled natural and human systems. Work will be done related to collaborations at UW, and thus I will spend most of my time here.

  **Burn, Donald**, Civil and Environmental Engineering, July 1, 2016 to December 31, 2016 at 86.4% salary

  I will be based at UWaterloo, but plan to spend periods of time working with researchers that are part of the FloodNet NSERC Strategic Network, in which I am involved. My portion of FloodNet deals with frequency analysis of extreme events. I will also use this time to write up recent research results for publication in refereed journals.

  **Fowler, Michael**, Chemical Engineering, July 1, 2016 to December 31, 2016, and July 1, 2017 to December 31, 2017, at 85% salary

  I will use this time to strengthen research collaborations with industrial partners, develop new research proposals, integrate research program into the new Green and Intelligent (GAIA) research facility and build a significant new electrochemical power sources test bench in this new research area. Split sabbatical will allow continued development of Capstone program in the department.
Frayne, Bruce, Environment, Enterprise and Development, July 1, 2016 to December 31, 2016, at 100% salary

My research focuses on food and nutrition security in cities of the Global South. The Hungry Cities Partnership is funded by SSHRC and IDRC and is carrying out research in Mexico City, Kingston (Jamaica), Nanjing, Bangalore, Nairobi, Cape Town and Maputo. This research program is a partnership between Wilfrid Laurier, Waterloo and the BSIA.

He, Qi-Ming, Management Sciences, September 1, 2016 to August 31, 2017, at 86.4% salary

I will conduct research in the areas of applied probability and operations research. More specifically, I plan to work on several stochastic models related to supply chain management, risk management, queueing theory and matrix-analytic methods. I also plan to visit and collaborate with colleagues at the National University of Singapore, the University of Melbourne, the Beijing University of Technology, the Hong Kong University of Science and Technology, Osaka University, and the University of Antwerp.

Hileeto, Denise, Optometry, July 1, 2016 to December 31, 2016, at 100% salary

The main objectives of my sabbatical leave are to finish the data analysis and final reports for ongoing research projects and complete a new international clinical research project which was recently funded. I will study the histopathologic characteristics of keratoconus and their impact on prognosis and treatments modalities with clinical research teams in The University of Valladolid in Spain. I also plan to attend international Pathology Conferences in Europe and explore a collaborative project with the Nano Center at the Bulgarian Academy of Science in Sofia, Bulgaria.

Ho, Pin-Han, Electrical and Computer Engineering, May 1, 2016 to April 30, 2017 at 85% salary

I will travel to Suzhou University in China to be a visiting professor and work with Professor Gangxiang Shen on optical communication system design. With the infrastructure support provided by the Chinese Government I will be able in a testbed to deploy the protocols and algorithms I developed in the past year to observe their effectiveness.

Mazumdar, Ravi, Electrical and Computer Engineering, September 1, 2016 to February 28, 2017 at 85% salary.

My objectives during my sabbatical are three fold: 1) completion of book being co-authored with Dr. P. Bremaud of The National Institute for Research in Computer Science and Control (INRIA), Paris; 2) collaborate with the research group of Dr. Philippe Robert of INRIA, Paris on mean field models; and 3) initiate work on big data algorithms with researchers at Stanford (Professor B. Prabhakar) and continue collaboration with Net-econ group at Berkeley (Professor J. Walrand).

Meyer, Samantha, Public Health and Health Systems, July 1, 2016 to December 31, 2016 at 100% salary.

My current major research focus is the critical issue of trust in healthcare and its implications for preventative service use by Canadians. Specifically, I am interested in the role of trust and other factors that influence Canadians’ uptake of immunizations and cancer screen services. My time will be primarily spent growing my program of research at UW and will provide me time to analyze and write-up data for five funded grants, and commence new research projects currently under review for funding. I will also spend my time strengthening national partnerships for knowledge translation in Canada, through travel to Toronto and Quebec. Additionally, I plan to spend one month in Australia where I hold an adjunct faculty position at Flinders University, completing existing projects and discussing upcoming opportunities for funding and collaboration.
Nairn, David, Electrical and Computer Engineering, September 1, 2016 to August 31, 2017, at 100% salary  
I plan to use the sabbatical year to commence two new ventures: the first is to pursue a new avenue of research in the field of algorithms for the calibration of analog-to-digital converters. The second is to write a new textbook on linear circuits that incorporate many of the current best practices in online education.

Rosenberg, Catherine, Electrical and Computer Engineering, September 1, 2016 to February 28, 2017, at 85% salary  
My objectives are to consolidate and expand my research programs on 5G and on energy systems, strengthen some of my existing collaborations, and start new ones. This will include travelling to the University of Paris VI to work with Professor G. Pujolle, Stanford University to work with Professor F. Tobagi, and UC Berkley to work with Professor Kameshwar Poolla.

Sachdev, Manoj, Electrical and Computer Engineering, January 1, 2017 to December 31, 2017, at 100% salary  
I intend to work on different research topics which include new types of circuits and devices for emerging technologies such as Magnetic Tunnel Junction Memories and Thin Film Transistor Circuits for displays.

Thomson, Neil, Civil and Environmental Engineering, May 1, 2016 to April 30, 2017, at 100% salary  
This sabbatical leave will provide me with the opportunity to finish writing numerous manuscripts that I have been unable to complete as department chair. (ex: generated halide-related radicals for selective attack of PFIC compounds present in saline groundwater environments; using functional nanoparticles for soil and groundwater remediation, and others.) More importantly, it will provide me with sufficient time to appropriately support my graduate students. Finally, as the Editor-in-Chief of Ground Water Monitoring and Remediation, I will be able to devote time to develop and promote a renewed scope for this publication.

van Pelt, Robert Jan, Architecture, July 1, 2016 to December 31, 2016, at 85% salary  
The leave will make it possible to complete the work on both the University of Waterloo Architecture exhibit in the 2016 Venice, Architecture Biennale and on the Auschwitz Exhibition that I am curating and that will open in Madrid, Spain, in October 2016.

Weber, Olaf, Environment, Enterprise and Development, September 1, 2016 to August 31, 2017, at 89.2% salary  
I plan to visit academic colleagues in European universities in Austria, Switzerland, Spain and Italy to conduct research in sustainable finance. The research will focus on comparative studies to understand the difference and similarities in sustainable finance globally.

Willmot, Gordon, Statistics and Actuarial Science, July 1, 2016 to June 30, 2017, at 100% salary  
I will work with my co-author Stuart Klugman on the fifth edition of Loss Models: From Data to Decisions, and a textbook for the Professional Society of Actuaries examinations. I will also continue my study of semi parametric insurance models, notably Erland and missed Poisson models.

- **Sabbatical Cancellation**  
  Parker, Wayne, Civil and Environmental Engineering, September 1, 2015 to August 31, 2016
• Sabbatical Leave Change
Parker, Dawn, Planning, cancelled leave from September 1, 2015 to August 31, 2016

Weckman, David, Mechanical and Mechatronics Engineering, change from: January 1, 2016 to June 30, 2016, at 100% salary, to: May 1, 2016 to October 31, 2016, at 100% salary.

Weckman, Elizabeth, Mechanical and Mechatronics Engineering, change from: January 1, 2016 to June 30, 2016, at 100% salary, to: May 1, 2016 to October 31, 2016, at 100% salary.

FOR INFORMATION

2. Administrative Appointments
Armitage, Howard, appointment as Acting Director, Conrad Business, Entrepreneurship and Technology Centre, Faculty of Engineering, January 1, 2016 to June 30, 2016.

Boehringer, Michael, appointment as Acting Chair, Germanic and Slavic Studies, Faculty of Arts, January 1, 2016 to June 30, 2016.

Hasan, Anwarul, re-appointment as Associate Dean, Research and External Partnerships, Faculty of Engineering, January 1, 2016 to December 31, 2017.

Insley, Margaret, re-appointment as Chair, Economics, Faculty of Arts, January 1, 2016 to June 30, 2019.

Liebscher, Grit, re-appointment as Chair, Germanic and Slavic Studies, Faculty of Arts, July 1, 2016 to June 30, 2018.

Sivaloganathan, Sivabal, appointment as Chair, Applied Mathematics, Faculty of Mathematics, July 1, 2016 to June 30, 2020.

Weber, Mark, appointment as Director, Conrad Business, Entrepreneurship and Technology Centre, Faculty of Engineering, July 1, 2016 to December 31, 2017.

• Administrative Appointment Change
Weber, Mark, appointment as Director, Conrad Business, Entrepreneurship and Technology Centre, Faculty of Engineering, change from January 1, 2014 to December 31, 2017 to January 1, 2014 to December 31, 2015.

Feridun Hamdullahpur
President
This report is submitted following the committee’s email poll concluding 6 January 2016.

FOR INFORMATION

1. Acting on authority vested in it pursuant to a resolution of the Board of Governors passed 6 June 2006, as amended by resolution of the Board of Governors passed 5 June 2007, by email poll concluding 6 January 2016 the Executive Committee approved, on behalf of the Board of Governors, a negotiated settlement with CUPE 793.

CUPE 793 represents approximately 400 workers employed by the University. The settlement was approved by CUPE 793 on 11 December 2015 with 74% support. The settlement was intended to take effect in January, hence the need for urgent attention to the matter by the Executive Committee prior to the Board of Governors meeting scheduled for 2 February 2016.

Highlights of the approved settlement:

(i) The agreement covers a three year period from 1 May 2015 to 30 April 2018.
(ii) Annual salary increases will be 1.95% in base rate for years 1 and 2, and 1.5% in year 3, identical to recently concluded settlements with faculty and staff employee groups.
(iii) Levelling dollars were agreed for certain positions within the bargaining unit where the university is not competitive within the market.
(iv) All members receive a $500 signing bonus.
(v) The agreement extends the probation period from the current 70 days to 180 days for non-trade positions and 360 days for trade positions, bringing the bargaining unit in line with both faculty and staff employee groups.

Further information may be obtained by contacting the University Secretary & General Counsel at logan.atkinson@uwaterloo.ca.

18 January 2016

William Watson
Chair
FOR INFORMATION:

STATUS OF UNDERGRADUATE AND GRADUATE ACADEMIC REVIEWS

The Associate Vice-President, Academic (AVPA) and Associate Provost, Graduate Studies (APGS) report annually to the Board of Governors and to the Ontario Universities Council on Quality Assurance (Quality Council) on the results of academic reviews of existing programs. Reviews are carried out under Waterloo’s Institutional Quality Assurance Process. Waterloo is moving to a centralized Quality Assurance Office in 2016/17 and hence, program reviews will be reported as one consolidated report hereafter.

The following are Final Assessment Reports received by Senate for the September 2014 – August 2015 reporting period:

- Accounting & Finance (BAFM)
- Applied Language Studies Minor (BA)
- Civil Engineering (MEng, MASC, PhD)
- Geography – joint with WLU (MA, MES, MSc, PhD)
- Health Studies (BSc), Health Studies and Gerontology (MSc, PhD), Master of Public Health (MPH)
- History (MA, PhD) (joint Guelph/Waterloo/Wilfrid Laurier)
- Legal Studies (BA)
- Music (BA) – Church Music & Worship, Music (Arts & Business)
- Nuclear Engineering (UNENE) (MEng)
- Planning (BES) (GDip, MA, MES, MPlan, PhD)
- Political Science (BA, MA) + Public Service (MPS)
- Women’s Studies (BA)
- Engineering [Chemical (BASC), Civil (BASC), Computer (BASC), Electrical (BASC), Environmental (BASC), Geological (BASC), Management (BASC), Mechanical (BASC), Mechatronics (BASC), Nanotechnology (Basc), Software (BSE), Systems Design (BASC)]

The following are the Two-Year Progress Reports received by Senate for the September 2014 – August 2015 reporting period:

- Architecture (BArch)
- Business, Entrepreneurship & Technology (MBET) & Advanced Management (GDip)
- English Language and Literature (BA)
- French (BA, MA) French Studies (PhD)
- History (BA)
- Kinesiology (BSc, MSc, PhD) + Work and Health (Collaborative PhD)
- Liberal Studies (BA)
- Pharmacy (BScPhm)
- Religious Studies (BA)
- SMF (Sexuality, Marriage and Family) (BA)
- Spanish and Latin American Studies (BA)
GENERAL OBSERVATIONS ON PROGRAM REVIEWS

The review process is time-consuming, but offers the opportunity to maintain and enhance program quality. It ensures that academic units engage regularly in reflective, critical analysis of their programs, resulting in significant curricular revisions, strategic hiring and informed decision-making on resource allocation. A consistent theme in the external reviewers’ reports is the enthusiasm shown by our students for their programs, and the quality of instruction delivered by their professors. Our co-op students continue to be ranked very favourably by their employers. It also encourages curriculum renewal, and updating of fields offered at the PhD level. Furthermore, it requires academic programs to develop explicit learning outcomes which are new at the graduate level.

There are, however, several recurring issues that programs, departments, faculties and the university need to focus on in the next few years to ensure the sustainability of Waterloo’s high quality academic programs.

At the undergraduate program level they include:
- Better resolution of student retention, including understanding why students change programs
- Tracking graduates once they leave the institution
- Addressing social and study space needs

At the graduate program level they include:
- Adequate resources for programs (sufficient space for graduate students, sufficient staff support)
- Times to completion

INSTITUTIONAL QUALITY ASSURANCE PROCESS

This is the fourth year the university has been operating officially under its own Institutional Quality Assurance process. The following was submitted and approved by the Quality Council:

- Graduate Diploma in Planning, May 2015
- The annual report of Major Modifications for undergraduate and graduate programs, July 2015.

Mario Coniglio  
Associate Vice-President, Academic

Jim Frank  
Associate Provost, Graduate Studies
FOR INFORMATION

Report on the Status of Undergraduate Recruitment and Admissions

Admission and Registration Objectives

The fall 2015 year one full-time registration target was 6,847 and 6,662 registered by the 1 November official Ministry count date. This represented 97% of the university’s enrolment objective. The newly admitted registered was 6,055 (5,232 domestic and 823 visa). Mathematics registered 210 students into Math/ELAS with the target being 221 and all other faculties registered 86 in the new Bridge to Academic Success in English (BASE) program – 205% of target.

Marketing and Communications to Attract Prospective Students and Confirm Applicants

An evidence-based approach continues to inform our undergraduate recruitment marketing strategy. This focus has been further strengthened by hiring a research manager in Marketing & Undergraduate Recruitment and the creation of a three-year research plan. New and enhanced initiatives for recruiting the class of 2014 included: new social media and website enhancements; increased travel to international and national markets, including visits to applicants and applicant conversion events in Calgary and Vancouver; hosting U.S. international counsellors on campus and follow up travel to California; hiring our first aboriginal liaison officer and a plan to recruit/confirm aboriginal students; enhanced initiatives in our Faculties focusing on applicant conversion; hiring a liaison officer and the creation of a plan to focus on positioning Waterloo in the minds of younger students. Our research has shown that our most committed and high-quality students found out about us at a younger age.

Applications

An overall total of year one full-time applications received for fall 2015 was 46,319 – a slight decrease from 46,603 applications in 2014 (decrease of 0.6%). This is due to a demographic downturn that is impacting all North American universities. Specifically, there was a slight decrease in domestic applications (includes Canadian Citizens and Permanent Residents) and a 13% increase in visa applications.

Admission Decisions

In total, 24,854 year one full-time offers of admission were made for fall 2015 up from 24,048 in 2014 (increase of 3.4%). The number of offers made to visa students was 4,563 for fall 2015 compared to 3,910 last year (increase of 16.7%). The percentage of first choice admits who accepted their offer to Waterloo was 60%, up 1% from last year. For second choice students, 20% accepted their offer, down 1% from last year. Third choice remained at 10%. Fourth choice remained at 5%. Fifth choice or higher was once again 5%.

Admission Standards

As a measure of “quality,” the percentage of Ontario Secondary School (OSS) students with 80% or higher (best 6 grade 12 U/M courses) was 99% of the total first year registered newly admitted students. 85% or higher group accounted for 79% of the registered students. In addition, the overall median average for first-year full-time registered students increased to 89.45%, which is one of the highest in Ontario.
Demographic Data
Visa citizenship status students constituted 24% of our applicants (21% last year). The registered first year class is comprised of 19% visa students. The number of newly admitted first-year degree registered visa students was 1,097 compared to 989 last year (975 in 2013, 733 in 2012, and 659 in 2011). The 11% increase reflects our continued diversification and the importance of international students to meeting enrolment targets. The registered class is comprised of 7% out-of-province students similar to last year. The actual out-of-province registered number was 476 this year compared to 452 last year. (Out-of-Province refers to last school attended in Canada outside of Ontario).

André Jardin
Associate Registrar, Admissions

Tina Roberts
Director, Marketing & Undergraduate Recruitment
FOR INFORMATION

STATUS OF RESEARCH POLICIES AND PRACTICES

The Office of Research (OR) provides information and assistance to the university research community on a wide variety of research-related activities including the preparation and submission of proposals and post-award management. The OR consists of a number of groups. The Institutional Research group has responsibility for overseeing applications for institutional research awards (typically those requiring nominations) from the provincial and federal governments. The International Research Partnerships Office, located within Waterloo International, is the central international liaison office for Waterloo and coordinates most non-industrial international research projects, training programs, and international institutional agreements with foreign institutions and international funding agencies. Research Partnerships manages the administration of collaborative research contracts with industrial and government partners, as well as NSERC Research Partnership programs and Mitacs internships. The group is responsible for ensuring compliance with Industrial Security, Export Control and Controlled Goods Regulations. Research Partnerships is also responsible for university-wide research development activities through the Industrial Liaison Officers. The Funding Agencies & Non-profit Sponsors (FANS) group oversees grants and contracts from federal funding agencies and non-profit external sponsoring agencies, including the Tri-Agency. FANS supports partnerships with community groups, non-profits, NGOs through the Foundation/Public Sector Liaison Officer. The Office of Research Ethics (ORE), in conjunction with the university’s two Research Ethics Committees and its Animal Care Committee, oversees compliance with university, provincial, federal and international requirements for ethics approval of research involving human and animal participants. The ORE also supports the university’s research integrity compliance obligations and provides general management for the university’s Central Animal Facility. Research Finance provides financial administration, monitoring and reporting to researchers, university administration and external sponsors and provides the oversight to ensure adherence to university policies and to financial conditions imposed by governments, agencies and clients. The Training and Compliance section within Research Finance helps to ensure that research expenses are compliant and eligible in accordance with external sponsor requirements. The Waterloo Commercialization Office (WatCo) has responsibility for evaluating, protecting and commercializing intellectual property assigned to Waterloo by its researchers. Research Communications facilitates the communication of OR services to the Waterloo research community and, in conjunction with Communications and Public Affairs, prepares communications designed to enhance the external profile of Waterloo research. The Waterloo Awards Committee promotes and facilitates the submission of high-quality nominations of Waterloo scholars across all disciplines for prestigious awards and honorific titles.

Policies, procedures and guidelines have been established to ensure that the management of research activities is consistent with the university’s mission, meets standards required by sponsoring agencies and is compliant with applicable provincial and federal laws. Policies, procedures and guidelines bearing on the administration of research funded through grants and contracts can be found at http://www.adm.uwaterloo.ca/infosec/Policies/Policies_index.htm. The faculty Memorandum of Agreement, and related guidelines, have been revised to bring them in line with the new requirements arising from the Tri-Agency Framework: Responsible Conduct of Research.

Management of funding applications procedures, negotiation of grant and contract agreements with the sponsor and financial monitoring of the funds after they are awarded are conducted through the OR.

D. George Dixon
Vice-President, University Research
FROM THE EXECUTIVE DIRECTOR

Building Canada’s Quantum Economy

Over the last thirteen years, I have participated in an experiment – an experiment to create the next new industry for Canada. When we started out with two faculty members in a remote corner of the University of Waterloo I only imagined a dynamic community of researchers working in a world-class ecosystem. I no longer have to imagine this.

Our bold vision is now a reality. IQC is a world leader in quantum information research. Our faculty and students are producing mind-boggling results in an accelerated fashion. And to my own surprise, IQC has spurred six startup companies in these short thirteen years. If you had asked me in 2002 whether we would have startup companies today, I might have chuckled with nervous laughter. I would have never guessed the technologies would emerge this quickly. Yet, I am immensely proud that they have. It means our researchers are making incredible progress.

Going forward, IQC must continue to push the boundaries of our knowledge in quantum information. We have learned much, but there is much more to explore. We now understand the quantum world and how to harness the power of its behaviours. The next great challenge will be to translate that knowledge into more relevant and diverse technologies. Our growing industry partnerships will be key in our success in this area. These partners will bring us questions and our job will be to use quantum technologies to solve these problems and turn those technologies into commercial opportunities.

Thank you in large part to the Government of Canada, I have no doubt that we will continue to succeed in this bold experiment. Through continued investments and confidence in our research, IQC will be an engine for Canada’s future economy. We will grow the Quantum Valley with more companies, more technologies and more investments. In a challenging economic environment, I am humbled and proud immensely proud that our work is a shining beacon of future prosperity.

I look forward to the next year ahead and seeing how our continued experiment shapes the future for Canada.

Sincerely,

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

The Institute for Quantum Computing (IQC) at the University of Waterloo has grown to one of the top-four quantum institutes in the world, conducting leading research in areas of quantum computing, quantum communication, quantum devices and quantum materials. Over the last year, IQC has made tremendous progress towards its objectives as outlined in the 2015-2016 Corporate Plan – meeting or exceeding expectations in many areas.

In the coming year, IQC will continue its aggressive research agenda, attract the world’s best faculty, students and postdoctoral fellows to Waterloo and position Canada as a leader in the next great quantum technology revolution. Targeted outcomes have been set for each of IQC’s strategic objectives – all working towards IQC’s overall mission 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.

Plans for 2016-2017

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.

IQC will continue its research program while continuing to grow towards its steady-state goal of 33 IQC faculty (currently at 22 faculty). IQC’s state-of-the-art headquarters and research facilities provide the ideal environment for quantum information research.

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

IQC will continue to attract the world’s best talent to Waterloo and continue the growth of its graduate programs from 107 students today to its goal of 165 graduate students. Additionally, IQC will host, sponsor and participate in lectures, colloquia, workshops and conferences with leading researchers from around the world to share knowledge and research and spur innovation and development of quantum technologies.

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 world-class excellence in quantum information science and technology.

Canada stands among the world’s leading nations investing in and accelerating quantum information research and technology development. IQC is among the top-four global research institutes and continues to attract the best and brightest research talent to Canada. The next year will see existing research collaborations strengthened and new relationships developed to further advance our research agenda and promote Canada’s leadership in this important field.
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.

IQC’s award-winning communications, outreach and public education programs will reach new audiences and new locations in 2016-2017. IQC’s new teacher program, Teaching Quantum Technologies, will be held for a second time attracting more teachers to incorporate quantum information science and experiments in their classrooms.

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

IQC will continue to develop commercialization activities, partnerships and opportunities for the realization of the economic and social benefits of quantum technologies. The institute will continue to seek out opportunities to partner with industries to advance research and development and share the transformational opportunities of quantum technologies.
Dear Governors,

I am pleased to provide you with a report covering many events, accomplishments and activities since my last report of October 2015. My leadership team and I are happy to expand further on any reported items following the February Board meeting.

The University of Waterloo closed the 2015 calendar year with a great sense of accomplishment. Our comprehensive Strategic Plan Update and Supplemental Faculty Updates highlighted solid progress on all aspects of the Strategic Plan. From external research funding and research impact, to commercialization, student enrolment, the quality of students and faculty excellence, 2015 showed healthy and sustainable progress towards achievement of our goals and targets.

What is even more energizing is our community. No one is content with the status quo. We truly understand and appropriately deal with and plan for all the risks, challenges and demands of our very rapidly changing internal and external environments.

One such challenge was to more fully understand the needs and aspirations of our current and future students. We are modifying our current approach and developing additional interventions to ensure student success while understanding the needs of employers and other stakeholders. For this reason, and with the support of the Board Executive, we decided to focus on students at our annual Board retreat. Our event was themed “Preparing Students for 21st Century Citizenship.”

All participants left the retreat with a much better understanding of the university-student-society relationship and clear next steps for the administration. A detailed summary of the retreat is included in the Board material.

I want to thank all governors for your participation, valuable insights, and for giving your entire day for the good of our students and university.

We started 2016 with a renewed energy and focus on Canada’s new federal government. We were happy to see ministers’ mandate letters so clearly align with many of our strategic plan priorities. Examples include, but are not limited to, internationalization, the importance and value of fundamental
research, co-operative education, economic development, and entrepreneurship.

As we enhance our government relations action plan and strategy, we are already receiving significant attention and requests from various departments within the Federal government.

With respect to senior administrative positions, we have initiated two VP searches (Vice President Research and Vice President Advancement).

I am very pleased to report that we are continuing to attract not only a larger number of applicants but also applicants of higher academic standing. The 2016 applications to Waterloo, compared to last year and to the system wide average, have increased significantly with substantially larger “first choice” applications. A more detailed but brief report will be presented at the February meeting.

The following are specific updates or accomplishments as they relate to the strategic plan since our last meeting in October.

**Transformational Research**

- **Intact Financial Corporation** – provided $4.25M to create the Intact Centre on Climate Adaptation (based in the Faculty of Environment) which will focus on research and building awareness for innovative adaptation solutions to climate change risks facing Canadian homeowners, communities, industries and governments.

- **Waterloo researcher wins prestigious Bloomberg Manulife prize for the Promotion of Active Health** – a leading expert in bone health and exercise, Professor Lora Giangregorio will receive $50,000 to continue her innovative research that will help people living with osteoporosis.

- **Waterloo graduate students win Vanier scholarships for transformational research** – Jean-Philippe MacLean, a Physics and Astronomy PhD candidate received an NSERC Vanier Scholarship and Tahnee Prior, a global governance PhD student (who we had as a special guest at the June 2015 BOG meeting) received an SSHRC award. Vanier scholarships are valued at $50,000 per year over the course of three years.

- **Waterloo’s research strength and commitment to industry collaboration** – was recognized by the Leiden Ranking which ranked Waterloo first among Canadian U15 universities for publications co-authored by industry partners in 2015.
International Research and Partnership Grant Program – established by UW in 2011 to provide seed funding to develop new international research partnerships and leverage additional funding opportunities. To date, the program has invested $860K in 56 projects that has leveraged $4.3M in new grants awarded to Waterloo researchers and facilitated 134 new international research partnerships.

Sound Value System

University of Waterloo wins national award for inclusivity program – the Institute of Performance and Learning awarded the Silver Award for Training Excellence to the Office of Organizational & Human Development for the Principles of Inclusivity program, a seven-part certificate program that develops and reinforces the dimensions of diversity, such as age, mental and physical ability, ethnicity, religion and sexual orientation.

Experiential Education

Graduate Employability Ranking – UW ranked 25th in the world and first among ranked Canadian institutions for graduate employability as part of a pilot Quacquarelli Symonds (QS) initiative. Robust and dynamic action in experiential education by Co-operative Education and Career Action (CECA) continues to build Waterloo’s strategic reputation in co-operative education.

Faculty of Engineering and Department of Co-operative Education & Career Action received Creative Destruction Lab’s Labour Award – for their contribution to Canada’s economic development and leadership in developing talent in demand globally.

Fall 2015 Co-op work term – 99.6% (over 5700 students) were employed.
Vibrant Student Experience

- **Student Referendum** will be held from February 9-11, 2016 – asking undergraduate and graduate students if they will support an $18 per term fee to build the SLC/PAC expansion. The University will contribute $10M of the capital costs towards the expansion and the students will be asked to contribute the remaining $24M through the fee.

![SLC/PAC Expansion
By the Numbers](image)

- **Construction of Engineering 7** – scheduled to open in September 2018, Engineering 7 will provide students with enhanced learning experiences as well as researchers and graduate students with state-of-the-art facilities to advance their work on emerging and disruptive technologies including machine intelligence, automation of knowledge work and wearable biomedical devices to monitor human health.
• **Temporary residence housing for refugees in Region** – UW is negotiating and expects to secure an agreement with the Region to provide temporary accommodation for government sponsored refugees. This is intended to provide short term accommodations until refugees can move to where they will reside more permanently. This housing was scheduled to be closed from Jan. – Aug. and will not take housing from current students.

**Global Prominence and Internationalization**

• **President brings disruptive innovation model of education to Asia** – speaking at the Canadian Chamber of Commerce in Hong Kong and at a Wearable Technology Forum at Hong Kong Cyberport in November, I promoted “additive education” – the way UW wraps the student experience in enriching layers of academic excellence, co-operative education, research intensity and entrepreneurial opportunity.

• **UW signs agreement with Hong Kong University of Science and Technology** – providing select students the ability to simultaneously earn a PhD from each institution.

• **UW signs new partnership agreement with Singapore University of Technology and Design** – providing six students from each university the ability to internationalize their degrees by studying overseas for a full term, while still earning credits at their home institution.

• **Government of Canada (DFATD) announces $15M investment partnership with UW in Jakarta** – along with a $1M gift from PT Asuransi Jiwa Manulife Indonesia to enable UW to take a leadership role in building the actuarial capacity in Indonesia through a multi-year, multi-level program of training and education, including scholarships for students to attend Waterloo.

• **Waterloo International reorganization** – temporary changes in the unit’s structure have been made with the unit reporting to the Vice-President, University Research, while the “Global Learning” group is reporting into student services. An interim leader will soon be identified and a review of the operation will be completed, following which a search for a new Associate Vice-President will be conducted.

**Uniquely Entrepreneurial**

• **Velocity expands to become North America’s largest free startup incubator** – Velocity will consolidate student entrepreneurship activity in Kitchener, assuming space vacated by Google in the Tannery. The City of Kitchener is contributing the $500K required to renovate the space reinforcing its commitment to UW’s entrepreneurship activities.
The expanded facilities will allow the Velocity program’s software, hardware, and life-sciences startups, currently housed in separate buildings, to grow as a community and share insights through peer mentorship.

- **UW invention wins International James Dyson Award** – Voltera V-One, currently working out of Velocity developed a custom circuit board printer and took top prize in this year’s International James Dyson Award competition, beating out a record 710 entries from 20 countries. The award comes with a prize of $54,000 for the team and $9,000 for the Faculty of Engineering.

- **New book launch “Innovation and Entrepreneurship are in the Waterloo Genome” launched** – written by distinguished professor emeritus Kenneth McLaughlin tells the behind-the-scenes story of how the University disrupted post-secondary education.

- **UW expands internationally respected Velocity incubator on campus** – with the opening of a new lab (Velocity Science) and the addition of Velocity Start, a new space where any aspiring student entrepreneurs can develop their ideas.

- **Inc., an American industry magazine focused on growing companies** – ranked Waterloo first in its 2016 list of Emerging Startup Hubs to Watch in 2016, noting “Located just below the “Technology Triangle,” this city has one of the highest densities of startups worldwide. In 2015, 864 Silicon Valley employers recruited from the University of Waterloo’s engineering program.”

**Outstanding Academic Programming**

- **New website to promote online graduate programs** – and the development of a new Graduate Professional Skills program called “GRADventure” under the direction of a new Manager, Professional Skills and Postdoctoral Affairs working group of campus partners to coordinate and promote university-wide professional skills offerings for graduate students

Implementing the Strategic Plan is not without challenges. In order to maintain its competitive advantage Waterloo is focused on continuing to build sustainable experiential education opportunities for students, and diversify research funding opportunities in a restrictive fiscal environment. Ongoing efforts to build experiential education beyond co-op will provide an expanded menu of these learning opportunities for our students. Collaborative activities across faculties and several strategic themes are being investigated to expose students to research experiences early in their
undergraduate studies. The implementation of the Strategic Plan is a dynamic process that is responsive to the emerging pressures, opportunities and realities. We are on track and focused on meeting all Strategic Plan objectives and goals.

**Global Entrepreneurship and Disruptive Innovation Centre**

The Global Entrepreneurship and Disruptive Innovation (GEDI) Centre proposal was developed and revised with extensive internal consultations. During November and December the government relations team presented to several senior advisors in the Ontario government and received very constructive feedback. The team is now in the midst of revising the proposal to create a 3.0 version, secure institutional and corporate supporters and refine further an advocacy and communications campaign to promote awareness and support for GEDI with Ontario and federal governments.

**Government Relations Update**

- UWaterloo specific references by Ed Clark- Special Advisor to the Premier for Economic Development in his speech to the Toronto Region Board of Trade on November 12, 2015.

- UWaterloo specific references by Hon. Brad Duguid- Minister Economic Development, Employment and Infrastructure in his speech to Economic Club of Canada on December 1, 2015.

- Successfully connected with all of the newly elected MPs from the October 19th federal election win and with the new Minister of Science and Minister of Innovation, Science and Economic Development.

- Waterloo MP and new Minister of Small Business and Tourism Bardish Chagger attended reception for President’s Holiday Dinner which honoured the holiday season, founding families and the launch of a new book showcasing the origins of innovation and entrepreneurship at the University.

- Visit on January 11th by Minister Navdeep Bains and Minister Chagger to IQC.

- Announcement on January 14/16 by Prime Minster Justin Trudeau and Minister Bains of the $12 million renewal of the Southern Ontario Water Consortium located at UW.

- Prime Minister Justin Trudeau praises Waterloo’s brilliant, innovative minds on world stage in a [speech](#) to world leaders and business elite at the [World Economic Forum in Davos](#).
It has been a busy start to the year with many exciting initiatives underway. I look forward to our face to face interaction at the upcoming meeting and your thoughts and valuable input as we advance the mission of the University of Waterloo.

Feridun Hamdullahpur
President and Vice-Chancellor
Welcome and Introductory Comments

Speaker: Bill Watson, chair, Board of Governors

The Chair welcomed everyone to the retreat and thanked Ian Orchard and his team for the preparation of interesting materials and thought-provoking questions. The university’s message is receiving a great deal of positive media attention, and our message permeates what we do and how we’re perceived. A great brand, good headlines and recognition by politicians are very good for the institution, but we can’t rest on our laurels. The pace of change is too quick, and we must focus on the future of the institution. We must provide a vibrant and flexible learning experience, exciting research opportunities – and we must make sure that the message of this institution is strong and exciting.

The retreat program is expressly connected to the strategic plan and its implementation, and the board must remain vigilant in overseeing the process. We will hear from our students, we will consider the future of our programs, and we will reflect on the differences between evolutionary change and revolutionary change. And we expect a great deal of conversation, questions to our panelists and challenging observations.

Feridun Hamdullahpur delivered some remarks on the anniversary of the tragic killing of 14 women at the École Polytechnique in Montreal on 6 December 1989.
Session I – Setting the Stage.

[connection to Strategic Plan theme “A Vibrant Student Experience”]

Presenter: Ian Orchard, vice-president, academic & provost

Slides used in Orchard’s presentation may be seen here: https://uwaterloo.ca/secretariat-general-counsel/sites/ca.secretariat-general-counsel/files/uploads/files/session_1_orchard_board_retreat_dec_4_2015.pptx

Orchard focused on five themes: education as a public good; Generation Z and the 21st century student; the impact of technology on campus; the “unbundling” of education; and strengthening our core and extending our value through the strategic plan.

Education as a public good – There is a perception that the idea of education as a public good is eroding. The relationship between higher education and outcomes is constantly being rethought in the sector, but the eroding perception is confirmed in various polls, provincially and further afield. This means that every funding source on which our university depends is under threat. In response, we must find ways to clarify our message and articulate the real value of a university education, and we must find ways to facilitate student success.

Who is Generation Z? – This is the group born after 1995. They are empowered by information and the world of technology is their world. We are competing for their attention, and this is a very challenging competition given their interests. Gen Z is very entrepreneurial, and this means we must engage in different ways.

Technology has a strong impact on campus – The way in which teaching and learning is undertaken is dramatically different than it was a few short years ago, and we will hear more about this as the retreat program unfolds.

The unbundling of education – This is a very disruptive idea at the level of post-secondary education. The degree is broken into elements, and each is scrutinized for its value. The degree is then re-bundled to generate the highest possible value. The same technique could also be applied to competencies as outcomes. The extent to which the very best universities are affected by this trend is uncertain at the moment.

Extending our value through our strategic plan – Our core must be strengthened, and we must invest in student support infrastructure. We must modernize our programs, harness faculty energies and interests, and integrate thoroughly with employers to enhance our value. We must be acutely aware of the relative strengths and weaknesses of online education and more traditional forms of program delivery. Lifelong learning will be more important as the institution evolves.

Q: What do we need to do to continue to attract students to the physical campus? A: student support infrastructure investment, wisely deployed, is an urgent point of decision-making as we get ready to meet the expectations of Gen Z.

Q: How do we get students to come to this university when there are so many competing universities with dramatically different facilities? A: We are devoting a great deal of attention to the student experience and the amenities that students need and enjoy. But we must be very careful not to adversely affect our public perception through an unwise allocation of resources.

Q: Will commercial platforms like LinkedIn start to forecast the skills that may be needed in the future, and does that tend to colonize some of the space that has traditionally been ours? A: This retreat is largely designed to help us anticipate these sorts of shifts, by listening carefully to those who are heavily engaged in the commercial world.
Q: Isn’t it important that we actively encourage our students to be engaged with their communities and to become better active listeners as a way to foster innovation? A: We are starting to move in these directions, through initiatives in orientation, for example.

Q: Is there some danger in reacting simply to the needs and expectations of a particular generation? A: We deal with the students, but we deal with their parents, governments, the public at large, such that we must meet the needs of a variety of expectations based on the constituency involved. We listen to Gen Z, not to change things fundamentally necessarily, but to acknowledge difference and to do our best to adapt sufficiently well.

Q: What is the university’s role in “attainment rates,” that is, the percentage of people in the work force with post-secondary education? A: The university aspires to lead in improving attainment rates, and our successes in this respect demonstrate enhanced value in comparison to the college experience.

**Session II – Are we Meeting Our Students’ Expectations Fully (Part 1)?**

[connection to Strategic Plan themes “A Vibrant Student Experience,” “Outstanding Academic Programming” and “Experiential Education for All”]

Moderator: Chris Read, associate provost, students

Slides used in Read’s opening comments may be seen here: https://uwaterloo.ca/secretariat-general-counsel/sites/ca.secretariat-general-counsel/files/uploads/files/session_2_read_board_retreat_4dec2015.pptx

Read summarized his portfolio and the elements of student services addressed there. Students come to this university because of its excellent academic reputation, because of post-graduation opportunities, and because of our co-op program. Graduate students come to the university because of the strong reputation of our faculty and the important research they do. Are we fulfilling the value proposition that we use to recruit these students? Surveys of our alumni tend to confirm that the experience with curriculum is higher than average, although co-curricular experience is rated as below average.

Student Panel: Victoria McDonald (4th year Math & Business, Computer Science and Human Resource Management minor, co-op student)

Dudley Ellis (5th year Arts & Business, Honours Legal Studies, Political Science minor, former co-op student)

Aimee Gunther (PhD candidate, Institute for Quantum Computing, Department of Physics & Astronomy)

The students introduced themselves and summarized their reasons for attending the university and their experiences while here.

Ellis switched out of co-op because of the time commitment it involved. It would delay his graduation and have an adverse impact on his financial situation. Orchard says this is interesting because co-op participation reduces from about 70% in the first year to about 50% on graduation.

Witer asked about the motivation for being involved in the school outside of pure academic pursuits. Gunther said that the skills necessary to succeed in the world are not simply learned in the classroom or lab, and so volunteering in a wide variety of activities pays dividends. For McDonald, participation in a variety of things is personally fulfilling, and it functions as a release of the stresses that accompany the academic part of her life. She suggested that we ought to find ways to encourage more first year participation in these activities. Ellis received strong encouragement from his residence don to get involved so as to make the
experience at university as fulfilling as possible. And the experience in the wider university community is a way to distinguish yourself from others.

Witer followed up by asking how their experience could be generalized across the university. Ellis suggested that this is difficult, as there are cultural pressures on many students that make academic success paramount, perhaps to the exclusion of other sorts of experience. Any program of encouraging wider participation must be developed very carefully, but it is arguable that students who are heavily involved actually do better in their academic work because they learn skills that are transferrable. Gunther said that she didn’t learn the value of extracurricular involvement until she reached graduate school because she was so heavily focused on academic success.

Hamdullahpur asked for input on the top priority for change at the university to improve student success. McDonald argued that there are improvements to be made in the co-op process, where more oversight is required of the relationship between employers and students, especially in the hiring process. For graduate students, Gunther argued that the relationship between the graduate student and her supervisor is the most important relationship they have, but there is little opportunity to scrutinize that relationship and evaluate its effectiveness. It is especially a problem for support from supervisors on administrative matters for graduate students in connection with grant applications, for example. This could be addressed through a type of code of conduct for supervisors. For Ellis, space considerations are very important, and space devoted to student support around their mental health, for example, could be enhanced for the well-being of all students. An increase in study space is important as a support for this idea, and while recreational space is important it must be kept in balance.

DeVidi remarked on and applauded the approach to graduate study that prepares graduates for careers outside the academy as well as providing strong academic foundations. He asked the panelists about their experience with administrative support and whether students feel like they get the “run around.” McDonald mentioned her experience with co-op administration and housing, suggesting that things are complex and take time to understand. Ellis indicated that switching Faculties with little support from an actual human being proved to be very frustrating and stressful. Generally, switching programs or switching co-op streams is overly complicated for the student, and can be easily managed by advisors and administrators.

With respect to academic expectations, Gunther said that her course work has been very high level as she had hoped. It has met her interests, and the teaching has been almost universally good. For McDonald, the math program has been everything she has hoped for, with the right sort of tutorial support and good teaching. Ellis found that the shift from a Caribbean high school to the math faculty was a jarring shift, but he has found a home in the Faculty of Arts and the transition is now more comfortable. He does have some concerns about curriculum relevance in the real world, and has taken the opportunity to present his views to faculty.

Caputo asked about Gen Z and its distinctiveness around entrepreneurialism and technology. Ellis says that, while he doesn’t feel like an entrepreneur, his program has allowed him to understand risk more thoroughly and to learn a great deal from peers working more directly in entrepreneurial activities. Gunther, too, does not claim to be an entrepreneur, focusing her energies on completing her degree. She sometimes finds it distracting, the focus on industry ties, and the idea that if you’re not involved as heavily as others you can’t be from the University of Waterloo. McDonald agreed, saying that entrepreneurship may in fact be too
dominant, tending to focus on a select few students at the expense of the other high achieving, successful
students.

Why did McDonald’s teacher recommend that she not attend this university, especially given that the
teacher was a member of the alumni? McDonald replied to this question from Watson by saying that the
teacher did not find the culture at the university as exciting and full as it might be in other places, it being
almost too focused on academic success at the expense of other interests. While academics are very
important here, McDonald claimed that we reap the rewards of what we sow, and opportunity is here for a
broader experience. And so she would recommend that others attend, of course. Gunther said that she would
“probably” recommend that others attend. Graduate school has been a trying experience, and her full
position on this question will take time to mature. Ellis would recommend the university, but with
reservations. It depends a great deal on what the prospective student is interested in as a career. He claimed
that, for many students, college would be a better option than university, given the focus on immediately
applicable market skills. His experience, however, has been very good and matches his career aspirations
very nicely.

Is it advantageous that many decisions are made at the local, Faculty level, or would you rather see things
centralized? Lolas asked this question, and McDonald responded that she would prefer to see student
support services centralized as a way to create wider connections with students across the faculties. For
Gunther, it can sometimes be a struggle to get results when certain sorts of centralization are considered.
She mentioned Central Stores and the wait for important but small work to get done. At the same time, her
workspace (office and lab space) is exceptional in IQC, although she is aware that her experience is not
shared by everyone. How is the allocation of capital resources being managed so as to address these things?

Collington asked about alternative streams in graduate school where enhanced focus on skills other than
purely discipline-based pursuits are found. Gunther responded by saying that academic tracks predominate
here, with entrepreneurial activities a close second. Otherwise, there is no real option in her experience.

Session III – Are we Meeting Our Students’ Expectations Fully (Part 2)?

[connection to Strategic Plan themes “Outstanding Academic Programming” and “Experiential Education
for All”]

Introduction: Mario Coniglio, Associate Vice-President, Academic

Slides used in Coniglio’s introduction can be seen here: https://uwaterloo.ca/secretariat-general-

There are opportunities for university co-op students to acquire the soft skills that the student panel
mentioned, but the challenge is to find ways to get these skills to students outside the co-op streams.

It is not possible that we will ever fully meet our students’ expectations, but our ambition must be toward
continual improvement and adjustment, and much of this is driven by execution of our strategic planning
themes. One main challenge is diversity – a diversity of students in their backgrounds, their language skills,
their ambitions, their expectations, their plans for after their degrees. Further, our stakeholder groups
represent additional diversity, in their expectations of us and in their particular interests.

The university tries to meet the challenge of diversity through initiatives to promote high quality teaching,
instructional development, enhanced graduate student supervision and quality teaching and learning space.
Further, the university is focusing on enhancing graduate professional and transferable skills, on enhanced
communications skills, and on improving course evaluations.
Fondacaro made a presentation on “co-op 2.0,” the next stage of co-op delivery at the University of Waterloo. Slides used in his presentation may be seen here: https://uwaterloo.ca/secretariat-general-counsel/sites/ca.secretariat-general-counsel/files/uploads/files/session_3_fondacaro_ee_board_retreat_4dec2015.pptx

Co-op is the university’s key differentiator. It shows dramatic dividends in the employability of our graduates, and mitigating risk in connection with this program is an important objective of the university. Management of these risks must recognize and properly respond to the diversity that we face every day, both among our students and among our deep pool of employers. We must understand that co-op holds the potential for a wide range of successful outcomes, and we must be careful to celebrate these outcomes and map their impact properly.

Co-op 2.0 allows the university to build flexibility and relevance into our co-op programs so as to help us address diversity properly as a risk management strategy. The opportunity for specialization is an important component of a renewed co-op initiative. Further, focus must be sharpened on the support we offer for our students on work terms, especially their first work terms. Specific courses help co-op students learn some of the soft skills they need to flourish, both in their co-op work terms and in their longer term careers. In development are alternatives for personalized work-integrated experiences.

Pretti presented material on the EDGE program, the new experiential education certificate. Slides used in her presentation are included in Fondacaro’s presentation, beginning at slide seven.

This program makes an attempt to answer the concern non-co-op students have that co-op tends to take most of the university’s attention. It is intended to deliver essential career seeking skills, and to identify and articulate some of the important skills that are imparted in the course of a non-co-op degree. The program will be delivered through a series of courses delivered at different moments in the undergraduate degree, based on skills identification, career essentials, self- and industry-exploration, among other targets. The course work will be coupled with curricular or co-curricular community or work-based experiential education, with continual reflection on learning goals.


The Centre for Extended Learning has been working in distance education and now online education for 50 years. Currently, the online programs and courses are very interactive and community based. Caputo presented statistics on the volumes of courses delivered online and the numbers of students involved. Students appreciate the flexibility of online learning, and in turn accessibility is increased, our reach is enhanced, and the internationalization of the university is supported. The courses are high-capacity and heavily subscribed, and there are important efficiencies to be realized through the advanced technology deployed in support of online learning.

To extend our existing advantages, we must do better at packaging our offerings into credentials. We can do more with flipped/blended courses, and we can integrate learning materials more thoroughly as a substitute for conventional text books. A focus on lifelong learning and the non-traditional learner is another avenue to be explored. Open learning and open Waterloo courseware are additional innovations underway in online learning.
But there are trends and pressures at work here that must be acknowledged and managed. Content is everywhere, and competition is acute. The unbundling phenomenon is something to be considered very carefully and understood so as to deploy it to the advantage of our students and the institution. And there is increasing interest in the recognition of prior learning and co-curricular learning. To enable transformational change in these areas, the flipped classroom must be fully understood, and available face-to-face time must be highly valuable. We are moving toward flipping entire programs, rather than simply flipping courses – programs could be built with necessary components of fieldwork, experiential opportunities, mentoring, entrepreneurship, internship, online study and participation, and the like. This would certainly differentiate the University of Waterloo, providing a unique approach to effective learning.

Q: How do we reconcile the need for soft skills based in wide human interaction with the move toward online education? Only universities offer live contact between researchers and students, and this is one of the principal reasons why students continue to choose the real campus. A: The WatPD online program is predicated on the real world experience gained in the work place.

Q: Marital status must be kept in mind as affecting the need of the student. A: Yes, this adds to our diversity.

Q: Is there a shift toward outcomes-based education, and is it a better model than what obtains on the ground today? It is consistent with the language that both students and employers use? And what are the biggest obstacles? A: The new Waterloo Works system allows us to develop data on what employers are looking for across a variety of sectors, and this represents a tremendous opportunity for development. We must work very hard to integrate a consistent language to describe how this approach differs from the traditional and from our competitors, and the value that we are adding to our students’ experience.

Q: Why is our program better than all the others? What should compel any particular student to come here? A: The large, diverse base of employers, probably the largest in the world, can facilitate doing whatever you want with the proper coaching. This is unique to us, and while others may aspire to join us in this position, they are all very far behind. We offer access to a tremendous large and diverse employer base. With respect to the quality of the education we deliver, the students we attract are top notch, and this continues to attract employers to our students. This is a clear differentiator for the University of Waterloo.

Q: Are there any year-long co-op options available? A: No, not at the moment, although there are eight month work terms available in Engineering. There are positives and negatives to longer work terms, and we continue to consider our options. And there are opportunities to introduce greater flexibility in Co-op 2.0.

Q: If we are trying to enhance our brand by reference to experiential education, are we actually diluting our differentiating strength in co-op? Many institutions claim experiential education as a differentiator. A: We must continue to focus on co-op as the principal differentiator, and if we are to make change, we must make it strategically and purposively to ensure we continue to lead.

Q: What can we know about the rate at which co-op students fail to complete their programs as co-op students? A: The rate tends to be fairly constant, notwithstanding the fact that our co-op student numbers continue to expand. This means that this will likely be steady state into the future. The number one reason why students do not take advantage of co-op is the lengthening of their programs.

Q: Why would employers go to other schools for co-op students, and not here? A: The volume managed at our university means that some smaller schools can sometimes move more successfully through the hiring process than we can. We are looking at technological enhancements to improve in this respect.

Hamdullahpur suggested that a lack of communication skills and teamwork skills are the clearest weaknesses in our co-op students. But co-op remains our biggest differentiator and a key factor in our university’s success. This will certainly benefit the university as the province moves toward a new funding formula.
Lunch Speaker: Tony Chambers  
Centre for the Study of Students in Post-Secondary Education  
Ontario Institute for the Study of Education  
[Educating our Students to be Tomorrow’s Citizen Leaders]

Orchard introduced Tony Chambers, our guest speaker.

Chambers presented engaging material on “Educating our Students to Be Tomorrow’s Citizen Leaders.” Slides used in his presentation may be seen here: https://uwaterloo.ca/secretariat-general-counsel/sites/ca.secretariat-general-counsel/files/uploads/files/lunch_chambers_board_retreat_4dec2015.pptx

He congratulated the Board of Governors for being interested in the topic and for addressing it through the retreat. Such interest in students is new for governing boards, who most traditionally have been focused on finances, buildings and the like. The student experience, however, is new terrain for boards, generally speaking.

What is the student experience? It is a confluence of conditions in and around campus environments that impact the degree to which students engage with others, their environments, in which students develop knowledge and skills, and their own sense of themselves. We must try to understand this both in terms of student expectations of their university, and the institution’s expectations of them. The post-secondary education environment is going through a dramatic transformation, based in changes in the financial models and a variety of pressures demographically. We must be mindful that the current generation of students is the first generation whose standard of living will be lower than their parents. This is a fact that we must confront.

There are several disruptive influences on universities today, not the least of which is the idea of new categories of achievement. There is something afoot we might call “certificate mania.” Is what we’ve been known for in the past standing in the way of what we could be in the future?

Students are concerned about money, about debt, and about the value they will receive from their investment in education. It is arguable, however, that students and parents are both the victims and the perpetrators of the cost escalation – high end fitness facilities, high end residential facilities, amenities that, a generation or two ago, were unheard of. It seems that students want to have things as good when at university as they had at home before they moved away. This leads to a victimization discourse, and universities tend to respond to this by trying to fix it.

We know that we must engage in high impact practices to maintain value in the university experience. Service learning, collaboration in research with high achieving faculty, the preparation of students to be the type of citizen leaders we want them to be. For this last point, we currently do not have a way to assess our success in this respect. And do we care what kind of leaders they will become when they leave our campus? Are we preparing leaders, or are we preparing workers? Why does this matter? The economic pressures to get a job seem to detract from the need to train leaders at our institutions. And while we must prepare our students for the workforce, we also must continually focus on the potential of each student to assume a leadership position when they leave the university. Student success dimensions reside in access, persistence, performance, acquisition and impact.

Are we able to admit students that predict a profile of the graduates we want? This would be an alternative to basing our admission decisions on high school grades, which, as it turns out, do not necessarily predict the leadership potential of young people. To move in this direction, we must think carefully about the type of graduate we want to see emerge from their experience.
Q: Should we spend less time trying to make predictions about the future, and spend more time building agile institutions that easily adapt to changing circumstances? A: We can never know all that we need to know, such that it is not possible to perfectly predict what comes next. The information overload is growing exponentially, and whatever we know at the moment is the best we can do to support our decisions.

Q: Might the model put forward in this speech lead to the overthrow of many of the pillars of society that have led to so much oppression over the history of western culture? A: Yes, these ideas have the potential to radically transform things, and we must be aware of this and do our best to understand this.

Session IV – Governors’ Roundtables

Members divided into four roundtables to discuss a series of questions prompted by the morning presentations. Discussion at each table was facilitated by a member of executive administration.

Session V – Debrief on Governors’ Roundtables

A representative from each roundtable took about fifteen minutes to discuss perspectives on issues emerging from the Session III discussions, and to seek feedback from others. Conversation was facilitated by Ian Orchard.

Table 1

1. If you are an employer, what are you looking for in a recent grad from uWaterloo? Have you found our students any different from those from other universities?

   Employers talked about academic excellence as an expected quality, plus capstone courses, prior experience, good communication skills, polish and professional skills, active listening skills, ability to be reflective. “Soft skills” is a misnomer. This is a critical aspect of success, and it’s difficult to separate it from other sorts of skills. UW students expect high earnings, are very ambitious, and want to advance quickly. It’s otherwise hard to make generalizations about our students.

2. The University is known for its academic rigour. Without compromising this, how can we help students understand that spending time on activities beyond academics is important for their career as well?

   How do you get students out to do other things? It is often self-selecting. It depends on the type of students we admit. If there’s no measurement or outcome associated with an activity, then there’s no “reward,” and therefore the incentive is low. A co-curricular record will address some of this, and an e-portfolio is another option. Building a general sense of community on campus will help with the idea of extracurricular activities. An over-emphasis on competitiveness will detract from participation, and if we have a large percentage of local students they may be getting their activities elsewhere. And we must be careful not to dilute the academic core of our programs by virtue of our emerging focus on co-curricular opportunities. We must never apologize for who we are - an institution that takes great pride in academic excellence.

3. When you think about your university experience, what are the things that you (Board members) now realize were the most impactful in shaping your career and life?

   Four points – learning to work with others; good professors have a huge role in shaping students, both in teaching but also in the care and attention they bestow; the possibility of international travel; the network that develops and the engagement with others.
Table 2

1. Waterloo, like most other research-intensive universities, experiences a tension between research and teaching at the policy, academic unit, and individual faculty levels. Rightly or wrongly, teaching is usually regarded as the underdog (e.g., faculty sometimes request “teaching relief,” but never “research relief!”). The situation at Waterloo is improving, and is seen especially clearly through numerous recent initiatives in the strategic plan. Philanthropy, however, still seems to be focused primarily on the research mission of the institution.

Q.: How can Waterloo encourage more significant philanthropy toward the teaching mission? What would attract potential benefactors to the teaching mission?

If you could find a way to package teaching excellence that would appeal to donors, then we could find a way through this question. Particularly inspiring teachers would be one opportunity. Perhaps we could raise funds for a new teaching facility, or for more interactive space. Maybe a career path for lecturers that would see them advance through robust ranks based on their teaching. We mustn’t forget that high quality researchers do attract students, and also funding. Attracting a Nobel laureate would be an opportunity to attract funding and students at the same time. Why not create endowed teaching chairs? We do ask donors for contributions to teaching, although there have been very few projects recently that are devoted to teaching.

2. We recognize the wide diversity of students entering university, which contributes to making our role as educators a challenging one.

Q.: One can argue that it is important that universities also graduate a diversity of students, presumably reflecting a different kind of diversity from what came in. What should that diversity look like?

There is some self-selection by applicants, and we could widen the diversity of our applicants by critically reflecting on our entrance requirements, especially in Mathematics.

3. Waterloo prides itself on having co-op programs, an enviable record of spinoff companies and a strong reputation for producing highly sought-after, employment-ready graduates. Industry-related professional organizations, to varying degrees, influence some of our academic programs. This is seen especially clearly in accredited, professional programs like engineering, optometry and accounting. The private sector, however, occasionally tries to shape the curriculum for non-accredited, non-professional programs.

Q.: What are the pros and cons of allowing private sector interests to shape the learning outcomes of our academic programs? How can this be made to be a win-win for all concerned without compromising institutional autonomy and academic freedom of the professoriate.

This is situational. The institution will bend to industry standards or professional standards depending on the demands of the sector, especially in professional disciplines where accreditation is important. With respect to industry, the institution must not feel beholden to a sector, and any collaboration on outcomes must be strategically developed. Any collaboration must fit into the structure of the university, and must fit into the university’s context, i.e., top tier schools tend to resist these sorts of linkages. This question came up during the student panel as well, when the graduate student referred to industrial engagement as a distraction.
Table 3

1. Do standard courses outlive their usefulness?

In some cases, yes, but not in all. It depends on disciplines, and whether we’re measuring performance or measuring learning. Course structures could always be improved upon, and the “why” of course content ought to be under continual scrutiny. Some may think that UW is already at a crossroads between learning and performance, and we should start with alternatives to co-op for experiential learning opportunities, measuring outputs and not just inputs. An output based approach is not as time bound. We could break down existing courses to find core strengths, and blend strong elements in new ways. Success is achieved when students are able to apply their learning to solving real world problems. More applied opportunities would help in this direction.

Q: Was there any discussion of the Oxford/Cambridge tutorial model? No, but the table did discuss a combination of traditional lectures, active learning, online delivery and other forms of course delivery.

There are options to enhance the effectiveness of learning (and performance) in traditional courses, through defining more clearly what students should get from their courses, by stimulating the “why” of the course and not just the “what,” and by blending traditional and active learning.

A preference was expressed for a hybrid approach to course design, considering adding some learning modules and experiential element to traditional courses. Funding for these elements will continue to be a challenge. And because foundational learning continues to be the key, the most difficult part is to determine which traditional courses must be complemented with applied learning.

Table 4

1. Co-op and other forms of work-integrated learning are getting significant attention from media, government, and other post-secondary institutions. While no surprise to Waterloo, others are becoming aware of the value of co-op programs in contributing towards positive graduate outcomes, such as employment rates and relevance of post-graduate employment.

Q.: Given our role as a leader in co-op, should Waterloo consider becoming 100% co-op? What might that look like? What risks need to be considered?

The consensus was that we ought to allow 100% opportunity, if not 100% required co-op. Do not sacrifice quality in the pursuit of volume. Risk must be managed, but in the right circumstances it must be taken. In a sense, we learn more from what doesn’t work, and we ought to acknowledge that and progress through our failings. We must maintain a sense of urgency, and keep advancing at a pace quicker than those behind us.

2. There is an increasing pressure for universities to prepare graduates for careers. In addition, there are a variety of ways that experience and education can be delivered.

Q.: What are the risks for Waterloo to consider in “unbundling” education and expanding its offering of credentials, particularly those independent of academic courses/programs?

We must scrutinize what it is we think we can do better than anyone else, and consider credentialing or unbundling to emphasize that. Things we could credential may already exist in one form or another inside our programs, and we might find that we already meet the credentialing promise to the students. It’s a matter of communicating this more expertly. We must prepare students for lifelong learning, lifelong adaptability, so as to prepare them properly for a multitude of careers.
3. The demographic shift in domestic undergraduate student populations has led to an increase in international student admissions. Many of those students are attracted to Waterloo because of the co-op program and the opportunity for work experience in a North American organization.

Q.: Other than English language challenges, what other kinds of barriers could international students face in the co-op program? What risk does this pose for the university and how can we mitigate this risk?

There are other challenges and barriers, and the risks are primarily reputational. If the promises we make to our students are not being met, then the reputation of the university will suffer. This thinking applies across the board, not just in the case of international students and not just with respect to our co-op students. Could we mitigate risk by looking at different types of work terms, different ways for students to learn to adapt to different workplace cultures? We should think about orientation as a continual process throughout our students’ experience, especially committing resources to the first year experience. There should be less focus on high school grades as a predictor of success, and more focus on other factors.

Closing Comments – What Does the Future Hold for the Student Experience at UW?

Speaker: Feridun Hamdullahpur
President and Vice-Chancellor

Thank you to Secretariat staff and to all in attendance.

Hamdullahpur quoted from Mark Twain to inspire us to dream and discover. We are perfectly qualified to have this conversation about the future of education at the University of Waterloo. Academic excellence is of the utmost importance, and strong faculty is vitally important. But of course we cannot take our students for granted. We are facing a new world, a different world. Are we preparing our students to take leadership roles and to ensure a good, healthy future for our communities? Academic freedom is central to the university’s mission, and this has been the case for a thousand years. Our mission of teaching and the creation of new knowledge remains as it always has. But we are able to adapt, we must be able to adapt, not whimsically, but thoughtfully, purposefully, strategically. For us, our strategic plan is an important tool for guiding us into the future. Together with the new resource allocation model and the strategic enrolment management plan, we will be assured of a solid future for the University of Waterloo.
## UNIVERSITY OF WATERLOO
### 2015/16 Operating Income Budget

**Board, 2 February 2016**

<table>
<thead>
<tr>
<th></th>
<th>Estimated 2015/16</th>
<th>Increase (Decrease) 2015/16</th>
<th>Estimated 2015/16</th>
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<td>2,864</td>
<td>646,194</td>
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### NOTES TO 2015/16 OPERATING INCOME

[1] Policy Levers are based on Waterloo's share of a reduction from the Ontario system. The change in figure reflects updated information received from the Ministry of Training, Colleges and Universities (MTCU).

[2] An increase in international undergraduate first year enrolment contributed to the variance against the opening budget.

[3] The estimate has been updated to reflect actual Fall 2015 domestic graduate enrolment and a revised estimate of Winter 2016 MAcc enrolment. Forecasted graduate enrolment fell below the Fall 2014 level which results in a reduction in grant.

[4] The allocation is based on receiving full funding for the estimated growth in 2015/16. Although domestic enrolment decreased marginally, grant revenue increased as a result of a higher than estimated number of students enrolling in programs that have a higher grant value per student.

[5] The undergraduate tuition has been updated to reflect actual tuition collected in Spring and Fall 2015 and an updated forecast of enrolment for Winter 2016. The decrease is a result of lower than estimated new admits for Fall 2015.

[6] A net increase in graduate tuition reflects growth in international enrolment beyond the estimate, but a decrease in domestic enrolment.

[7] Miscellaneous income includes: Health Services and Optometry OHIP and professional services income, application processing fees, non credit tuition, other student related fees, rental income, and other general revenues. Many of these items have offsetting expenses.
### UNIVERSITY OF WATERLOO
#### 2015/16 Operating Expense Budget

Board, 2 February 2016

<table>
<thead>
<tr>
<th></th>
<th>2015/16 ONGOING</th>
<th>2015/16 ONE-TIME TEMPORARY</th>
<th>TOTAL</th>
<th>% of Income</th>
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Notes:

[1,5]: [Note explanation]
[2]: [Note explanation]
[3,5]: [Note explanation]
**UNIVERSITY OF WATERLOO**

**2015/16 Operating Expense Budget**

**Board, 2 February 2016**

<table>
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<tr>
<th></th>
<th>2015/16 ONGOING</th>
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<th>2015/16 ONE-TIME TEMPORARY</th>
<th></th>
<th>2015/16 TOTAL</th>
<th>% of Income</th>
<th>Notes</th>
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<td>2015/16 One-Time</td>
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<td>Increase</td>
<td>Revised One-Time</td>
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<td>(1,221)</td>
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NOTES TO THE 2015/16 OPERATING EXPENSE BUDGET

1. The net increase in current salaries and wages includes a reallocation of budget from non-salary to salary accounts by academic and academic support units for new staff and faculty positions and other salary cost adjustments.

2. Temporary funding for a graduate scholarship was previously provided on an ongoing basis and is now being redistributed to undergraduate scholarships/bursaries.

3. Income sharing for existing programs is allocated to the faculties on a slip-year basis. Graduate growth allocations are funded on a calendar-year basis. The ongoing cumulative income sharing amounts, from inception to date, are as follows:

\[
\begin{align*}
\text{Differential tuition} & \quad 18,529 \\
\text{Graduate expansion/growth} & \quad 8,650 \\
\text{Graduate international growth} & \quad 3,147 \\
\text{Undergraduate enrolment expansion} & \quad 40,488 \\
\text{Undergraduate international tuition} & \quad 43,321 \\
\text{Graduate course based masters} & \quad 7,397 \\
\text{Total} & \quad 121,532
\end{align*}
\]

To accommodate growth, academic support units receive supplemental budget increases.

4. Undergraduate and graduate programs holdback is a portion of the grant and tuition related to growth and held at the centre to support new initiatives and to generate the university fund necessary for transition to the new budget model.

5. The net decrease in supplies and expenses results from the following: the distribution and transfer of income sharing; the reallocation of budget from non-salary to salary accounts by academic and academic support units; a 2.5% expenditure reduction; and other miscellaneous adjustments.

Supplies and expenses is the total of non-salary budgets in faculties and academic support units that are not specifically identified elsewhere in the budget. Based on 2014/15 actual expenses, included in this number are the following items:

\[
\begin{align*}
\text{Equipment, maintenance and rentals} & \quad 20.1 \\
\text{Travel and hospitality} & \quad 11.4 \\
\text{Supplies} & \quad 10.5 \\
\text{Computing, including software} & \quad 8.6 \\
\text{Contracted services} & \quad 7.5 \\
\text{Consulting} & \quad 3.3 \\
\text{Telephone} & \quad 3.0 \\
\text{Purchases for resale} & \quad 2.7 \\
\text{Printing} & \quad 2.2 \\
\text{Postage} & \quad 2.0 \\
\text{Total} & \quad 71.3
\end{align*}
\]

6. The expenditure reduction of $6.6M has now been allocated against salary and non-salary accounts as determined by each unit.
FOR APPROVAL

1. **Recommended Tuition Fees 2016/17**
The Ministry of Training, Colleges & Universities (MTCU) introduced a revised tuition framework in 2006 which established distinct tuition levels for each new cohort of incoming students. This has resulted in a significant increase in the number of assessable tuition rates which are now based on program, year of entry, and year of study. Consequently, the major tuition categories have been identified on the attached “Recommended Tuition Fee Increases 2016/17” schedule and examples are provided for a range of programs and effective dates.

MTCU’s new tuition framework was issued in March 2013 and applies to the 2013/14 to 2016/17 years and limits the overall average tuition fee increase across all domestic programs to 3% per year with other limits imposed based on program and year of study.

The resulting tuition increases can be categorized as follows:

**Undergraduate Students (Domestic)**
- “Regulated” programs - year 1 3.0%
- “Regulated” programs - upper years 3.0%
- “Deregulated” programs - year 1 (see exceptions) 5.0%
- “Deregulated” programs - upper years (see exceptions) 4.0%/5.0%
- “Deregulated” AFM, Biotech/CPA, CFM, Math/CPA – all years 1.0%
- Accountancy Diploma – all years 2.0%
- Global Business & Digital Arts – all years 3.0%
- Pharmacy – all years 1.0%

**Graduate Students (Domestic)**
- Research Master & PhD programs 1.0%
- Specifically identified Master and Diploma programs 1.0% - 5.0%

**International Students**
- Undergraduate programs 9.0%
- “Deregulated” AFM, Biotech/CPA, CFM, Math/CPA – all years 1.5%
- Graduate programs except research programs 9.0%
- Research Master & PhD programs 3.0%
- Specifically identified Master and Diploma programs 3.0% - 15.0%
The variability in tuition increases is driven by:
- the relative competitiveness of our current tuition rates with our Canadian peers
- existing limits imposed by MTCU for domestic tuition include an overall cap of 3%, a 3% limit for “regulated” programs, and a 5% limit for “deregulated” programs
- international undergraduate and masters programs tuition includes an amount to offset the MTCU imposed $750/student International Student Recovery and the $75/student Grant-in-lieu of Taxes reduction

2. Recommended Changes to Incidental Fees and Co-op Fee

**Engineering Society Fee**
It is recommended that the Engineering Society Fee, assessed and collected each term from all full-time on-campus undergraduate engineering students, be increased effective Spring term 2016 as follows:

<table>
<thead>
<tr>
<th></th>
<th>Current Fee</th>
<th>Proposed Fee</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate full-time</td>
<td>$15.45</td>
<td>$15.75</td>
<td>2%</td>
</tr>
</tbody>
</table>

Comments:
- The fee increase was approved at the Engineering Society Joint Annual General Meeting on July 5, 2015
- The previous increase from $15.22 to $15.45 per term (1.5%) was effective winter term 2015 to reflect the change in CPI
- The fee is refundable through the Engineering Society during the first three weeks of the term

**Imprint Fee**
It is recommended that the compulsory undergraduate student newspaper (Imprint) fee be increased from $4.30 per term to $4.35 per term (1.2%) effective Spring term 2016.

Comments:
- The fee is compulsory for all full-time on-campus undergraduate students but refundable during the first three weeks of the term
- The fee was previously increased in May 2015
- The fee change was approved at the Imprint’s Board of Directors’ meeting on November 2, 2015

**Co-op Fee**
The undergraduate Co-op Fee assessed to students registered in co-operative education programs is recommended to increase 2.7% from $658/term to $676/term effective Spring term 2016. The graduate Co-op Fee assessed during a co-op term to students in selected programs is recommended to increase 2.7% to $676 effective Spring term 2016.

Dennis Huber  
Vice President,  
Administration & Finance
### 1. Graduate Plans, Effective Spring 2016

<table>
<thead>
<tr>
<th></th>
<th>Domestic [1, 2, 3]</th>
<th>International [1, 2, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Master research graduate plans</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate Master of Science tuition per term</td>
<td>1.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>All PhD research graduate plans</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Example:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Graduate PhD of Science tuition per term</td>
<td>$2,460</td>
<td>$6,446</td>
</tr>
</tbody>
</table>

### 2. Special Graduate Plans, Effective Spring 2016

<table>
<thead>
<tr>
<th></th>
<th>Domestic [1, 2, 3]</th>
<th>International [1, 2, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examples:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master of Architecture</td>
<td>5.0%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Master of Engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition range per term</td>
<td>$1,394 - $2,789</td>
<td>$4,010 - $8,020</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master of Management Sciences</td>
<td>3% - 5%</td>
<td>3% - 5%</td>
</tr>
<tr>
<td>Tuition range per term course</td>
<td>$614 - $3,980</td>
<td>$614 - $3,980</td>
</tr>
<tr>
<td>Master of Taxation</td>
<td>2.0%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Tuition per term course</td>
<td>$2,957</td>
<td>$3,521</td>
</tr>
<tr>
<td>Examples:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master of Public Health</td>
<td>1.0%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Master of Climate Change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition per term</td>
<td>$2,460</td>
<td>$6,482</td>
</tr>
</tbody>
</table>

### 3. Special Graduate Plans, Effective Fall 2016

<table>
<thead>
<tr>
<th></th>
<th>Domestic [1, 2, 3]</th>
<th>International [1, 2, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Business, Entrepreneurship and Technology</td>
<td>5.0%</td>
<td>9.0%</td>
</tr>
<tr>
<td>Tuition per term</td>
<td>$11,509</td>
<td>$14,251</td>
</tr>
<tr>
<td>Examples:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master of Quantitative Finance</td>
<td>5.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Master of Actuarial Science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition range per term</td>
<td>$4,260 - $11,910</td>
<td>$4,260 - $11,910</td>
</tr>
<tr>
<td>Examples:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master of Development Practice</td>
<td>2% - 3%</td>
<td>3% - 9%</td>
</tr>
<tr>
<td>Master of Public Service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition range per term</td>
<td>$2,534 - $5,856</td>
<td>$6,704 - $10,492</td>
</tr>
</tbody>
</table>

### 4. Special Graduate Plan, Effective Winter 2017

<table>
<thead>
<tr>
<th></th>
<th>Domestic [1, 2, 3]</th>
<th>International [1, 2, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Accounting</td>
<td>2.0%</td>
<td>15.0%</td>
</tr>
<tr>
<td>Tuition per term</td>
<td>$7,452</td>
<td>$11,824</td>
</tr>
</tbody>
</table>
5. Undergraduate Plans, Effective Spring 2016

<table>
<thead>
<tr>
<th>Program</th>
<th>Domestic [1, 2, 3]</th>
<th>Upper Years</th>
<th>All Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Science/Business Administration, Double Degree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computer Science</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engineering, including Nanotechnology &amp; Software Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics/Business Administration, Double Degree</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics, Financial Analysis &amp; Risk Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Optometry</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tuition range per term</strong></td>
<td>$4,306 - $7,742</td>
<td>$4,306 - $7,742</td>
<td>$13,441 - $20,740</td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition, Engineering terms 1 A &amp; B</td>
<td>$7,040</td>
<td>$17,877</td>
<td></td>
</tr>
<tr>
<td>Tuition, Engineering terms 2 A &amp; B and terms 3 A &amp; B</td>
<td>$7,040</td>
<td>$17,877</td>
<td></td>
</tr>
<tr>
<td>Tuition, Engineering terms 4 A &amp; B</td>
<td>$6,776</td>
<td>$17,877</td>
<td></td>
</tr>
<tr>
<td>Global Business &amp; Digital Arts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tuition per term</strong></td>
<td>$5,952</td>
<td>$5,952</td>
<td>$13,614</td>
</tr>
<tr>
<td>Pharmacy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tuition per term</strong></td>
<td>$9,274</td>
<td>$9,274</td>
<td>$22,691</td>
</tr>
<tr>
<td>Accountancy and Financial Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biotechnology/Chartered Professional Accountancy (CPA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Computing and Financial Management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mathematics/Chartered Professional Accountancy (CPA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition, Mathematics/CPA terms 1 A &amp; B</td>
<td>$3,210</td>
<td>$18,104</td>
<td></td>
</tr>
<tr>
<td>Tuition, Mathematics/CPA terms 2 A &amp; B, 3 A &amp; B and 4 A &amp; B</td>
<td>$8,189</td>
<td>$18,104</td>
<td></td>
</tr>
<tr>
<td>All other undergraduate plans not specifically listed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Example:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition, All faculties terms 1 A &amp; B</td>
<td>$3,210</td>
<td>$12,415</td>
<td></td>
</tr>
<tr>
<td>Tuition, All faculties terms 2 A &amp; B, 3 A &amp; B and 4 A &amp; B</td>
<td>$3,210</td>
<td>$12,415</td>
<td></td>
</tr>
<tr>
<td>Tuition, Arts, AHS, Environment international per term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition, Science international per term</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition, Mathematics international per term</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

6. Undergraduate Plan, Effective Winter 2017

<table>
<thead>
<tr>
<th>Program</th>
<th>Domestic [1, 3]</th>
<th>International [1, 3]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting Diploma Program</td>
<td>2.0%</td>
<td>15.0%</td>
</tr>
<tr>
<td><strong>Tuition per term course</strong></td>
<td>$1,863</td>
<td>$2,956</td>
</tr>
</tbody>
</table>
Notes to the Recommended Tuition Fee Increases:
[1] Plus applicable incidental fees.
[2] Plus co-op fees and work report marking fees where applicable.
[3] All tuition amounts are for a four-month term and are the maximums that can be charged in any term.

Background Notes:
1. The Board of Governors has the power (as given in the University of Waterloo Act) to set tuition fees at any level it wishes. In practical terms that power is constrained by the provincial government, which will deduct from its grants any tuition charges in excess of the amount stipulated by the government. On March 28, 2013, MTCU announced a new four-year tuition framework effective 2013-14 to 2016-17. The constraints are:
   a. The framework applies to domestic tuition rates only.
   b. The overall annual average rate increase is capped at 3%. Rate increases compound each year.
   c. Tuition rate increases are regulated differently for two groups:
      i. All graduate programs and listed professional undergraduate programs: A maximum annual increase of 5% for students who start their program on or after 2013-14 and 4% for students who were registered at the institution in 2012-13 and are continuing in their program.
      ii. Arts & Science and other undergraduate programs: A maximum annual increase of 3% for all students.

2. In 1996-97, to help students in financial need, universities were required to establish student financial aid programs that were funded from additional revenue generated from tuition rate increases. This requirement applies to domestic tuition rates and domestic students only. Each year, universities are required to set aside a portion of the additional tuition revenue resulting from annual rate increases. The calculation of the annual increment to the tuition set aside fund has varied over time. Under the current Ministry tuition framework the fund is incremented annually by 10% of the additional tuition resulting from the tuition rate increases, and by the annual percentage increase/decrease in enrolment.

3. Undergraduate students enrolled in Co-operative plans serviced by the Co-operative Education and Career Action department pay, in addition to the tuition fee, a co-op fee in specified terms. The calculation of this fee is based on costs of administering the work-term program and is in accordance with the methodology approved by the government. The government has also agreed to allow an addition to the tuition fee for the cost of marking work-term reports, according to an approved methodology.

Subject to the approval of the Board of Governors
### Student Villages
*(includes Village 1, Ron Eydt Village & Mackenzie King Village)*

<table>
<thead>
<tr>
<th>Student Villages (Two-term fee)</th>
<th>2015/16</th>
<th>2016/17</th>
<th>Increase</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="#">Dorm Style:</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>5,961</td>
<td>6,169</td>
<td>3.5</td>
<td>772</td>
</tr>
<tr>
<td>Interconnecting</td>
<td>5,689</td>
<td>5,888</td>
<td>3.5</td>
<td>736</td>
</tr>
<tr>
<td>Double</td>
<td>5,347</td>
<td>5,534</td>
<td>3.5</td>
<td>692</td>
</tr>
<tr>
<td><a href="#">Suite-Style:</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single room (4-bedroom suite style)</td>
<td>7,115</td>
<td>7,364</td>
<td>3.5</td>
<td>921</td>
</tr>
</tbody>
</table>

Recommendation: That the Student Villages 2016/17 room rates are approved effective Fall 2016 term

### UW Place

<table>
<thead>
<tr>
<th>UW Place (Two-term fee)</th>
<th>2015/16</th>
<th>2016/17</th>
<th>Increase</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="#">Suite Style:</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Double Room (Beck Hall)</td>
<td>5,616</td>
<td>5,813</td>
<td>3.5</td>
<td>727</td>
</tr>
<tr>
<td>Single Room (2-bedroom suite style)</td>
<td>6,429</td>
<td>6,654</td>
<td>3.5</td>
<td>832</td>
</tr>
<tr>
<td>Single Room (3- or 4-bedroom suite style)</td>
<td>6,085</td>
<td>6,298</td>
<td>3.5</td>
<td>788</td>
</tr>
</tbody>
</table>

Recommendation: That the UW Place 2016/17 room rates are approved effective Fall 2016 term

### Columbia Lake Village

<table>
<thead>
<tr>
<th>Columbia Lake Village (Two-term fee)</th>
<th>2015/16</th>
<th>2016/17</th>
<th>Increase</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single room (4-bedroom townhouse)</td>
<td>5,684</td>
<td>5,883</td>
<td>3.5</td>
<td>736</td>
</tr>
</tbody>
</table>

Recommendation: That the Columbia Lake Village 2016/17 room rate is approved effective Fall 2016 term

### Minota Hagey
*Residence for VeloCity*

<table>
<thead>
<tr>
<th>Minota Hagey (One-term fee)</th>
<th>2015/16</th>
<th>2016/17</th>
<th>Increase</th>
<th>Monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single room</td>
<td>3,107</td>
<td>3,216</td>
<td>3.5</td>
<td>804</td>
</tr>
</tbody>
</table>

Recommendation: That the Minota Hagey 2016/17 room rate is approved effective Fall 2016 term
## Housing and Residences
### 2016/17 Residence Fees

**Columbia Lake Village**  
*Single Grad Residence*

<table>
<thead>
<tr>
<th>Columbia Lake Village (One-term fee)</th>
<th>2015/16 $</th>
<th>2016/17 $</th>
<th>Increase %</th>
<th>Monthly $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single room (2-bedroom townhouse)</td>
<td>2,841</td>
<td>2,940</td>
<td>3.5</td>
<td>735</td>
</tr>
</tbody>
</table>

Recommendation: That the Columbia Lake Village 2016/17 room rate is approved effective September 1, 2016.

**Columbia Lake Village**  
*Family Residence*

<table>
<thead>
<tr>
<th>Columbia Lake Village (Townhouse style – Rent per Month)</th>
<th>2015/16 $</th>
<th>2016/17 $</th>
<th>Increase %</th>
<th>Monthly $</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-bedroom</td>
<td>1,217</td>
<td>1,241</td>
<td>2.0</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Recommendation: That the Columbia Lake Village 2016/17 rental rate applicable to full-time University of Waterloo students is approved effective September 1, 2016.
This report is submitted following the committee’s meeting of 15 January 2016.

FOR INFORMATION

1. **Hagey Hall Courtyard In-fill**
   The committee accepted for information a report relating to the use of $800,000 from the restricted contingency. Said amount is within the approved budget in order to fund change orders relating to corroded electrical conduits.

2. **Student Space**
   The committee heard a presentation on the status of a project on which the students will vote at a referendum this winter. The purpose of this project is the construction of an extension to the Student Life Center (SLC) to provide extra study and living space for the students, to support students in their quality and experience of life at the University and to foster relationships with alumni. $24M out of the total $34M for the SLC project is proposed to be funded by the students via a referendum and $10M by the University of Waterloo, as there can be no federal or provincial funding.

3. **General Oversight**
   The committee approved its terms of reference and its 2016-17 work plan. It also reviewed and accepted for information reports on:
   - capital financing commitments associated with capital projects and advises that these commitments fall within Waterloo’s board-approved debt policy
   - university real estate holdings
   - university compliance with all building codes, fire codes, safety regulations and statutory and regulatory provisions, as appropriate, in its building and properties program. Staff responsible for institutional compliance have reviewed these statutes and bylaws and have signed a declaration indicating that there are no issues of material non-compliance related to their areas of responsibility, with the one exception of the Director of Safety with regards to mitigation plans that were delayed into 2016, regarding fire safety plans and designated substances inventory
   - sustainability.

Murray Gamble
Chair
This report is submitted following the committee’s meeting of 14 January 2016.

FOR INFORMATION

1. General Oversight

   **Operating Budget.** The committee received an update from the Vice-President, Academic & Provost on performance against the 2015-16 operating budget to date, and preliminary planning for the 2016-17 operating budget.

   **Investment Fund Performance.** The committee reviewed the performance of the registered pension plan, endowment fund, IQC trust fund, and payroll pension plan portfolios as at 30 September 2015.

   The registered pension fund managers are generally meeting their performance objectives in that the aggregate fund for the 12 months had a market return of 5.8%; the endowment fund’s performance is below its target on a fiscal year basis; IQC trust fund’s four-year performance is ahead of the policy benchmark; and the payroll pension plan is ahead of the benchmark on a year-to-date basis and is meeting expectations.

   **Capital Financing Commitments.** The committee received a report from the Vice-President, Administration & Finance, who indicated that the university is well within its debt policy.

2. General Investment Principles

   The committee approved strengthening its general investment principles to inform its decision-making.

/saw

Satish Rai
Chair
This report is submitted to the Board of Governors following the meeting of the Governance Committee on 14 January 2016.

FOR APPROVAL

The committee is pleased to recommend the following resolution to the Board of Governors for approval:

RESOLVED that the Board of Governors approve the revised Staff to Board Election Guidelines as circulated to the Board of Governors.

Following the revision of the Staff to Board Election Guidelines in the winter 2015, and the first use of those guidelines during the election of spring 2015, the Governance Committee asked the University Secretary & General Counsel to canvass candidates to determine areas in which the guidelines might be improved. The current proposed revision (see attached marked-up version) is brought forward for approval by the Board of Governors following completion of that canvass.

FOR INFORMATION

1. Reporting of Material Risks

   The University Secretary & General Counsel briefed the committee on the impact of Policy 11, University Risk Management, and the related Risk Management Reporting Guideline, in assessing whether particular risk management decisions ought to be brought to the attention of the Board of Governors. He explained the process of risk rating and the escalation paths to be followed as a result.

2. Board Orientation

   In response to comments received through the end-of-year board self-assessment survey, the University Secretary & General Counsel is developing plans for a joint Board of Governors/Senate orientation session to be held after new governors and senators are identified and before the next cycle of meetings begins. The session will likely be a half day on a Friday at the end of April 2016.

3. Board Delegates to Senate

   The committee was advised that the process is underway at Senate to establish procedures to identify community-at-large governors interested in serving on Senate. The process involves an amendment to Senate Bylaw 3 on elections. The board is entitled to send as many as five community-at-large governors to Senate, including the Chair (ex officio) and four others.

William Watson
Chair, Governance Committee
Board of Governors – Staff Election Guidelines

Motion: To recommend to the Board of Governors the following staff election guidelines.

Staff Election Guidelines

The composition of the Board of Governors consists of “two members of the full-time staff” of the University. The election guidelines are to be “determined and established by the Board of Governors” (The University of Waterloo Act, 1972, section 11.5).

Where used in these Guidelines, the phrase “full-time staff” has the meaning assigned to that phrase in The University of Waterloo Act, 1972 and Policy 54.

Candidate Eligibility: Candidates must be full-time staff members of the University and Canadian citizens.

Nominator Eligibility: Each nominator must be a full-time staff member of the University.

Voter Eligibility: All full-time staff members of the University are eligible to vote.

Term of Office:
- The term of office is three years.
- Member “shall be eligible for re-election . . . save that an elected . . . member shall serve for no more than two consecutive terms, provided that any such elected . . . members shall be again eligible for election after the expiration of one year following the completion of two consecutive terms (The University of Waterloo Act, section 23).

Nomination Process:
- The Secretariat & Office of General Council (SOGC) will post a call for nominations to the Daily Bulletin and to the SOGC website.
- The call will stay open for 10 business days.
- Interested candidates will complete an online nomination form and submit it to the chief returning officer (CRO), SOGC. At least five nominators are required in each case.
- Candidates may provide a brief campaign statement (100 words maximum) with their nomination form and will have the option of including their email address, LinkedIn page and/or Facebook page, their contact information with their campaign statements to facilitate voter questions during the campaign period.
- Where only one nomination is received, the candidate will be declared elected by acclamation.

Campaigning:
- Official announcement of the slate of candidates, with links to their 100-word statements, will be posted to the SOGC website and the Daily Bulletin the first day of the campaign period.
- The announcement will also provide notice of the campaign period (eight business days) and voting period (five business days for regular full-time staff – electronic ballot; 10 business days for union full-time staff – paper ballots), and information about who is eligible to vote.
• Candidates are not permitted to campaign or solicit votes through email including mass messages or group distribution emails. They are allowed to respond to individual voter questions through email during the campaign period.

• Candidates are permitted to develop one final voter message (100 words maximum) for email distribution by the SOGC on the final campaigning day.

Voting:
• All regular full-time staff members will receive an email prompt to vote on the first day of the voting period. The email will provide a link to the electronic ballot and voting instructions.
• Regular full-time staff will authenticate their vote with their WatIAM userid and password.
• All regular full-time union staff will receive a paper ballot to be returned to the CRO, SOGC.

Candidate Behaviour:
• Any behaviour deemed inappropriate or in contradiction to the guidelines could result in candidates being removed from the candidate slate.
• Appeals concerning any act or decision made in implementing the guidelines for the election may be made by a candidate to the CRO, SOGC. All appeals must be filed with the CRO within two business days of the voting results being released.
This report is submitted following the committee’s meetings of 13 November 2015, 11 December 2015 and 15 January 2016.

FOR INFORMATION

1. **Cost of Living Adjustment Subcommittee**
   The committee received a report from the Cost of Living Adjustment subcommittee (COLA). The committee continues to monitor the topics of deferred pensions and salaries for pension purposes for members on long-term disability.

2. **Registered Pension Plan Investments (RPPI) Subcommittee**
   The committee received an overview of the total fund from RPPI, as well as a report on RPPI’s meetings with the fund’s global investment managers (Walter Scott, Trilogy and Oldfield). The committee has also asked RPPI to look at two passive investment options.

3. **Government Pension Plan**
   The consulting actuary informed the committee that several universities, together with their employee group representatives, participated in a discussion in regard to an Ontario university sector jointly sponsored pension plan; a report to the Ontario government should be available at the end of January 2016. Information was also provided that as part of its 2015 fall economic update the Ontario government is committed to examining the solvency framework and whether it is accomplishing what was intended. It was noted that the Quebec government has recently amended its solvency funding rules for defined benefits plans.

4. **Payroll Pension Plan**
   The Committee received a report from TD Asset Management in regard to the Payroll Pension Plan, showing that the plan remains appropriately funded.

5. **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.

/sew

Karen Wilkinson
Chair